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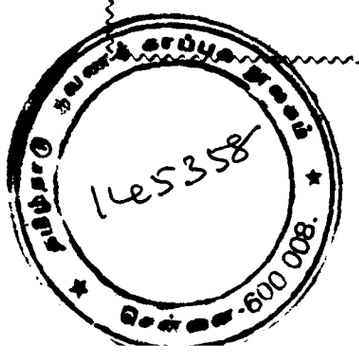

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OFFICIAL SCIENTIFIC JOURNAL OF THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

On the Psychological Adjustment of the Deaf*

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"On the Psychological Adjustment of the Deaf".—In striking contrast to our otosclerotic patients the number of such persons in the West who undergo surgical treatment for the relief or cure of their deafness is much greater. This difference is more marked in the case of women in whom Otosclerosis is much more common. The indifference towards treatment may be due to several factors *viz.*, ignorance about the possibility of a successful surgical treatment, and because of a sheltered existence of the women, deafness may not present those economic problems which force the deaf persons to seek a cure. Further, there might be different psychological attitudes among the deaf persons. Some make light of their disability specially if of moderate degree, others are affected much more, and may show various signs of anxiety neuroses. These observations gave rise to the idea of making a closer study of the psychological reactions of the deaf specially of the women. But as will be seen later,

*This study was subsidised by a special Research grant given by the Lucknow University.

we found that it was not possible for us to get the women patients to answer our questionnaire with any degree of certainty, and they were most unco-operative. Therefore, the present investigation came to be confined to men patients only.

Because, in day to day social intercourse an individual should have (*a*) the capacity to follow what is said by other people, (*b*) must be able to continue conversation intelligently and audibly, (*c*) and the capacity to co-relate thinking and conversation and (*d*) should possess employability in a suitable profession. Deafness undoubtedly creates numerous new problems. Those who become deaf, in some cases requiring the patient to effect drastic changes in his social and personal adjustment. In such cases of deafness the personality of the patient is profoundly affected and the problems and stresses created are of consequence not only to the patient's family but to society at large. All deaf patients, however, do not suffer from severe deafness, and may make a suitable adjustment to it. Their reaction to deafness and the adjustment they make to it must be a function of many variables. This study is designed to throw some light on these variables and on the larger problems relating to an individual's adjustment to deafness. A knowledge of these will undoubtedly help us in a better understanding and appreciation of the deaf and is also likely to help us in devising means to help them. We report for our results with the feeling that much more has to be known about the deaf and their problems than we have been able to present. This study, we hope, will at least provide a base line for future researches in this direction in India.

This study is essentially exploratory in character in the sense that the writers did not start with presuppositions or hypothesis which they wanted to test. Findings relating :—

Sample.—The most important single fact regarding our sample is that it consists of patients who had come to the Hospital for treatment. This means that our patients were sufficiently concerned over their deafness to have come to the

Hospital for aid. Notable exceptions *e.g.*, patients were a few cases mostly students or boys, who had come under familial pressure, and were not personally concerned about their deafness, their deafness being of a mild degree.

Our sample includes only those deaf patients whom it was possible to interview. Individuals who were very hard of hearing; and who, therefore, were difficult to communicate with, had to be excluded. Similarly, those born deaf, or who had become more or less completely deaf very early in life were not studied. Deaf patients who were also suffering from associated ailments such as severe headaches, vertigo, or were afflicted with heart complications, fevers etc., were excluded from the sample. It was felt that these complications would introduce an indeterminate error in our findings. Those included in the sample, nevertheless, show a wide range of deafness varying from minor hearing defects to serious deafness.

The sample consists of only male patients. Table I shows the age distribution of our sample. It would appear from the table that a predominent majority (three-fourths) of the sample population is under thirty years of age, and a little under three-fifths is between fifteen and twenty-four. Thus our population consists mainly of young people. However the oldest male in the sample is seventy-three years old.

TABLE No. I.

Age Distribution of Sample Population.

Age.		No.
15 — 19	...	6
20 — 24	...	11
25 — 29	...	6
30 — 34	...	1
35 — 39	...	2
40 and over	...	3

The sample population has been grouped into four occupational groups: Unskilled (labourers, servants, etc.) Skilled and Semi-professional (clerks, carpenters, formers etc.),

Professional (Businessmen, Singers, etc.), and Students (including both School and College students). It is seen from Table II.

TABLE No. II.

Occupational Division of the Sample.

Occupation		Number of cases
Unskilled	...	4
Skilled and Semi-Professional	...	6
Professional	...	5
Students	...	13
Unclassified	...	1

That nearly forty-five per cent of our population consists of students drawn from schools and colleges. The other groups are nearly equally represented. One patient, who became severely deaf at the age of six, and was not going to school was not classified in any occupational group. Only two of our patients had lost their jobs because of their deafness, though many more were worried over the fact that they might lose their source of livelihood.

Method.—Each patient was first thoroughly examined by the Surgeon and was later submitted to test for his hearing. After the Surgeon's Diagnosis had been recorded, the patient was sent to the Psychologist for the interview. The interview ran between three-quarters of an hour to one hour, according to a planned schedule which had been carefully evolved from preliminary interviews of more than ten patients. The experience gained in the course of these interviews was particularly helpful in the clarification of the areas of inquiry relevant to the study of adjustment. It helped to familiarize the interviewer with the unique problems confronted in interviewing deaf patients and also in the planning of the interview as a whole.

One has only to interview a few deaf patients to realize how different it is from interviewing people with normal hearing. Depending upon the severity of deafness, the interviewer must adjust his voice and his position with respect to the deaf. At

times it is most frustrating to ask the same questions repeatedly, and still not have them understood. The patient, of course, tries very hard but fails inspite of his best efforts. In such situations as these, one often wishes one could ask questions in writing, and we had to do so at times. At other times we asked them to read the question. This, however, could not be done in some of our patients who were illiterate. All patients were interviewed in Hindustani. Three cases had to be excluded from the study because it was almost impossible to communicate with them. They failed to understand the questions inspite of their best efforts to understand and our efforts to communicate with them. Further the interview of four patients (all the four female patients) is not completed as they refused to proceed with the questionnaire or absented themselves subsequently.

Most patients accepted the interview as a part of their medical examination. They took it quite seriously, and answered frankly without any apparent hesitation. Some patients, who made enquiries regarding the purpose of the interview were told that they were trying to learn something about their problems so that we might be able to be of greater help to them in the future. All patients co-operated whole-heartedly and maximum support was established with them.[1] Some patients, who were recalled for further medical examinations, made it a point to see the Psychologist whenever they were in the Hospital.

The final interview schedule was first pre-tested on a few subjects before it was finally accepted. Aside from being asked general questions regarding their family background, each patient was questioned on his deafness history, occupational adjustment, and social and personal adjustment.

Medical History of the Deaf and their attitude towards Treatment.—We interrogated our patients about the nature and time of onset of deafness, and the past treatment they had before coming to the Hospital. They were asked particularly

1. One patient, an old refugee, who had been staying with his married daughter, resented the interview, and was therefore not included in the sample.

about the treatment they had taken, the reason why they had not come to the Hospital earlier, and finally, who had asked them or advised them to come to the Hospital. Table III shows that nearly eighty per cent of the patients had been experiencing deafness for two or more years prior to their coming to the Hospital. Several patients reported having had an ear infection in childhood. With the exception of only a few cases, our patients as a rule had come to the Hospital on this occasion for the first time in their life. Most of them had tried indigenous cures for deafness, but had not found them effective. Only twenty per cent of the sample had come to the Hospital for treatment within the first year of the onset of deafness. Since forty-five per cent of the sample population consists of students, who are educated and fairly well to do as compared with the general population, it is evident that most people were not anxious to avail themselves of the free medical facilities available to them at the Hospital. Whether this reflects their lack of knowledge of the available facilities, or an indifference to deafness is discussed below.

TABLE No. III.

Duration of Onset of Deafness.

No. of Cases	Duration (years)	Average Duration (years)
6	Under 1	·22
9	1—2	1·78
8	3—5	4·38
6	7 and above	11·50

Seventeen out of the twenty-nine patients (58%) had first taken to popular remedies and indigenous cures. These consisted of anything ranging from using different kind of oils in the ear and having it cleaned by professional Kanmalias (those who clean ears) to taking drugs prescribed by Vaidyas and Hakeems. Eight of these later sought medical aid either at a Hospital, or from a private practitioner. Only twelve of the twenty-nine patients had directly consulted a medical practitioner, but they did not necessarily do so immediately after the onset of deafness.

Some of them did not consult a doctor for years, while others who did were not serious about it. Since seven of these twelve patients were students, the percentage of those who actually consulted doctors directly is naturally inflated. In actuality, we suspect that only a small number of people go to doctors in the first instance. In the light of this, and the fact that most of our cases come from urban areas, nearly sixty per cent belonging to Lucknow City itself, there is very strong evidence to indicate that indigenous cures for deafness are widely popular among the City population.

To the question about who had referred them to the Hospital, seven said they had been advised by friends and relatives, ten said they had been sent by a Medical Practitioner, and ten said they had known of the Hospital and had come of their own choice. The remaining two patients said they had not known of the facilities available at the Hospital. They had come to the Hospital for treatment of other diseases, and in the process of treatment, they had been referred to the Surgeon for their deafness. Of the ten patients who knew about the Hospital seven were students, and one an employee of the Hospital. This is a significant fact to note. Of those who had been referred by some Medical Practitioner, only one was a student, and the others were almost equally drawn from the other three occupational groups.

The interviewer usually bears a long story of woe and suffering from the patients. In the beginning they usually resort to local remedies and indigenous treatments. When these do not prove satisfactory they consult medical practitioners who treat them personally, or refer them to Hospitals. The average patient who comes for treatment to the Hospital has behind him a long history of indigenous course and treatments that completely failed to cure him. When he comes to the Hospital he has tried just about all he could, and appeals to what probably appears to him to be his last hope of recovery. A patient reported that he had consulted a Hakeem who had promised to cure him on the payment of a substantial fee. According to his diagnosis the

patient was becoming deaf because mucous had gradually ascended to his brain following his recent influenza attack and was blocking his hearing. The *Hakeem* had offered to prepare a special purgative which would dissolve the accumulated mucous and gradually expel it from the body. This was not convincing enough to the patient and he decided to come to the Hospital.

In order to learn the reasons behind the apparent reluctance of the sufferer to avail of the free Hospital services, they were asked to explain why they had not come for treatment earlier. A variety of reasons were given. By far the most popular reason given by patients, twelve in number, was that they did not think there was anything seriously wrong with them. They thought they would recover, and whatever loss in hearing they had experienced had not in any way alarmed them. Among these twelve are included four students who had not come, because they could not get time off from their studies. We take this attitude as a reflection of their lack of concern over their disability. Although they were having difficulties in following class lectures and taking down class notes, they tried to over some these difficulties by sitting in the front row facing the professor, and by comparing their notes with their class-fellows to fill in the gaps they left during the lectures.

Of the remaining seventeen patients, four said they were afraid they would be operated upon in the Hospital, three said they were employed away from Lucknow, two said they had not known that such facilities were available, and six said they could not come because they were receiving treatment elsewhere. Only two out of the seventeen came to the Hospital immediately after the onset of deafness.

This brings us back to the question raised earlier, namely, what accounts for the apparent lack of enthusiasm on the part of the deaf for availing themselves of the free medical services available to them at the Hospital? Unlike fevers and injuries to the body, ordinary deafness does not impose a service restriction on the freedom of the individual. He may not be able to follow

a normal conversation but the people with whom he interacts soon find this out, and adjust their voice to his requirements. Within certain limits he can function in the same way as he did earlier. Only when deafness becomes serious, keeps on increasing, and poses a threat to the individual does he become sufficiently motivated to seek treatment. There may be other reasons too. In some cases there is perhaps also an under-current of resignation to one's fate. We repeatedly came across patients who visited the Hospital just once, and never returned to keep their appointments. Some of them come with the expectation that an immediate cure will be possible. They perhaps become discouraged by the doctors inability to give them immediate relief. In some cases treatment is prolonged, time-consuming and expensive. Perhaps, patients cannot get time off from their job. Although treatment is free at the Hospital, patients are often asked to buy their own medicines and appliances, something which many cannot afford. Finally, there are some who do not know that medical facilities are available to them at the Hospital. In this small sample of ours, in which nearly half of the subjects are students, there were two patients who said they had not known about the Hospital. It was only by chance that they had come. How many people do not come for treatment because of a lack of adequate knowledge is anybody's guess.

Personal, Social and occupational adjustment of the Deaf.—On the basis of interview records each patient was separately rated on the amount of difficulties he was experiencing in making suitable personal, social and occupational adjustment. It was our intention to find out the spheres of adjustment (personal, social or occupational) most affected by deafness, and their contribution to the patient's feeling of anxiety, insecurity, and unhappiness. To some extent the distinction we have drawn between personal, social and occupational adjustment is arbitrary. Moreover, we are keenly aware of the fact that they are not necessarily independent of one another. It is highly improbable that serious difficulties in any one sphere will not also be reflected in others. On the other hand, a distinction between them

can be drawn and is justified. It is unlikely, for instance, that deafness will necessarily cause generalized adjustive difficulties. Some spheres of life may be more affected, and consequently, contribute more to the patient's feelings of anxiety and insecurity than others.

By difficulties in personal adjustment we mean the threat deafness poses to the patient as an individual: his personal distress, his feelings of shame and inferiority, his anxieties, his success or failure in accepting his deafness, etc. The degree to which deafness interferes with the patient's interactions with others (friends, family, groups), his inability to pursue his interests, acceptance or rejection of him by others, etc., describe his difficulties in social adjustment. Finally, the degree to which deafness interferes with the patient's ability to continue his present occupational activity, requires changes in his work role, his feelings regarding these matters, his relations with his supervisors, etc., sum up the difficulties in his occupational adjustment.

In several cases we find that deafness most seriously affects a patient's occupational activity. He feels that unless the growth of his deafness can be arrested or his hearing improves, he will lose his job and his only means of livelihood. In these cases deafness does not appreciably limit the patient's interaction or his acceptance to a group. He does not wish to avoid meeting people, nor does he suffer from feelings of inferiority or shame. In other cases, such as that of patient who was a large land owner, he felt social isolation or the feelings of inferiority caused much anxiety and insecurity. In this case, the patient's greatest difficulty lay in his inability to make suitable social and personal adjustment. Being a landlord he had servants who looked after his farm. The members of his family also helped. Since he was quite hard of hearing, his neighbours and family members tried to avoid him as much as they could, for it was a great effort to talk with him. Moreover, the patient was specially fond of children and liked to play with them. To his disappointment, he found that they, too, avoided him. Apparently he was lonely

and unhappy, for, at the age of seventy-three, after a deafness history of thirteen years, he had for the first time come for treatment.

On the basis of their difficulties in making personal, social and occupational adjustment, we have divided our sample into three groups; those experiencing ordinary difficulties (Group I), those experiencing moderate difficulties (Group II), and those experiencing rather serious difficulties (Group III). Those who were only slightly affected by deafness or were mainly affected in one sphere were classed in Group I. Those who were experiencing considerable difficulties on two or more grounds were classed in Group III. The remaining, falling in the Intermediate range, whose difficulties were neither slight nor serious, representing a wider range of variation than the other two groups, were classed Group II.

In Table IV we have shown the sphere of adjustment contributing most to the adjustive difficulties of our sample population. While twelve patients felt that they had the greatest difficulties in the occupational sphere, about an equal number experienced greatest difficulties in the personal social sphere. It should be noted that patients have been assigned to the occupational or personal-social sphere on the principle, that one of these contributed relatively more to the patient over all adjustive difficulties. It is not an all-or none classification.

TABLE No. IV.

Relationship between Amount of Adjustive Difficulties and Areas Contributing to it.

Sphere of Adjustment	Group I	Group II	Group III	Totals
Occupational ...	2	4	6	12
Personal and Social ...	1	6	4	11
All spheres little affected ...	6	—	—	6

This is particularly true for patients in Group III who were experiencing varying amounts of difficulties in adjusting to every sphere of life. Six patients in Group I were having little or no adjustive difficulties. Of these five were students whose hearing was only slightly impaired.

In Table IV we have combined personal and social adjustment into one category, personal-social, because we have repeatedly found that personal anxieties in most cases outweigh the fear of social isolation or social ridicule. With the exception of two cases, all our patients said their family members and friends and associates were sympathetic to them, and were rather concerned over their deafness. Even though their friends and associates had to talk louder and to repeat things, they did not mind doing so. Patients felt quite at ease, and did not think their social interaction had been appreciably affected in spite of their personal anxieties, and the fear that their deafness might grow worse in the future. Only a few patients preferred to stay at home, because they could not follow a conversation well enough. They feared ridicule and were obviously burdened with feelings of shame and inferiority. Since such cases were few and they were also experiencing difficulties in making personal adjustment, we felt it was unnecessary to have two categories. The fact that difficulties in personal adjustment were found more often than social adjustment is an interesting finding. A tentative explanation seems to be that the Indian Social System offers a great deal of psychological security to the individual. He can almost always look to the joint family and his intimate friends to protect him, to sympathize with him, or at least to stand behind him when he needs them.

Interesting results are found when we analyze the occupations of the patients who had been experiencing relatively more difficulties in personal—social adjustment than in occupational adjustment. Three of these were farmers (small land-holders), six were students, one a railway porter and one a carpenter. The ability of people of these occupational groups to perform efficiently at their job is not as seriously hampered by deafness

as that of professional singers, clerks, policemen, business-men, store-keepers, and store-attendants who form the bulk of the patients reporting greater adjustive difficulties in the occupational sphere. This is strong evidence to suggest that, other things being equal, whether or not a person reports having greatest difficulties in making occupational or personal-social adjustment will largely depend on how directly deafness affects his occupational activity or his source of livelihood. The fact that the student population in our sample shows the least amount of over all adjustive difficulties in making personal-social adjustment than occupational adjustment may partly be accounted for by their relatively secure economic status. They are usually being supported by their parents or families, and deafness does not pose itself at this time as a serious economic threat to them.

It is seen in Table V that about an equal number of patients are experiencing ordinary, moderate, and serious adjustive difficulties. Of special interest is the fact that all but one patient in Group I is a student and as a result of this the range of variation with regard to adjustive difficulty experienced is wider than would otherwise have been the case.

TABLE No. V.

Relationship between amount of adjustive difficulty and patients' Age, Onset of deafness, occupation, severity of deafness.

Amount of Adjustive Difficulty	GENERAL INFORMATION						OCCUPATIONS				
	No. of cases	Average Age	Average onset time (years)	Severity of deafness O.		H.	Unskilled	Skilled	Professional	Student	None
* Ordinary Group I ...	9	20·11	4·30	6	2	1	...	1	...	7	...
Moderate Group II ...	10	29·33	3·80	3	3	4	...	1	2	4	...
Serious Group III & IV ...	10	31·00	4·74	1	3	6	1	2	3	5	...

*One case belonging to this group, who was not employed, has not been accounted for in the "Occupation" column.

The average age of patients in Group I is appreciably less than those in Group II and Group III, a fact which may be accounted for by the large number of students in that group. Average time of the onset of deafness does not appear to be a significant variable. There is also clear evidence to show that adjustive difficulties are positively correlated with the severity of deafness. The correlation, however, is far from perfect. We find that cases of moderate deafness are almost equally present in the three groups. In Group I there are two patients who were suffering from severe loss of hearing. It is, therefore, clear that severity of deafness alone is not the sole cause of adjustive difficulties. Other factors must also be operative. Select case histories are presented below to help isolate some of these factors, and to serve as an illustration of the type of problems faced by the deaf. These cases are presented according to the severity of difficulty (disturbance) experienced.

LOW DISTURBANCE —GROUP I.

Case No. 29.—The patient is a young boy of fifteen years, who has been experiencing a severe loss of hearing since he was six years old. Economically, the family has been under pressure. His widowed mother lives on the rent she gets from a house. The patient was brought to the Hospital by his uncle who lives in a town about twenty miles away from Lucknow. The patient does not live with his mother who lives in another province. Sometimes he goes to visit her. At present his uncle supports him.

The patient looked dull (unintelligent). He could not speak clearly, and his early deafness deprived him of any schooling. He had consulted doctors before, but apparently the treatment offered did not benefit him. He hears only with difficulty. According to the uncle's reports, the patient led an active life and always kept himself occupied, in something or the other. Currently he was interested in learning to ride a bicycle, and in reading and writing. His family wants to set him up in some business but this is impossible unless he recovers. Occasionally the patient just sits and broods. Although he is reported to be

usually gay and happy, he sometimes acts very stubborn and insists on having things his own way. He was said to be planning on the things he would do when he recovered normal hearing. A hearing-aid was advised. (*For audiogram See Fig. 1*).

Case No. 30.—This nineteen years old student belongs to a relatively well-to-do family of business men. He reports that his right ear has been defective since he was four years old, but that it did not interfere with normal hearing. He received medical advice before coming to the Hospital. His tonsils were removed, and he was told that his ears might improve too. However, in the last week he found that his left ear was likewise affected. Normal hearing was impaired, although he can still hear without too much difficulty.

Because of its recent origin the patient did not feel his deafness interfered with school work. He was not worried on that account. In fact, his family members, particularly his mother was much more concerned over it than he was himself. His mother felt that his chances of getting a suitable bride were diminished. The family was not concerned about the patient's school work. He was expected to enter the family business. The patient had not disclosed his disability to his classfellows because he felt they would make a fool of him.

On the whole, the patient was not worried over his deafness. His deafness did not seriously interfere with his usual activities. It was quite apparent from the interview that the patient had not come to the Hospital of his own choice, but that his parents and forced him to do so. He had conductive type of deafness—2 years in Right Ear, 5 days or 1 month in left ear in which it was mild.

Case No. 2.—This seventeen year old school boy has been experiencing deafness for at least three years. Both his ears have become affected, although his left ear is more affected than his right ear. He started experiencing loss in hearing after an accident in which he got hit on his forehead while running in pursuit of a kite. He cannot hear things at a distance.

This patient's father runs a grocery store. As in the former case, the parent is more concerned than the patient, who neither came to the Hospital on his own choice, nor seemed to be worried on any account. According to the father, the patient does not like to go to School. Often when he went to School, he would stop in the way at a friend's house, and play. Sometimes he ran away to cinemas. The father wants his son to do better in life than he did himself. He wants him to be educated. The truant behaviour of the patient makes him unhappy. However, the father's concern over the patient's deafness appeared to be secondary to his concern over his truant behaviour. Probably the reason he may have brought the patient to the Hospital was the realization, that he was acting truant because of his inability to follow instructions. During the interview, the patient occasionally stammered, appeared nervous, but smiled often.

AUDIOMETRIC CURVES INCONSISTENT, INDEFINITE RESPONSE TO HEARING TESTS, STRONGLY SUGGESTIVE OF FUNCTIONAL DEAFNESS.

Case No. 19.—This patient has been experiencing a loss in hearing in both ears for at least two years. He is a farmer by occupation and comes from an adjoining district. He attributes the commencement of deafness to an illness. He suffers moderate deafness. He tried indigenous medicines and consulted a medical practitioner before coming to the Hospital.

His greatest difficulty is that he cannot hear what others say from a distance. His worries are purely personal in character. His deafness does not pose a threat to his occupational activity. He does not think that his social interaction or his occupational activity have been affected, nor does he feel that his family members or his friends are unsympathetic toward him or try to avoid him. To him, deafness is a personal inconvenience, and he wants to receive treatment for it. He is an otosclerosis patient with mild degree of hearing loss—Audiometry could not be done.

MEDIUM DISTURBANCE—GROUP II

Case No. 23.—This twenty-four year old patient is a student at the Lucknow University. He belongs to a well-to-do business

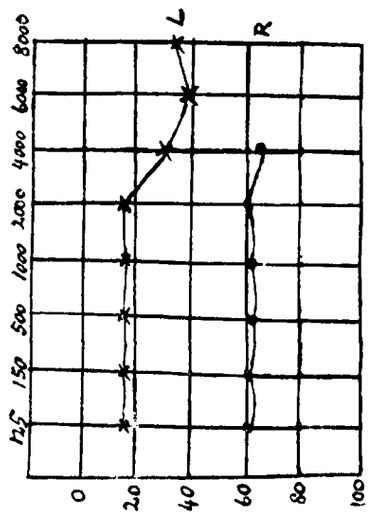

Fig. 2.
Marked Deafness in Right Ear, Mild in the Left Ear—Cochlear Involvement present.

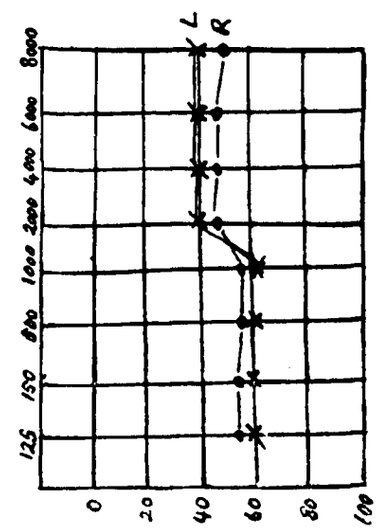

Fig. 4.
Fair Degree of conductive Deafness.

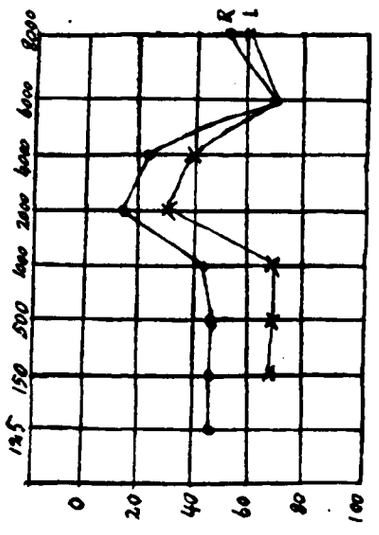

Fig. 1.
Fairly Marked—Mixed Type of Deafness.

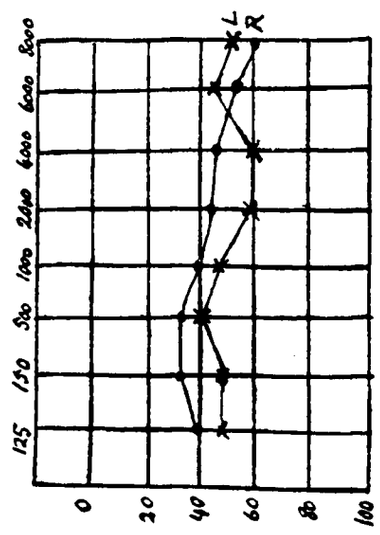

Fig. 3.
Fair Degree of conductive Deafness with some Cochlear Involvement.

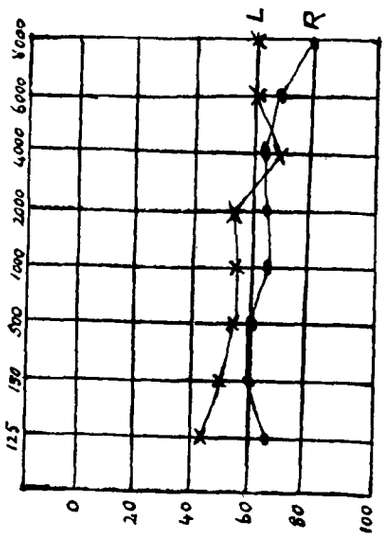

Fig. 6.
Otosclerosis with Cochlear Involvement, moderate Deafness noticed.

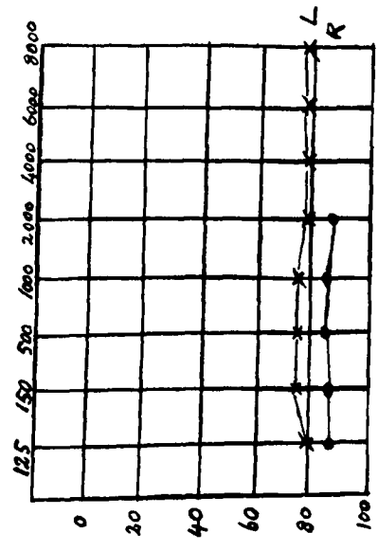

Fig. 8.
Marked Deafness Progressing Rapidly and Marked Cochlear Involvement.

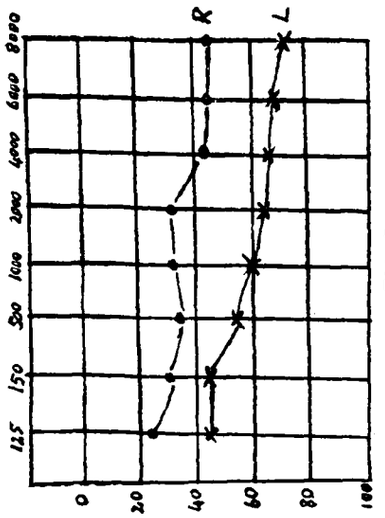

Fig. 5.
Fairly Marked Nerve Deafness after Typhoid Fever.

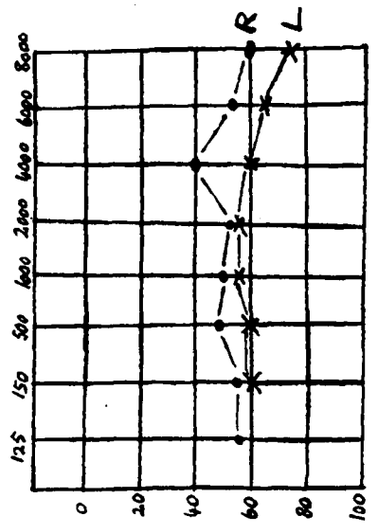

Fig. 7.
Otosclerosis—Marked and Rather Rapidly Progressive.

family and is the youngest child. His elder brother and sisters have been married. The patient's right ear has been affected since his childhood, but this did not interfere with his normal hearing enough to cause alarm, or to make him seek treatment. Since his left ear has also become affected, about five years ago, he has become anxious for treatment. Before consulting a medical practitioner, he used different kinds of oils, which did not prove helpful. Even the medical treatment did not help him. He had once before come to the Hospital, but did not return to keep an appointment because he felt it would interfere with his studies. He does not feel worried over his deafness although he says he feels awkward and uncomfortable.

The patient has been interested in singing. He used to sing for the All-India Radio, Lucknow, but had to give it up because he cannot hear the timbre of his own voice. He had want to join the Air Force but he thinks he cannot do so now. In the classes he cannot always hear his Professors clearly, and has often to use his hands to cup his ears. He feels rather awkward when he has to do so. Similarly, sometimes he has to do this when he is in a group. This makes him feel embarrassed.

The patient feels his parents are more worried over his deafness than he is himself. His social participation has not been reduced, nor does he feel others avoid him or try to ridicule him. Only sometimes his friends become impatient when he asks them to talk loudly, or to repeat things. On the other hand, he gets annoyed and angry at himself when he cannot follow others. (*For audiogram See Fig. 2*).

Case No. 12.—This patient has been experiencing deafness for about one and half years. By profession he is a cloth merchant and is thirty-five years old. He came to Lucknow from a place about 150 miles away. Naturally, he is quite anxious to receive treatment. He is relatively well-to-do.

The patient suffers from a moderate loss in hearing. Still he displayed more anxieties than most of our other patients with a similar disability. He says he is worried. He had consulted

doctors before coming to Lucknow, but their treatment had not benefited him. He feels embarrassed when he cannot hear what his clients say. Although he does not feel that others avoid him, he feels self-conscious and hesitates to meet people. He believes that others think about his deafness. Apparently he feels that being deaf is a matter of shame. He feels sorry for himself. His family members, however, are quite sympathetic towards him.

To this patient deafness is not an economic threat. He does not have to work at his retail store, for his father and his brothers also run the business. His anxieties are generalized. They can be traced to all the three spheres of adjustment we have mentioned, with the greatest arising from the personal-social sphere. The patient was asked to undergo a treatment for two months and to return for another examination. *(For audiogram See Fig. 3).*

Case No. 1.—This thirty-five year old carpenter has been experiencing loss of hearing for the last one and a half years. Both his ears are affected. He works in the railway workshop at Lucknow, and holds a fairly responsible and secure position. He has been experiencing only a slight loss in hearing. What bothers him more is the buzzing sound he constantly hears. Before coming to the hospital he had undergone some indigenous treatment. Later he consulted a medical practitioner who referred him to the Hospital.

Occupationally, the patient felt his deafness had not caused him serious anxieties provided it did not increase further, he felt he would be able to carry on. If it increased, on the other hand, he felt he may not be promoted to a better job in the future. Personally he is concerned, but socially he feels his life has been unaffected. He is married. He said his social interaction, and the behaviour of others toward him had not changed. His boss was sympathetic.

Temperamentally the patient seemed to be a calm and quiet person who would not be easily overwhelmed with

ordinary difficulties. His primary object in coming to the hospital was to obtain treatment so that his deafness might not become worse. *(For audiogram See Fig. 4).*

Case No. 15.—This forty-one year old shop-keeper's helper has been partially deaf for the last one and half years following an attack of typhoid fever. Both his ears have become affected. He has tried indigenous medicines, but when they proved useless he came to the Hospital. Just twenty days ago, he said, he lost his job. He had gone on a vacation. When he returned he found somebody else had replaced him. He had worked at the store for more than ten years. Apparently he lost his job on account of deafness. One day a client asked for sugar. The patient failed to understand him and gave him soda instead. For this incident he was scolded.

The patient is a bachelor. He has some distant relatives in Lucknow, but they live in another part of the City. He feels that others feeling towards him have not changed, but that he likes to avoid meeting people, because he cannot hear them properly. Some of the boys at the shop where he had worked made fun of him. He felt ashamed and humiliated.

The patient views his disability with a certain amount of forced detachment. He feels that since he has become deaf he has to live with it. In the course of the interview it appeared that this person lived in an uncertain world. He expressed some bitterness and concern over his future. Deafness in this case poses a real economic threat. He most probably lost his job on that account, and the chances of his being hired for a similar job were slim. He said that, if his deafness could be arrested he would probably go into a business of his own. In this case deafness resulted in occupational anxieties with the personal and social spheres relatively less affected than the occupational. *(For audiogram See Fig. 5).*

Case No. 16.—By occupation a broker, this fifty year old man first started experiencing deafness some four years ago. He said he was rather worried on account of it because, in his own

words, "in my business one cannot afford to talk loudly". Both his ears were affected. His anxiety to get treatment is reflected in his punctuality in keeping his appointments. He came rather early, and waited for his turn. He said he did not come earlier because he was afraid of doctors and surgery.

Before coming to the Hospital he had tried indigenous medicines, but to no advantage. His anxieties are primarily occupational in nature. He lives alone in Lucknow. His family lives in a village nearby. It appears that he had been doing good business, but since his deafness he has found the competition a little too tough. Personally, and socially, it seems his adjustment had not been affected, although he tries to avoid meeting people because he cannot hear them. Deafness has caused the greatest amount of disturbance in his occupational life which puts a premium on secrecy, and the ability to communicate fluently. (*For audiogram See Fig. 6*).

HIGH DISTURBANCE—GROUP III.

Case No. 31.—This young man, eighteen year old, has suffered a loss of his hearing in both ears for the last two years. Unlike most of our other patients, this patient has had an unhappy family life. His parents died when he was quite young, and his wife died a few years ago. He said he is all alone in the world. He had taken indigenous medicines, but since they did not benefit him, he came to the Hospital with some friends. His hearing has been seriously impaired.

The patient reports that he has been turned out from his home in the village. Some relatives or neighbours have succeeded in ousting him. He feels justified in bearing others ill-will for they too, he feels, are hostile toward him. He does not want to talk with people. He seemed rather reserved and hesitant to talk during the interview. He does not want to do anything. He does not know what he will do, or where he will live. He was living with his friends for the present.

This unhappy patient who probably has a justification for the hostility he bears toward others, feels he has been ill-treated and deprived of the home and the property which belongs to him. He very definitely feels that his deafness has been the cause of his misfortune. (*For audiogram See Fig. 7*).

Case No. 13.—This twenty-eight year old patient is a police constable. He has been suffering from partial deafness of both ears for the last four months. His right ear has been most affected. On the whole the loss in hearing has been moderate. He also hears noises and sometimes suffers from headaches. Since indigenous medicines, such as oils and cleaning of ears by professionals, did not prove helpful, he took the advice of a superior officer, and came to Lucknow for treatment.

His greatest difficulty lies in the discharge of his official duty. He said that if his deafness was discovered he might lose his job. Lately, he had been assigned to telephone duty. Since he could not follow a telephone conversation he had to call others to help him. He is afraid that everybody will come to know about him and some will ridicule him. He is very worried over his deafness, and this was amply betrayed in the course of the interview. The patient said he was leading a semi-isolated life for he did not visit people. He had not even informed his family about it. He fears discovery and ridicule. He was very eager to get proper treatment.

In this case adjustive difficulties are present in all the three spheres, the greatest being contributed by the occupational sphere. The patient belongs to a family of modest means. His fear of ridicule and shame have kept him from going out to meet his friends and fellow workers. He pretty nearly keeps himself occupied with his work and avoids others. (*For audiogram See Fig. 8*). L. C. (not included in the case history as medical examination not completed).

This is a thirty year old patient who earns a livelihood by serving water to thirsty passengers at the railway station. He suffers from severe deafness as both his ears have been badly

affected for the last ten or twelve years. He had not received any treatment aside from the usual indigenous one. He said he did not come to the hospital earlier, because he had not known that such facilities were available. He had been living in Lucknow for almost twelve years. In fact, he was referred to the hospital for the treatment of anaemia.

Socially this individual appeared to be an isolate. He belongs to a family of farmers, but he did not do any farming himself. He is single and did not seem to have people with whom he liked to associate. Since he was very hard of hearing, it was an effort to communicate with him. However, it seems that the social isolation did not cause him any significant anxieties. He was rather worried on occupational grounds. According to the patient, his earnings were meagre, amounting to only six to eight annas a day, only because of his deafness. When a potential client called him to serve water, he would often not hear him unless he was looking in that direction. In the meantime his competitors rushed to the man and served him. He said his earnings would double if his hearing improved.

This patient, it appears, had accepted his deafness as a matter of course. One would almost have to, if one lived with it as long as he did. In the initial stages of deafness he might have had anxieties of a personal-social kind but he now appeared to have become used to his disability. When asked whether his family members were concerned over his disability, he replied: "If I am not concerned, why should they be?".

Another patient thirty-five year old singer (Kavval) suffers from only slight deafness. Only his left ear is involved. He can follow a normal conversation. In fact, it would be difficult for one to say that he suffered from deafness at all. He comes from a place about one hundred miles away from Lucknow. He has a large family to support, he has seven children of his own, and responsibilities for other relatives.

The patient had greatest difficulty in making proper occupational adjustment. His deafness has affected his ability to sing and harmonize with others. Sometime in group singing he fell out of tune with others. He is no longer confident of himself and is quite worried about its implication for his future. He feels that, if he cannot improve his performance he will not be able to continue at his job. When asked if he has been warned by his employers, he answered no, but added that it was only proper for him to quit if he failed to harmonize with the others. The leader of the group (the employer) is a relative of his, and they are good friends. This worries the patient, for he feels that he must do nothing to bring a bad name to the group.

The patient says that Kavvali is the only skill he has learned all his life, and he does not know what he will do if he has to give it up. Although nobody had so far suggested his taking up another employment, the patient was very concerned. Since his actual deafness is not marked he does not experience any difficulty in following conversations, nor has he become self-conscious. His greatest worry is his future.

DISCUSSION

The socio-psychological adjustment to deafness is affected by many factors. A study of the cases show that the patient's age, family back-ground, economic position (financial self-sufficiency), nature of occupational activity, duration of deafness, severity of deafness and other factors affect his adjustment to deafness. Adjustment, however, cannot be accounted for by these variables taken in isolation or individually. This is because adjustment is not something static, unchanging, or fixed. It is not a constant ideal. Rather, it is dynamic and can only be understood in dynamic terms by taking into consideration the inter-acting effect of many factors according to their relevance to a particular case. We cannot take just one variable, no matter how important it may be, and hope to account for everything by it. For instance, although severity of deafness certainly influences the subsequent psychological adjustment a patient

makes, severity alone cannot account for everything. It is quite possible that two individuals may react quite differently, even display opposite reactions to the same amount of measured deafness. To one individual deafness may amount to a loss of a job or the inability to pursue the present line of interests, to the other, it may appear to be an unavoidable inconvenience which, nevertheless, interferes but little with his occupation or his major interests in life. Obviously the patients will not make the same adjustment.

A very important factor, therefore, which is essential to an understanding of the adjustment to deafness, is the self-perception of his deafness by the patient. In other words, the way the patient perceives his deafness, what it means to him relative to its needs and values, will figure prominently in the kind of adjustment he makes to it. In our opinion there are at least three sets of inter-related factors which would influence a patient's self-perception of deafness. These are: (1) social factors: social environment in which the individual lives, his family, his culture, his occupation etc., (2) Psychological factors: his needs, interests, personality, temperament, age, personal values, etc., and (3) Physiological and situational factors: severity, duration, and the nature of onset of deafness; his age; peculiarities of the immediate situation; nature of deafness and the like. A meaningful analysis of the adjustment of the deaf should be made with these in mind.

SUMMARY

A series of twenty-nine deaf patients is examined to determine their psychological adjustment to their disability.

A careful medical examination of the patients is made including a detailed examination of their hearing.

An exhaustive questionnaire elicited from them clues to their psychological responses, and from these psychological adjustments - social, personal and occupational have been deduced.

ACKNOWLEDGMENT

We wish to offer our thanks to the Lucknow University for providing a special grant, to Colonel R. K. Tandon, M.B., B.S., (Lucknow), M. R. C. P. (Lond.) for permission to use hospital records, to Shri M. M. Tewari, M.A., a post-graduate student at the J. K. Institute of Sociology for his help in interviewing some of the patients. Professor M. R. Opler of the Cornell University Ithaca, U.S.A., very kindly made a critical appraisal of the paper, and we offer our thanks to him. Dr. S. R. Singh, B.SC., M.S., D.L.O. (Lucknow) deserved thanks for spending his valuable time in getting the records typed and reading the proof.

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Scleroma of Oesophagus

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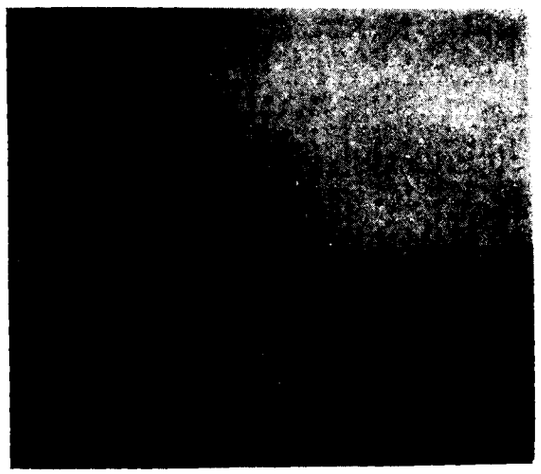
Scleroma, previously known as rhinoscleroma, is a disease which is known to involve the nose, pharynx, larynx or trachea. So far, no case in which regions other than those just mentioned were involved has been described in the literature. We are reporting herein, a case in which the oesophagus was the primary and the only site of involvement by this disease.

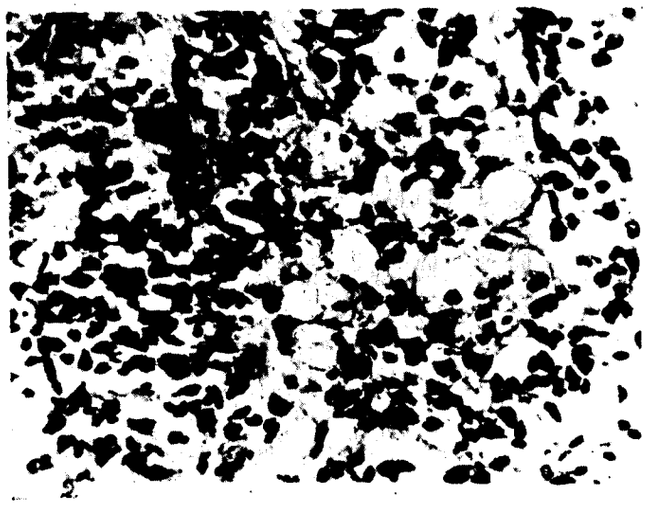
Clinical features of the case.—A Hindu, male age 24 years complained of dysphagia of two years duration. He could not take fluids or semisolid material easily. He had frequent vomiting and complained of tightness behind the sternum. The dysphagia had a gradual onset and had led to considerable emaciation. A skiagram after Baswallow and oesophagoscopy showed an annular narrowing of oesophagus $8\frac{1}{2}''$ from the upper incisor teeth. A biopsy piece was taken from the indurated area. A skiagram of the verterbral column in the cervical and thoracic regions revealed no abnormality.

Biopsy Report.—The tissue consisted only of the submucosa and mucosa of the oesophagus. Both these layers showed



No. 1.

Skiagram after Barium Swallow shows annular narrowing of oesophagus.



No. 2.

Micro-photograph showing infiltration with plasma cells, Mickulicz's cells and Russel bodies.

infiltration with plasma cells, Mickulicz's cells and Russel bodies. Silver impregnation by Warthin's technique showed bacillus rhinoscleroma in the Mickulicz's cells.

Diagnosis.—Scleroma oesophagus.

Subsequent course of the disease.—As a consequence of histological diagnosis of "Scleroma oesophagus" the patient was given one gm. of streptomycin dose every day by the intramuscular route. After two weeks of treatment with streptomycin his general condition improved. He was able to take semisolids and fluids. The injections were continued and in all sixty daily injections of 1 gm. each were given and he recovered completely.

Comments.—This word Rhinoscleroma gives an erroneous impression that the disease is confined to the nose. It has been known for a long time that this disease involves regions other than the nose.

Putshowsky (1932) described 5 cases of Scleroma of the trachea without involvement of the larynx. Hajek (1932), reported many cases of Scleroma involving pharynx and larynx besides the nose, and also cited numerous cases of this type from older literature. As a consequence at the second International Congress of Otolaryngology, held in Madrid, Spain in 1932, Dr. Streit proposed that the name be changed from 'Rhinoscleroma' to Scleroma' and this was universally accepted by the Congress.

So far, however no case involving oesophagus either alone or in-combination with involvement of other regions has been reported in the literature. The case reported herein being the first of its type.

The diagnosis of scleroma is essentially histological. Some authors consider that a positive culture for bacillus scleroma from the lesions is an additional evidence which confirms the diagnosis of scleroma. Our case showed all the histological criteria that are considered diagnostic of the disease-namely the

Mickulicz's cells, Russel bodies and plasma cells infiltration, coupled with the presence of bacillus rhinoscleroma in the Mickulicz's cells. Cultural examination was not done in our case, because the disease was not suspected before the histological examination was carried out. However, a culture in this case was in no way essential for diagnosis, as the bacilli characteristic of the disease, were demonstrated in Mickulicz cells by silver impregnation technique of Warthin (Lille).

The response of the case to streptomycin therapy, though in no way diagnostic of scleroma, corroborated the histological diagnosis as cases of scleroma are known to respond favourably to streptomycin.

SUMMARY

A case of scleroma involving only the oesophagus is described, this is the first case of involvement of oesophagus by scleroma recorded in the literature.

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Plastic Repair by full thickness skin graft in Surgery of Ear, Nose and Throat

BY

Dr. R. A. F. COOPER, M.S.

AND

Dr. N. K. APTE, M.S., D.L.O.

(Under care of and operated by Dr. R. A. F. Cooper, Bombay).

The purpose of this article is to illustrate the use of the skin graft in the few cases done recently. The post-operative results have been very satisfactory as seen in the cases reported.

The full thickness skin graft contains all layers of epidermis and cuticle but not subcutaneous fat. Usual principles of plastic surgery are observed in operation. The graft is taken in the form of a flap or pedicle as is suitable in the case. General health of the patient must be good. Anaemia, hypoproteinemia and infection must be treated before operation. The donor area should be carefully selected regarding colour, thickness, texture of skin, Langers - lines, hair distribution where grafting is done for aesthetic purposes. The donor area must be repaired properly by careful undermining or relaxing incisions after operation.

The recipient area should be clean and free from bleeding. The skin flap should be handled gently and retained at new site by snug pressure dressing. Immobilization of the part is essential in some cases where pedicle has been used. The advantages are :—

1. Aesthetic effect.
2. Prevents post-operative bleeding from raw area.
3. Prevents stenosis of lumen.
4. Shortens convalescence.
5. Permits wide excision *e.g.*, in surgery for cancer, bad scar.

CASE I

Carcinoma Hypopharynx.—A female patient, age 30 admitted on 31—10—1955, complained of pain in throat and dysphagia - 6 months haemoptysis off and on for the last three months. Examination of throat revealed a big pinkish cauliflower mass projecting behind the tongue. On direct Laryngoscopy by (Louise - gadget) the swelling was found to be arising from the left lateral and posterior pharyngeal wall almost filling the lumen. Larynx was found to be normal - Cervical glands - Not palpable. Biopsy - Epidermoid carcinoma Grade II. Screening and Blood K. T. Negative.

Treatment.—Operated by Dr. R. A. F. Cooper - Trotter's left lateral pharyngotomy with a quadrilateral skin flap was done on 4—11—1955. The upper limit of skin incision was at the level of Hyoid bone, the lower limit was upto the lower border of thyroid cartilage. The base or hinge, of the flap was along the posterior border of the left sternomastoid Muscle. A ryle's tube was passed through the nose over the graft into the stomach at the time of operation. Pharyngostomy was closed on 2—12—1955 by cutting the base of the flap and suturing it to the mucous membrane of the pharynx. The ryle's tube was removed when there was no leakage from the skin incision. Thiersch's graft was used to cover the raw area of the neck on 16—12—1955. A course of deep x-ray therapy was given after healing of wound.

Remarks.—A radical excision of tumour was possible without post-operative stenosis of pharynx even though the tumour was big ($2\frac{1}{2}'' \times 3''$ size).

CASE II

Carcinoma right vocal cord.—Operated by Dr. R. A. F. Cooper. A male cook, age 30 complained of hoarseness of voice duration $1\frac{1}{2}$ years. On laryngoscopy an ulcerated growth of posterior 2/3 of right vocal cord was seen reaching the right arytenoid but not extending to the opposite side. Biopsy Report - Epidermoid carcinoma Grade II.

CASE—I.

Carcinoma Hypopharynx
(Post-operative).

CASE—I.

Carcinoma Hypopharynx
(Post-operative).

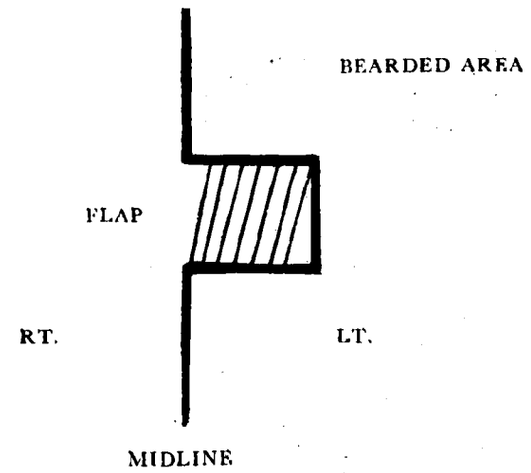
CASE—II.

Post-operative photograph showing Skin incision.

Treatment.—Right external cordectomy with Y. Meurman's plastic repair of the bare area by a rectangular skin flap from opposite side was done. The operation was done in two stages.

Stage 1.—Skin Incision was made as shown in the diagram :

DIAGRAM I



Tracheostomy and Thyrofissure with total excision of tumour (*e.g.* a small margin of normal mucus membrane around the tumour, right vocal cord, muscles of cord and arytenoid cartilage were removed).

The Tracheostomy tube was removed after one week.

Stage 2.—The skin pedicle was cut in the midline and the cut edge sutured to the perichondrium of the cut anterior edge of thyroid-ala. The skin wound was closed in layers. The post-operative course was uneventful. A course of deep x-ray was given.

Remarks.—The patient was free of all signs and symptoms as seen six months after operation. A wide complete excision of the cord with tumour, arytenoid cartilage, and muscles is possible.

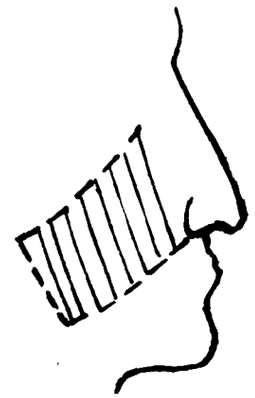
There is no possibility of secondary haemorrhage and recurrent granulations as in other similar operations without skin graft.

CASE III

Complete absence of nose due to old injury. The nose had to be reconstructed completely. The operation was done in three stages.

Stage 1.—The alae of the nose and septum were reconstructed by reflecting two rectangular skin flaps. The pedicle of skin flap was at the anterior bony aperture of nose.

DIAGRAM II



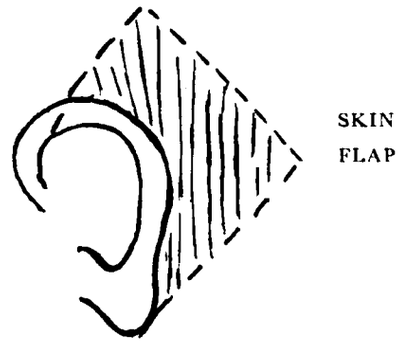
Stage 2.—The tip of nose was reconstructed by a pedicle flap from the inner side of left arm.

Stage 3.—It is proposed to introduce a costal cartilage graft through the columella in order to raise the tip of nose.

CASE IV

Congenital mal formed ear.—Operated by Dr. R. A. F. Cooper with stenosis of external auditory canal. The margin of pinna was reconstructed by preparing a skin flap from the post-auricular region.

DIAGRAM III



The skin flap was undermined and the flap was displaced towards the ear and resutured at the new site at a second stage of operation.

The gap was closed by undermining of the adjacent skin. The external auditory canal was reconstructed by making four radial incisions at the site of opening (pin point) of external meatus.

The triangular skin flaps were undermined and resutured after rotation into the side of the raw area formed by excision of fibrous tissue. The tympanic membrane was found to be normal at the time of operation.

CASE REPORT

Congenital Laryngeal Cyst

BY

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This is the first case of a laryngeal cyst seen by the author. A review of the nature, signs, symptoms and treatment of such a rare entity would be in order. Laryngeal cysts are quite rare but are most commonly situated over the anterior surface of the epiglottis and vallecula and aryepiglottic folds because they arise from degenerating glandular tissue. They may also result from the degeneration of the fibromas *e.g.* over the vocal cords or be mucous gland retention cysts in nature. Sometimes they may be lymphangiomatous or cystic adenomas. Cysts occuring in the laryngeal ventricle probably arise from the numerous mucous glands situated there and present themselves between the vocal and vestibular folds and are responsible for prolapse of the ventricle. Congenital cysts in this situation may arise from defective development of the sinus. Cystic swellings situated at the back of the tongue may extend also into the submaxillary region—Such cysts are probably caused by upward extension of the laryngeal saccule. Branchial and dermoid cysts also occur.

Signs and Symptoms.—They usually cause dysphagia and less commonly hoarseness. Dyspnoea results in cysts encroaching upon the laryngeal inlet. They contain glairy fluid. Surface is smooth, polished and transparent. A few branching vessels may be seen coursing over it. Size varies from a pea to a hazel nut. Arising from the lingual surface of the epiglottis it may distend the aryepiglottic folds.

Prognosis.—Not serious as they react readily to treatment and do not tend to recur.

Treatment.—Consists in free removal of the wall of the cyst which may be achieved by a laryngeal punch by indirect or direct laryngoscopy. In larger cysts care is taken that the fluid contents do not run into the larynx. In large congenital cysts external dissection is advisable.

Case Report.—K. B. aet. 2 months, female infant admitted on 30—1—'56 with difficult noisy wheezy breathing accompanied by recession of ribs since her birth. She had never been able to cry well. Cry was weak and hoarse. Finding the infant unable to cry, the mother put in a finger in her throat to 'help' it to cry but probably caused her injury in the throat. The infant developed blisters all over the body after 2 days which subsided in a few days but whitlow toe and a boil over the pinna were persisting. The baby was unable to suck the breast at a stretch during feeds. Noisy breathing becomes more marked during crying and less pronounced during sleep. She turned blue, clenched her fists and 'collapsed' frequently. This was the third child of the parents and the labour had been normal. Family history: nothing relevant.

General Examination.—Bluish looking baby with blue sclerotics and bluish nails. Restless. Inspiratory laryngeal stridor with recession of suprasternal region, ribs and epigastrium. Cry hoarse. Could not suck breasts long. Infected pinna and whitlow toe, were present and were tender to touch. On admission temprature 99° F. Pulse 140 per minute. Respiration 36 per minute. Pupils normal. No generalised or local lymphadenopathy. Heart, lungs and abdomen normal.

Local.—Ears, Nose and Mouth normal. No external deformity of the larynx or trachea noticed. Direct laryngoscopy revealed a wallnut sized thin walled cyst showing arborising blood vessels in its wall ballooning the left half of the larynx pushing the laryngeal inlet forwards and to the right and deforming the epiglottis. Left pyriform fossa completely occupied by it. Left aryepiglottic fold, vestibular fold and arytenoid all replaced by the cystic swelling which was encroaching upon the

laryngeal inlet. Vocal cord on left side could not be visualised. Epiglottis deformed. Vallecula clear. No collection of saliva in the pyriform fossa.

Investigation.—Urine examination, blood picture and X-Ray chest inconclusive. Khan's Test negative. X-Ray larynx is reproduced to show the cyst.

Treatment.—During tracheotomy under local anaesthesia on 1—2—'56 Thymus was encountered which was gently retracted downwards and the isthmus of the thyroid retracted upwards after undermining it. Tracheotomy performed at the 3rd tracheal ring. Immediate improvement in general well being on relief of respiratory obstruction. On 4—2—'56 aspirated the cyst under direct laryngoscopy by a syringe and aspirating needle and removed 4 c.c of greyish slimy fluid which on chemical examination was found to consist of mucin. Cyst collapsed immediately. Deformed and displaced epiglottis returned to normal shape and situation. Laryngeal lumen opened up due to collapse of intralaryngeal part of the cyst. Baby could cry well next day on closing the tube, Checked the filling up of the cyst on 8—2—'56 and 25—2—'56. by direct laryngoscopy. Cyst remained collapsed and did not fill up. As the infant could breathe and cry properly after graduated closure the tube was removed on 1—3—'56. Wound healed well. Blue baby became pink, had a healthy look and became quite playful. Re-examination on 15—4—'56 revealed a normal larynx.

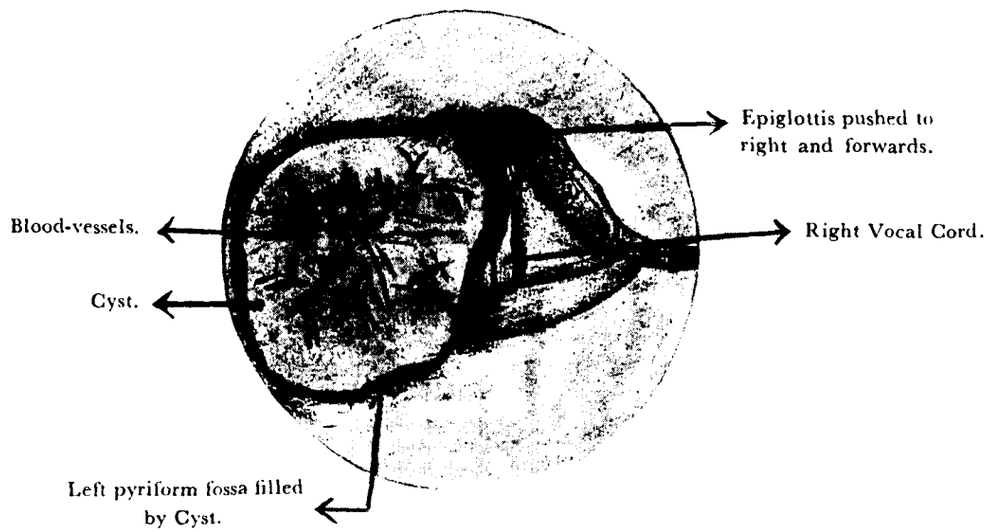
DISCUSSION

Diagnosis.—Stridor noticed soon after birth in infants brings to mind the following conditions in order of frequency :—

Group (A)—1. Congenital laryngeal stridor. 2. Laryngeal stenosis and web. 3. Laryngeal papilloma. 4. Laryngeal paralysis. 5. Cysts. 6. Prolapse ventricle. 7. Laryngocoele.

Group (B)—If the history is doubtful and the stridor is reported to have been noticed after some days of birth one has

Miss K. B. (Cyst Larynx) after operation (D. S. S.)



Appearance of Laryngeal Cyst on direct laryngoscopy (D. S. S.)

Congenital Cyst Larynx (D. S. S.)

Positive Print.

to consider 1. Diphtheria. 2. Tetanus neonatorum. 3. Tetany. 4. Septic edema larynx. 5. Laryngismus stridulous. 6. Typhoid, syphilis and Tuberculosis of larynx.

Group (B)—Causes were easily excluded by a careful history, clinical examination and laboratory investigations. Septic edema had to be considered in view of the history of injury to the larynx by finger nail, appearance of blisters all over the body and persistence of temp., whitlow toe and cellulitis pinna. Or one could have thought that the cutaneous lesions are manifestation of syphilis or pemphigus which was causing a bullous condition of the larynx simultaneously. James H. Sequeira states that infants may be born with bullous eruptions but usually these eruptions do not make their appearance until the 4th or 5th day. On closer examination one did not get a history of miscarriages in the mother, parents' blood for Khan's test was negative, baby did not present any other stigmata of syphilis, the cyst had blood vessels running in its walls which is unusual with blisters and aspirated fluid consisted of mucin only and did not show any inflammatory exudate. One is inclined to think that the lesion was a congenital cyst and not a blister though that is a point that could have been decided only by microscopic examination of the cyst wall. X-Ray chest excluded tuberculosis.

Direct laryngoscopy helped to exclude other causes in group (B) and (A) at first sight. This case impresses upon us the need of direct laryngoscopy in giving the final diagnosis rather than treating these cases as cases of congenital laryngeal stridor and hoping for the best.

Treatment.—Complete excision, though ideal, would have been a formidable procedure in an infant 2 months old if tried through lateral pharyngotomy. Moreover complete excision was inadvisable as by destroying the intralaryngeal part of the cyst one would have interfered with the normal anatomy and function of the larynx. Hence simple aspiration was performed as a preliminary procedure to be followed by peroral punching away of the outer wall of the cyst in case of failure.

The cyst collapsed after aspiration and did not seem to have any tendency to fill up again. However for want of a piece from the cyst wall the histological diagnosis remains unknown but aspiration restored the larynx to the 'ideal' normal. I am inclined to think that it was a mucous gland retention cyst arising from the ventricle of the larynx from its situation and fluid content.

SUMMARY

1. Short review of literature is given.
2. A case of congenital laryngeal cyst is described.
3. The danger of making diagnosis without direct laryngoscopy is emphasised.
4. Successful cure after simple aspiration is reported.

ACKNOWLEDGEMENTS

My thanks are due to Dr. S. P. Wanchoo, F.R.C.S., Civil Surgeon, for allowing me to publish the case.

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Association Notes

Annual Conference of the Association of Otolaryngologists of India

(Jamshedpur Session-December 1956)

PROVISIONAL PROGRAMME

Saturday, 29th December 1956:

(a) Tea at place of residence.

(b) Meeting of the Governing Body—Evening at 5, 'B-C' Road (Dr. Nath's residence).

(c) Dinner at Dr. Nath's residence, 5, 'B-C' Road.

Sunday, 30th December 1956:

(a) Breakfast at place of residence.

(b) 8-30 a.m.—Registration of delegates at the United Club Hall.

(c) 9-15 a.m.—Group Photograph of the members of the Association.

(d) 9-30 a.m.—National Anthem.

(e) 9-45 a.m.—Welcome address by the Chairman, Reception Committe—Dr. D. Ram.

(f) 10 a.m. - 12 Noon— (*i*) Inaugural address by Sir Jehangir Ghandy, Director-in-charge, The Tata Iron & Steel Co., Ltd., Jamshedpur.

(*ii*) Presidential address by Maj. K. K. Ghosh.

(*iii*) Vote of Thanks by Lt. Gen. K. S. Master, Director, Town, Medical and Health Services, Tisco Ltd., Jamshedpur.

(g) 12-30 p.m.—Lunch at Tisco Hotel.

(h) 2-00 p.m.—Scientific Session–Opening by Col. D. P. Nath, Director, Health Services, Bihar.

Vote of Thanks by the Secretary, Reception Committee, Dr. M. M. Nath.

(i) 2-45 p.m. - 4 p.m.—Scientific papers.

Tea—Interval.

(j) 5-00 p.m. - 6-30 p.m.—Scientific Session.

(k) 8-00 p.m. —Presidential Dinner.

(l) 9-30 p.m. - 10-30 p.m.—Entertainment.

Monday, 31st December 1956:

(a) Breakfast at place of residence.

(b) 9-00 a.m.—Scientific Session.

(c) 1-00 p.m.—Lunch.

(d) 2-30 p.m.—Visit to Tata Iron & Steel Co.s' Works.

(e) 4-00 p.m.—Tea.

(f) Sight seeing.

(g) New Year's eve.

8-00 p.m —Rotary Club Dinner at the Beldih Club.

(h) 9-30 p.m. - 10-30 p.m.—Entertainment.

Tuesday, 1st January 1957:

(a) Breakfast at place of residence.

(b) 8-30 a.m.—Scientific Session.

(c) 1-00 p.m.—Lunch.

(d) 2-00 p.m.—Visit to Subsidiary Companies.

(e) 4-00 p.m.—Tea.

(f) Sight seeing at Jamshedpur.

(g) 8-30 p.m.—Subscription dinner.

Wednesday, 2nd January 1957:

(a) 8-30 a.m.—General Body Meeting.

(b) 12-30 p.m.—Lunch.

(c) 2-00 p.m.—Trip to Noamundi Iron Mines, and disperse arrangements.

M. M. NATH,
Local Secretary.

JAMSHEDPUR

(Session 30th December 1956 to 2nd January 1957)

This is the premier industrial town of our country. It is 156 miles from Calcutta on the Calcutta-Bombay Main Line. The name of the railway station is Tatanagar. A train service for people coming from Delhi and Patna side comes in from Gomoh and Asansol (Eastern Railway) and joins the Calcutta-Bombay Main Line at Tatanagar. Unfortunately we have no Air-service. The nearest air ports are Calcutta and Nagpur.

It is a modern city with a cosmopolitan population. The Tata Iron & Steel Co.'s Works is the big organization around which the whole town is built. We have other subsidiary companies *viz.*. The Tata Locomotive Manufacturing and Engineering Co., The Tinplate Co. of (India) Ltd., The Indian Steel & Wire Products Ltd., The Indian Cable Co., The Indian Tube Co., The Indian Hume Pipe Co., etc. Not very far from Jamshedpur, there is Damodar Valley Project on which a number of dams and a barrage have been built and are being built. As our Prime Minister says they are the temples of the present times in our country. The original inhabitants of the area are Adibasis who have their own customs and are a gay and happy folk. There are Iron-ore Mines not very far from Jamshedpur from where the supply of ore arrives which is so vital for the production of Steel.

Hotel accommodation is unfortunately limited. We have two hotels *viz*, 'Tisco Hotel' and 'Boulevard Hotel' with the following schedule of charges :—

Name of Hotel.	Accommodation.	Charge.
(*i*) Tisco Hotel	... Single Room	Rs. 18/- per day.
,,	... Double Room	,, 32/- ,,
(*ii*) Boulevard Hotel	... Single Room	,, 12/- ,,
,,	... Double Room	,, 22/- ,,

However, arrangements for accommodation are being made with the hosts in the Northern Town. We are sure the members visiting Jamshedpur will be very comfortable enjoying their hospitality.

In case hotel accommodation is preferred, at least one month's notice will be required to reserve accommodation. It will facilitate our arrangements if information regarding the date and time of arrival of members as also the probable days they wish to occupy the hotel accommodation is given well in advance to enable us to receive the members at the Railway station and book their accommodation in hotels.

Any further information can be had from me if you drop a line.

5, 'B-C' Road.
Jamshedpur.

M. M. NATH

Government of India, Ministry of Railways. (Railway Board)

NEW DELHI,
Dated, 7—8—1956,

No. 4538-TC

To

ALL INDIAN RAILWAYS.

Sub : Rail Concession.

The Railway Board have agreed to extend the concession appearing in S. No. 18 (2) of annexure to Rule 114 of the I.R.C.A., Coaching Tariff No. 16 to the persons attending the Ninth Annual Conference of the Association of Otolaryngologists of India to be held at Jamshedpur in the last week of December 1956 on production of the requisite certificate from the Secretary, of the Conference.

Necessary instructions may be issued to the staff concerned, early.

(Sd.) V. SRIRAMAN,
Assistant Director, Traffic, Railway Board.

DA/Nil.
No. 4538-TC.

NEW DELHI,
Dated, 7—8—1956.

Copy forwarded for information to the Additional Deputy Comptroller and Auditor General (Railways) with 150 spare copies.

(Sd.) V. SRIRAMAN,
Assistant Director, Traffic, Railway Board.

No. 4538-TC.

NEW DELHI,
Dated, 7—8—1956.

Copy forwarded to Sri R. A. F. Cooper, Hony. Secy., The Association of Otolaryngologists of India, Navsari Building, Hornby Road, Bombay-1, for information with reference to his letter dated 13—7—1956 addressed to the Minister for Railways.

DA/Nil.
JS/4—8—'56.

(Sd.) V. SRIRAMAN,
Assistant Director, Traffic, Railway Board.

(TRUE COPY)

THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

(BOMBAY BRANCH)

The proceedings of the clinical meeting held on 18th July 1956 at the Sir J. J. Group of Hospitals, Bombay.

The following few interesting cases were presented :

CASE—1.

BILATERAL VOCAL CORD PARALYSIS WITH PALATAL PARALYSIS

By Dr. R. A. F. COOPER

S. P., female, aged 25 years, School teacher complained of - Hoarseness of voice - 9 months. Started suddenly without any fever.

Clinically following positive findings were noted :

(*a*) Paresis of left palate.

(*b*) Paralysis of right vocal cord abductor type.

(*c*) Left vocal cord paresis.

Investigations.— Screening Chest - N. A. D. Blood Kahn Test - Negative. Throat Swab - Negative for diphtheria.

She was treated with all antibiotics and symptomatically with Prostigmine, Vitamin B_1, Entodon, thinking it to be diphtheritic, antitoxin was given but with no relief.

Discussion.—Drs. Hiranandani and DeSa maintained the case to be of post-diphtheritic paralysis and left vocal cord had started moving suggesting recovery so that no further treatment should be given. Drs. S. R. Rege, Apte and Shah thought this case to be of virus origin and suggested Terramycin capsules and quoted a similar case which was treated under their care. The house requested to keep the case under observation and to report subsequently.

* * *

CASE—2.

LARYNGOFISSURE FOR CANCER INTRINSIC LARYNX

Dr. K. U. Shah presented this case after a follow up period of 9 months post-operatively. No deep x-rays were given. There was no suggestion of recurrence clinically.

It was advised to keep the case still under observation and to report now and then in future meetings.

* * *

CASE—3.

CANCER LEFT PYRIFORM FOSSA WITH LEFT ARYTENOID INVOLVEMENT

The patient was treated with deep x-rays (total : 8932 r.). Dr. K. U. Shah presented this case as a successful case treated with deep x-rays with 10 months follow up and no signs of recurrence. He maintained that x-ray therapy should be the choice in treatment when dealing with extrinsic carcinoma of larynx.

Dr. DeSa quoting the recent journal of Otolaryngology and Dr. Hiranandani from his personal experience suggested that surgery should be the line of treatment in our country taking into consideration the morbidity and economic condition of the class of patients we get.

* * *

CASE—4.

CANCER LEFT TONSIL

The only complaint the patient presented was little difficulty in swallowing. There was small ulcer on right tonsil. The biopsy was conclusive of squamous carcinoma.

* * *

CASE—5.

GROWTH LEFT NOSTRIL

Dr. Bharucha presented a case with a firm growth in left nostril for diagnosis. Excision biopsy through lateral rhinotomy route was suggested.

(This case was operated subsequently by Dr. Hiranandani. The growth arose from septal region and was easily removed. The biopsy report is *neurinoma*).

* * *

CASE—6.

SUPRAGLOTTIC ULCERATED GROWTH INVOLVING ANTERIORLY LEFT VOCAL CORD

Dr. R. A. F. Cooper presented the case for diagnosis. Chest showed healed foci of tuberculosis. It was suggested to have biopsy for diagnosis.

(Biopsy report has turned out to be squamous celled carcinoma. Deep x-ray therapy is advised as patient refused operation).

* * *

CASE—7.

SEQUESTRECTOMY OF PETROUS BONE FOLLOWING MASTOIDITIS WITH PETROSITIS

Post-operative x-rays of petrous bone were shown by Dr. Hiranandani, where extensive mastoidectomy was done and whole petrous bone was removed piece-meal as it had formed a big sequestrum. No damage to internal carotid artery was done. Dr. Hiranandani contended that excessive use of antibiotics precipitate the formation of such sequestrum. He presented this case because of its *rarity*.

THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA
(BOMBAY BRANCH)

The proceedings of the Journal meeting held on 22nd August 1956 at Dr. Homi Gandhi's Nursing Home.

The following article was reviewed :

(*a*) LARYNGOESOPHAGECTOMY

Primary closure with Laryngotracheal autograft

By MAX L. SOM,

A. M. A. Archives of Otolaryngology, Vol. No. 63, No. 5, May 1956.

Reviewer: Dr. N. T. MATANI

In the above mentioned article, the author after discussing the advantages of primary reconstruction of pharynx and oesophagus and describing the evolution of surgery for primary reconstruction of pharynx

and oesophagus after pharyngo-oesophago laryngectomy, describes a new technique of primary closure with laryngo-tracheal autograft. The suitable case for such a surgical technique is a case of carcinoma of hypopharynx involving the posterior wall of larynx with anterior portion of larynx free of disease.

The anterior half of larynx, anterior circumference of cricoid and upper tracheal rings are retained after wide excision of malignant tumour in continuity of posterior portion. These semi-lunar cartilaginous structures and the intervening mucosa and mucoperichondrium could be preserved to form the anterior half of newly constructed oesophagus. The posterior half could be supplied by split skin graft resting on prevertebral facing and sutured to the margins of laryngeal autograft.

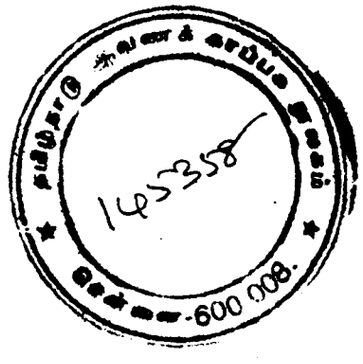
He describes one case wherein above technique was adopted. Patient has been followed for eight months post-operatively. No post-operative fistula. No stricture both clinically and radiologically.

(*b*) THE TREATMENT OF CARCINOMA OF HYPOPHARYNX AND CERVICAL ESOPHAGUS

By ORVILLE GRIMES & H. BORDIE STEPENS
A. M. A. Archives of Surgery, Vol. 72, No. 5, May 1956

Reviewer: Dr. D. W. ATRE

Author reviews his series of 25 cases of Carcinoma of hypopharynx and cervical esophagus treated by him with radical surgery by Wookey's method. According to him the results are not encouraging. He reports about the plastic reconstruction by flap method of esophagus and is of view that staged operation for plastic reconstruction of esophagus is better than one stage operation with (one stage method with tentallum mesh) as tentallum mesh causes extensive fibrosis around the graft. He is of opinion that loose, supple skin tube due to stage operation is functionally better than stiff fibrous tube due to tentallum mesh. He has described his own method of one stage reconstructive surgery by laying a skin graft over prevertebral fascia.



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V. P. KARNIK,
Hony. Secretary, Bombay Branch.

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Vol. VIII, No. 4 DECEMBER 1956

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Official Scientific Journal of the Association of Otolaryngologists of India

INDIAN JOURNAL OF OTOLARYNGOLOGY

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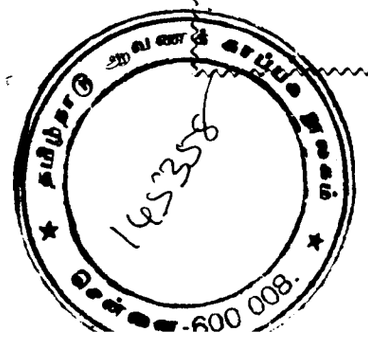

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1. Original Articles are accepted on the condition that they have not been published elsewhere.

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3. Orders for reprints should be sent along with the articles.

4. Editorial communications may be addressed to Editor, Indian Journal of Otolaryngology, Lempert Hospital, 1-A, Marshall's Road, Egmore, Madras-8.

Indian Journal
OF
OTOLARYNGOLOGY

Vol. VIII, No. 4
DECEMBER 1956

OFFICIAL SCIENTIFIC JOURNAL OF THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

Critical Evaluation of the Histopathological and Biochemical Changes in Nasal Allergy

BY

Dr. TULSI DAS, F.R.C.S., D.O.M.S. (AMRITSAR).

Allergy means "altered capacity of the tissues to react to a subsequent exposure to a particular substance". The modern concept is that it includes a group of *diseases of adaptation* to a relative insufficiency of the adreno-cortical response. In essence it is an *altered type of response* and is essentially physiological and protective rather than pathological. It is physiological in that it is discontinuous and not continuous, its reactive phase is followed by its refractory phase and all changes are reversible in the early stages. It is really a disturbance of the normal biotonous of the body mechanism. It is an autonomic imbalance with preponderance of parasympathetic and disturbance of acid base equilibrium (with preponderance of alkalosis) ; a disturbance of Na & K metabolism ; a disturbance of water metabolism. It is a failure of the *general adaptation* or maladjustment of the body and mind to the increasing tempo of modern life.

There are at least half a dozen methods of dealing with a foreign invader and Histamine response is one of the oldest developed in evolution. The latest to develop are the antibodies, etc. but if somehow the body fails to take advantage of the newly developed mechanisms of defence, the primitive Histamine response comes into play especially in an emergency. This allergic response would, therefore, indicate a certain failure of the more highly developed and specific response of Phago-cytosis, cell Proliferation and antibody neutralization.

Incidence.—In the Punjab, Hay fever is a rarity, hardly one or two cases a year whereas cases of nasal allergy form 3 to 5% of all the patients coming to us. There is slight preponderance of females. The maximum number is in the age group of 20 to 30. The seasonal variation shows an appreciable increase at the change of season, more so in autumn. Tables I and II showing the seasonal incidence and age and sex incidence, respectively, are attached.

TABLE I

Seasonal Incidence of Nasal Allergy

		1953	1954	1955
January	...	43	40	60
February	...	33	35	50
March	...	54	65	68
April	...	34	45	55
May	...	29	42	56
June	...	43	60	37
July	...	54	48	70
August	...	53	60	86
September	...	50	46	50
October	...	27	55	87
November	...	75	58	45
December	...	47	29	...
Total	...	542	583	664

TABLE II

Age and Sex Incidence of Nasal Allergy

	0-10	11-20	21-30	31-40	41-50	51-60	61-70	
Male ...	6	48	107	51	22	5	5	= 244
Female ...	7	77	138	51	18	4	3	= 298
Total ...	13	125	245	102	40	9	8	542
Male ...	13	56	100	52	20	6	—	= 247
Female ...	19	90	131	55	33	8	—	= 336
Total ...	32	146	231	107	53	14	—	583
Male ...	17	90	103	46	35	23	3	= 317
Female ...	10	99	142	65	24	7	—	= 347
Total ...	27	189	245	111	59	30	3	664

Histopathological changes.—(Plurality of the Histopathological changes).

(*a*) **Cellular Response.**—Eosinophil is considered to be the predominant cell. It is so in all *anaphylactic reactions but not otherwise*. The latest view is that plasma cell or plasmocytosis is a *measure of common allergy*, and that these cells are concerned with antibody formation and presence of gamma globulin in the blood. Hyperglobulinaemia is a measure of *plasmocytosis*. (Russel bodies and peculiar cytosis). The varying percentage of Eosinophils may of some help in determining the nature of the infection—*vide* Table III attached.

TABLE III

Percentage of Eosinophils determining the nature of infection

1. Less than 3% is normal.
2. More than 3% is significant.
3. 3 to 7% Extrinsic protein sensitivity (Pollen or food).
4. 12 to 20% Infective factor.
5. Over 20% possibly Collagen disease, Parasitic infection and Loeffler's Syndrome.

(*b*) **Connective Tissue Mesenchymal Response.**—The modern concept is that the changes are primarily in the connective tissue *i.e.* mesenchymal, in and around the small blood vessels. The predominating response is vascular and is confined to the connective tissue of the stroma and its blood vessels. The vascular response is different in capillaries and arteries. It is easy to understand that capillaries dilate but the capillary permeability is increased *pari-passu* with dilatation with the result that there is intense oedema of the submucosa. This fluid contains fibrinogen and fibrin as the excessive permeability allows a larger molecule of fibrinogen to pass through. The phenomenon of arterioles is different as there may be vaso-constriction in some, vaso-dilatation in others. These manifestations in nasal allergy though diffuse are just like those of Collagen disease (Masenchymal Response) *i.e.* periarteritis nodosa, Rheumatic Fever, Rheumatic Arthritis, acute disseminated Lupus Erythematosis, etc. The histopathological study carried out in our hospital reveals that

all histopathological changes are not present in one and the same individual. The slides show that some of them give marked oedema, others marked changes round about the blood vessels (immediate changes). Others show overaction of glands, mucinous degeneration, pseudostratification, infiltration and later on proliferation and fibrosis. Some regard the invariable thickening and hyalinization of the basement membrane as a *very important peculiarity*, *i.e.* almost pathognomonic.

The Microphotographs vividly show the various changes :

A. Marked oedema.
B. Mucuous degeneration of epithelial cells with marked thickening and hyalinization of the basement membrane.
C. Pseudo-stratification of the nasal epithelium.
D. Dilated duct showing obstruction.
E. Mucous glands emptying on surface.
F. Infiltration with plasma cells and lymphocytes.
G. Perivascular infiltration.
H. Fibrous tissue round the glands and otherwise (Chronic inflammation).

VASCULAR CHANGES

I. Oedema of the vessel wall.
II. Infiltration of the vessel wall (not typical) with oedema.
III. Vessels with chink like cavity and fibrosis round about and in the vessel wall.
IV. Endarteritis and intense infiltration (localised and follicular or nodular with Russel body).
V. Complete Endarteritis obliterans of the vessels.

The histopathology of allergy may not offer any pathognomonic manifestations because the same changes may be produced by non-allergic stimulant.

The picture is not so easy to study in our country because of the similar pathology produced by fungus diseases of the skin,

PHOTO MICROGRAPH OF HISTOPATHOLOGICAL CHANGES

A—Oedema (marked Oedema of the tissues superficial).

B—Mucus Degeneration of Epithelial Cells B. M. (marked thick and hyalinized).

C—Pseudo-stratification of Epithelium.

D—Dilated Duct showing obstruction.

PHOTO MICROGRAPH OF HISTOPATHOLOGICAL CHANGES

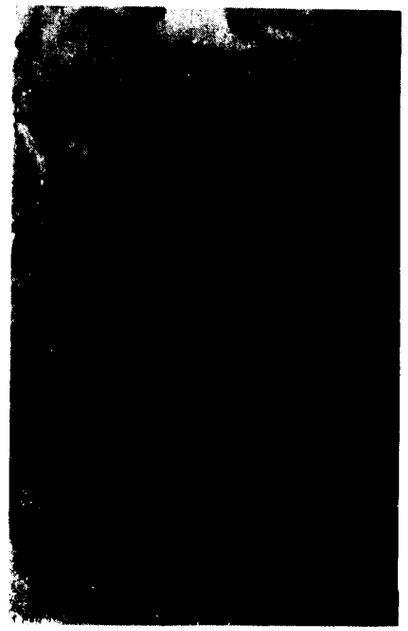
E—Mucus glands emptying on surface.

F—Infiltration showing Chronic Inflammation, with Plasma cells and Lymphocytes or allergy or both.

G—Perivascular infiltration.

H—Fibrous tissue around the glands.

PHOTO MICROGRAPH OF VASCULAR CHANGES



I—Oedema of the vessel wall.

II—Infiltration of the vessel wall.

III—Vessel with chink like cavity and slight cellular infiltration.

PHOTO MICROGRAPH OF VASCULAR CHANGES

IV—Endarteritis and Perivascular infiltration.

V—Complete Endarteritis obliterans of the vessels.

various granulomatous diseases *e.g.* Brucellosis, Histoplasmosis, etc. and finally because of the various parasitic diseases. All these cause a foreign reaction and increase of Eosinophils.

As every one of us knows that any noxious substance will cause some tissue damage with the liberation of H-substances (Histamine Team) *i.e.* Histamine along with Heparin, Hyaluronidase, Bradykinin, Exudin, Pyrexin, Leucotaxin, Acetylcholine, etc., the slow-reacting substance of Kellmor. Of these, Histamine is the most important and its prominent action is on the vascular bed especially the capillary bed. The changes are, therefore, confined to connective tissue and to capillaries and small blood vessels. They are essentially vascular in nature. This change in the connective tissue is responsible for the prevention of further cellular damage.

Biochemical effect.—With any type of stimulus, physical, electrical, radiational, bacterial, etc. there is some cellular damage. This action of the cell and stimulus results in the liberation of certain substances already mentioned above. Of these the most outstanding is Histamine (Diamine-Oxidase). It is a powerful versatile agent effecting various organs and tissues. Its physiological and pharmacological actions are :

(*a*) Upon the blood vessels especially the capillaries : extreme vaso-dilatation but with extreme capillary permeability. It differs from other Vaso-dilators in that they do not produce so much capillary permeability. Moreover all Anti-histaminics neutralize all effects of histamine except the capillary permeability. This is caused by the Hyaluronidase. A.C.T.H. and Cortisone neutralises this action.

The effect on capillaries is uniform and that forms the first line of defence. The effect on arterioles and medium sized vessels is different, in some there is vaso-dilatation in others vaso-constriction depending upon the dose, mostly vaso-dilatation but with heavy dose vaso-constriction in the large arteries.

(*b*) **Smooth Muscles.**—This is always stimulated. It is a cardinal and fundamental effect. This action varies not only

with species, but also with various organs, their state of alertness and previous exposures.

Glands.—They are stimulated. This is especially noticeable in the stomach and bronchial mucosa.

Adrenal-Medulla.—It increases the output of adrenalin from the Adrenal. Medulla, Adrenalin (epinephrine) acts to liberate histamine (in emotional stimuli) and furnishes ammunition or data for those who believe that antagonistic agents have a regulatory effect on circulation and tend to counter balance each other.

Hyperglycaemic effect.—This is due to adrenalin discharge.

Although it may look paradoxical, all this is a protective response to localise the mischief and bind down the aggressor, but sometimes due to alertness of the tissue, overshoots the mark and reaction is much more than the action. It acts directly on the tissue without the intervention of nerves or hormones and so also the anti-histaminics.

The modern concept is that there is either a primary liberation of histamine from the local tissue damage which stimulates supra-renals to produce its adrenalin during emergency or in an emotional stimulus. Adrenalin is produced first and it stimulates production of histamine. This adrenalin stimulates anterior pituitary directly or through hypothalamus (when emotional) or both and leads to the production of A. C. T. H. and inhibition of the production of other hormones, gonadotrophic etc. and this stimulates the adrenalin medulla for the production of mineral and gluco-corticoids which antagonise the histamine. (Especially gluco-corticoids - hydro-cortisone). They act directly on the capillaries and smooth muscles as does histamine.

Depending upon the suddenness and severity of attack by a foreign substance, the body reacts in various ways. The Table IV epitomises the various histopathological and biochemical changes.

TABLE IV (Adopted from Progress in Allergy by Kellos)

Correlation between histological changes and clinical and immunological phenomena in allergic diseases.

Histo-Pathological changes	Type of Clinical reaction	Velocity Clinical course	Duration	Skin reaction	Increased			Eosoniphilitis	Necrosis
					Antibody in serum	Serum globulin	Specific infection		
1. Necrotising ...	Immediate	Rapid	Short	0 or ± (Necrosis)	0 or +	0	0 or +	0 or +	++++ (diffuse)
2. Anaphylactoid ...	do	do	Short or moderate	Wheal type	Frequently	Usually	0	+ to++++	+ (Fibrinoid)
3. Granulamatous Tuberculoid ...	Delayed	Variable	Short to Long	Tuberculin Type	0	0 to+++	+	0	++ (Caseous)
Rheumatoid ...	do	Slow	Long	0	0	0 to++	0	0 or +	++ (Fibrinoid)
4. Hyalinoid									
(*a*) Collagen diseases ...	Delayed	Variable	Short to Long	0	0	++	0	0 or +	++ (Fibrinoid)
(*b*) Anyloidosis.	do	Slow	Long	0	0	+ to++++	0	0	0

CONCLUSIONS

(1) Nasal allergy is a vascular allergy, the arena of inflammation is connective tissue (mesenchymal and so is a form of Collagen disease).

(2) Histopathological changes are varied and none is pathognomonic, although in combination they may betray the nature of the disease from the examination of the slide.

(3) Cellular response is fairly characteristic.

(4) There is a definite correlation between histopathological and biochemical changes.

(5) The combined investigations (both histopathological and biochemical) give a fair clue of the disease.

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*Manifestation of Allergic Reactions in Nasopharynx

BY

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Before I say my few words regarding allergic manifestation in nasopharynx I would like very briefly to refresh the knowledge of anatomy and physiology of nasopharynx. It is the upper most and the widest part of the Pharyngeal Cavity. Wood Jones regards it as the posterior continuation of the nasal passages. It commences at the border of nasal septum. Its boundaries except the one below are formed by bony skeleton. So unlike other parts of the pharynx its cavity is never obliterated. Over the skeleton, which is formed by Basi Sphenoid and Basi Occipital above - medial pterygoid plates laterally - Arch of atlas behind and palatine bones in front, partially covering it are two sets of muscle fibres. On the outside we have circular fibres of superior constrictor muscles and on the inside palato thyroideus and palato pharyngeus - salpingo and stylo pharyngeus with levator and Tensor palati. Covering the muscular layer is the pharyngeal aponeurosis over which is the omnipresent lymphoid tissue in turn covered by the mucous membrane. There is loose connective tissue between the prevertebral muscles and the mucous membrane. The mucosa in the upper half is ciliated and lower half squamous epithelium.

In the roof of the nasopharynx there is a small depression in the mucous membrane called pharyngeal bursa which keeps its importance due to Tornwaldt who described his disease.

In the side walls right under the base of the skull the musculature is deficient. Pharyngeal aponeurosis comes in direct contact with the buccopharyngeal fascia. This unsupported area is named as Sinus of Morgagni. Orifice of Eustachian

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tube is located here and is just behind and below the posterior end of Inferior turbinate. Posterior to this is the Eustachian cushion and behind the latter we have the lateral pharyngeal recess also called Fossa of Rosenmuller. Two folds of mucous membrane proceed down behind and in front of the Eustachian opening. They are named as salpingo pharyngeal and salpingo palatine folds respectively.

The mucous blanket in the nose propelled by the ciliary movement reaches the nasopharynx in streams both above and below the Eustachian opening. Dust and bacteria which arrive entangled in the mucus are directed down to pharyngeal isthmus by elevation of the longitudinal group of muscle fibres followed by the squeezing effect of superior constrictor muscle. Nasopharyngeal space acts as a resonator for the voice and is responsible for its timbre which is distinctive of different people.

Very little has been written about the manifestations of allergy in the nasopharynx. The reason is, as Wood Jones said, Nasopharynx is physiologically a part of nose. So what goes on in the nose also happens in the nasopharynx.

Antigen antibody reaction is described by Coca as Atopen—Reagin reaction when talking of allergy. Production of histamin in the subepithelial tissue brings about erythema accompanied by dilatation of vessels which means increased capillary permeability. There is transudation which is a subepithelial phenomenon producing oedema and there is exudation which means passage of tissue fluid flood through the epithelium. In the region of nasopharynx this would be a type of postnasal drip. Sensory irritability brought about by histamine and extra pressure in the turgescent mucosa shows up as itching—sneezing and cough.

Negus recognises four types of manifestations:

1. Seasonal allergy.
2. Perennial allergy.
3. Chronic non-inflammatory oedema.
4. Intolerance to drugs.

When talking of aetiology there are three important factors namely Hereditary tendency—Local sensitivity of the mucosa and presence of a suitable allergen.

HEREDITY

It is a well known fact that allergic diathesis travels in families and is more often transmitted through the mother. Manifests itself with a vengeance in the 1st decade of life and slowly tails off in forties—Educated classes bear the brunt more than their unsophisticated counterpart, due to the sympathetic parasympathetic imbalance. The condition is come to be known as the 'adaptation syndrome'. It is a common experience for those of us who have put in twenty years and over to say that the syndrome is on the increase. *Nasopharynx* is not an uncommon site of local sensitivity, will be borne out by the fact that very frequently the patient volunteers the history of the cold starting with itchiness behind the nose and above the palate. *Allergens* are categorised as inhalants, Infectants, Ingestants—and injectants. We are mainly concerned with the first two in the part of anatomy we are dealing with. Apart from pollens—fungi and dusts nonspecific inhalant like smells—smokes and fumes particularly in industrial areas have their victims. Physical agents like light—heat and cold are no less important. King (1949) working on Europeans in middle east declares that his patients felt better with advent of cold weather while we in India get our cases in winter, attacks coming on in the mornings and evenings with the drop in temperature. Disturbance of physiology of nasopharynx as Dr. Clein points out comes about by proliferation of lymphoid tissue which nature here provided in abundance both at the back wall and around the eustachian orifices. The site of allergic manifestation is under the epithelial tissue like anywhere else. Oedema thus produced joins hands with the lympoid tissue in further obliterating spaces. It can easily be imagined at this stage how the enlargement of the posterior ends of inferior turbinates and septal surfaces of the posterior part will make matters worse. Eosinophils are the torch bearers of the allergic phenomenon. They are present everywhere. It

has been found that their nuclei are bilobed with coarse granules in acute conditions and mononuclears with fine granules in chronic states. Chronic non - inflammatory Oedema of Negus is characterised by its even distribution, hyperplasia of epithelial layers and thickening of the basement membrane. Vitamin C and Calcium shortage accompanied by parathyroid dysfunction are believed to be responsible for the weakness of the blood vessel walls to allow the seepage. Reaction of the transudate and exudate shows rise in pH. This led Beckmen to believe that alkaline reserve of the blood is stored up in allergic state. There is said to be alteration in the secretion of CO_2 from nasal mucosa.

Apart from the usual sneezing - excessive exudation and conjunctival irritation, nasopharyngeal symptamatology includes Eustachian block showing up as conductive deafness - disturbance of resonation of voice, head aches and mouth breathing-Allergic condition of the nasopharynx predisposes to barotrauma in the case of fliers.

Morning attacks are associated with the excessive amount of pollen in the air in early part of the day and also due to a great demand on the air conditioning mechanism of the nose. There is faulty adaptation particularly when the atomospheric humidity is high.

For diagnosis - Skin tests are not reliable - mention however is made of Vaughan's test. There is a reduction of white cells in the blood by a 1000 after allergic foods. The nose is usually released of its responsibility to manifest allergy after the age of 45 but there is a tendency for a shift of the site to bronchial tubes or elsewhere.

Treatment is a matter of trial and elimination:

1. We tell the patient to avoid the precipitant irritants if he knows it.

2. We attempt to hyposensitise the patient by neutralising the reagin, only if we know the allergen specifically. There is however a non - specific way of doing the same thing peptones -

Serum - Histamine - Auto vaccines are employed to hyposensitise the patient starting with minimum doses increased at biweekly intervals.

3. Attempt is made to make the vessel walls tough and less permeable by administering calcium with vitamin D & C. Acid by mouth in the form of dilute Hcl and Citric Acid to neutralise alkali of the body. CO_2 inhalations are ordered.

4. Vasoconstrictor nose drops - Ephedrine $\frac{1}{2}$ to 1% in normal Saline, Protargol 2% & Argyrol 5% in normal saline and Privine are tried.

5. Removal of accompanying infection in Tonsils and sinuses.

6. In America several workers have used radium applicators in nasopharynx with the object of destroying lymphoid tissue 8 minutes is the total dose - 30 seconds each side at 4 weekly intervals. They report good results both in the way of restoring hearing and curing asthma.

7. Physiotherapists suggest forcible breathing out through each nostril alternately to decongest the nasal mucosa (Pranayam of yogic exercises). They also claim that hot foot baths have a beneficial effect towards restoration of nasal air way.

8. General treatment includes rest - correction of diet, work, plenty of air and exercise - Regularity of excretory functions.

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Allergy of the Ear

BY

Dr. V. S. SUBRAMANIAN.

Dr. Tulsidas has dealt with allergy in general and with special reference to nose and paranasal sinuses. Nasal manifestation is of course the most important as far as we otolaryngologists are concerned, but it must be remembered that allergy does manifest itself in other parts also, specially like allergy of the ears, eyes, skin, intestines etc.

In considering allergy of the ear, I would like to classify it according to the anatomy of the ear (*viz*),

1. Allergy of the External Ear.
2. Allergy of the Middle Ear, including the eustachian tube.
3. Allergy of the Inner Ear.

Allergy of the External Ear.—The external ear is lined by skin, and so all forms of skin allergies may be met with in the external auditory canal or the pinna. But, more common than these are the allergies which result from the use of various ear drops. The skin becomes hypersensitive and on coming into contact with any specific excitant, it undergoes allergic inflammation. These excitants may be some antibiotic in the ear drops, as often is the case, or it might be anything like powder, soap, dress materials like silk, fur, cotton, wool, etc. Spectacle ends often produce allergic condition in the back of the pinna. Ladies wearing ear-rings often suffer from allergic condition of the ear lobe. Amongst ear drops which cause allergic reaction of the external auditory canal, Chloromycetin Topical is the worst offender in my experience. Glycerine Carbolic and Ciloprine come next. Bathing in the sea and pools may also give rise to such allergy of the ear.

The treatment for any of these allergic conditions lies in finding and removing the excitant. Reactions clear up promptly once the excitant is removed. 1% Cortisone ointment also helps a great deal in curing these allergic conditions. If secondary infections are superimposed, as usually is the case in long standing allergic external otitis, they have to be controlled by suitable antibiotics.

Allergy of the Middle Ear.—Just as the external ear may take part in some of the allergic conditions of the skin, so also the middle ear and eustachian tube take a share in many of the allergic conditions of the nose and naso-pharynx. This is mainly because of the continuity of the mucous membrane of the eustachian tube with the Schneiderian membrane, and so all diseases of the nose and naso-pharynx affect the eustachian tube equally.

Acute Eustachian Catarrh.—Amongst the various etiological factors which may cause acute catarrh of the eustachian tube we should not forget allergy. This may be of the seasonal perennial type, of bacterial or food allergy. This produces the subjective symptoms of fullness or stuffiness of the ear, associated with sneezing and running of the nose. Prompt relief is got by the use of nose drops along with antihistamine drugs and eustachian catheterisation.

Chronic Eustachian Catarrh.—The chronic eustachian catarrh may lead to permanent defect in hearing associated with pathological changes in the eustachian tube. The pathological changes in the eustachian tube may be of the hypertrophic, hyperplastic or atrophic type. This pathology of the eustachian tube invariably involves the middle ear and the tympanic membrane also. Allergy probably plays a very important role in chronic hyperplastic eustachian catarrh, but fortunately, the prognosis is good when it is due to allergy, while in other forms of chronic hyperplastic eustachian catarrh the prognosis is not so good in relation to defective hearing.

The subjective symptoms are (1) dullness of hearing, associated with fullness in the ears, (2) tinnitus and autophony and (3) occasional vertigo.

If the chronic eustachian block is due to allergy, it is easily detected by the fact that the patient has other allergic symptoms like sneezing, wheezing, rhinitis, skin manifestations, intestinal allergy etc. Eosinophils in blood and secretion of the nose and tubes will also help in establishing this form of chronic allergic eustachian block.

Treatment of this form consists mainly in finding out the allergens. Antihistaminic immunisation against the responsible allergens will usually cure this condition.

ALLERGY OF THE MIDDLE EAR SPACE

(1) **Otitis Media Bullosa.**—It is a condition where a single or multiple blebs or bullae are found in the ear drum. The bleb usually contains sero-sanguineous fluid, free from organisms. Many clinicians feel that there is an allergic background in these cases. Indiscriminate use of ear drops may also produce this condition. Treatment consists in simple puncture and evacuation and not myringotomy.

(2) **Transudative non-inflammatory Hydrotympanum.**—Fluid in the middle ear may be due to lowgrade infection of the nose and naso-pharynx, which produces eustachian block and collection of fluid in the middle ear. Many Otologists consider this condition to be one of allergic manifestations. Barotrauma producing a vacuum in the middle ear may result in hydrotympanum. But in such cases there is the history of air travel etc. Subjective symptoms of fullness in the ear, gurgling sound upon blowing the nose, tinnitus and even vertigo are present. Objective symptoms are bulging drum and hair line indicating fluid level. In allergic type the fluid is clear and colourless and with antihistamines the fluid tends to decrease and even disappear.

Inner Ear.—It is not quite established as to whether allergy plays any definite part in the diseases of the inner ear. Many otologists think that allergy may be a contributory factor in "hydrops of the inner ear", giving rise to Meniere's syndrome.

Therefore, antihistamines are also prescribed in such cases along with salt free diet etc. Also histamine by intravenous drip method has been tried with success in these cases.

Histamine Cephalgia.—Horton has described this condition and attributes it to the liberation of histamine in the tissue. Probably this is to be considered a type of allergic headache which responds well with antihistamines and histamine desensitization.

Myalgias of the Head and Pharynx.—This is a syndrome associated with intrinsic physical allergy. It is characterised by localised tender spots which may be at the upper border of the trapezius, Splenius Capitis, upper third of Sterno-Mastoid and temporal muscles, or in the throat. Dr. Williams attributes it to "pituitary-adrenal alarm-reacting apparatus". In physical allergy the antigen-antibody reaction for histamine liberation is absent. But yet the histamine is liberated. Probably this is due to deficiency of adreno-cortical harmones. Drugs like Nicotinic Acid which dilate the capillaries are used in this condition.

Psychosomatic Aspect.—Before concluding this article, I feel that a special mention must be made of the significant part played by psychosomatic component in allergic conditions. The allergic disorder may be a somatic manifestation of emotional conflict. Therefore, a psychological study of the patient will definitely help in the management of allergic conditions.

CASE REPORT

Fracture of Neck of Malleus

BY

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AND

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The unique appearance of the tympanic membrane and the interesting features of traumatic deafness due to combined effects of fracture temporal bone and concussion that this case presents has prompted us to report this case. We have failed to locate a similar case report over the past few years. In the comprehensive discussion on injuries of the ear, opened by Lionel Colledge no mention of fracture or injury to the ossicles is made except that V. E. Negus stated that the case that had come to him had not shown marked damage to the contents of the middle ear or the ossicles. Mollison described a case, subjected to violent explosion in a munition factory, in whom the incus had been dislocated and was lying loose in the antrum stained with gun powder. Lionel Colledge pointed out that in microscopical fractures of the labyrinthine capsule the footplate of the stapes may be broken into fragments which override one another or become comparatively widely separated. Rare entity as it is, it may be well to refresh our knowledge about traumatic deafness.

Deafness due to Fractures of Temporal Bone.—Fractures may be macroscopic or microscopic.

Macroscopic Fractures.—Are of three classes:—(*i*) Longitudinal (*ii*) Transverse and (*iii*) Mixed.

Longitudinal.—Fractures of the temporal bone are more frequent and involve the outer and middle ear. Fracture line runs either from squamous portion medially, involving the roof

of External auditory meatus, the tympanic ring and tegmen tympani; or from the parietal bone across the upper part of the mastoid process to the tegmen. From the tegmen the line follows the anterior aspect of the petrous bone and ends in one of the foramina of the middle fossa. Tympanic membrane is generally torn and there is bleeding from the middle ear. Internal ear, however, remains intact, deafness being of middle ear type. The deafness is never total and gradually improves.

Transverse.—Fractures of the temporal bone are rarely encountered clinically as death usually precedes. The fracture line crosses the petrous bone at right angles to its long axis *i.e.* it traverses the floor of the skull anteroposteriorly. The line may involve the promontory or the middle of the labyrinth or the internal auditory meatus. Tympanic membrane remains intact so that there is no bleeding from the ear but there may be hemotympanum if the promontory is involved in the fracture line. There is almost complete incurable perceptive deafness, with loss of vestibular function in all cases. Some degree of permanent facial paralysis is usual.

Fractures Base of Skull.—Involving the temporal bone are followed by deafness which is often permanent. Middle fossa is most frequently involved in fracture of base of skull due to the line of weakness which exists by the union of basiocciput and basisphenoid from the petrotympanic fissure to the foramen lacerum. Pharyngotympanic tube, canal for tensor tympani, tympanum and tympanic antrum are intimately connected with this line.

A peripheral paralysis of the VII nerve has been recorded in 46% of fracture base of skull and almost all the cases which survive are of the middle ear type of deafness (Davis). Therefore the prognosis of cases in which labyrinthine capsule is involved is extremely grave. Giddiness and tinnitus may accompany the deafness but the giddiness usually disappears after sometime. If both blood and C. S. F. flow from the ear, the labyrinthine capsule or dura mater or both have been injured and if due to the former, permanent deafness will result if patient recovers.

In such fractures facial nerve is commonly injured at the time of the accident. In the majority, involvement is temporary and is due to concussion, or extraneural or intraneural haemorrhage. Occasionally the nerve is torn and paralysis is permanent. In some cases paresis develops some weeks after injury owing to pressure on nerve by fibrous tissue or callus. Spontaneous recovery in these cases is unlikely but exploration may reveal a remediable condition. VIII nerve is sometimes injured in which case deafness follows.

Microscopic Fractures.—They are confined to the otic capsule which is broken up by fine cracks like a crushed egg shell, usually radiating from the weakest part of the capsule, which is near the oval and round windows. The membrane of the latter may be ruptured. Facial nerve is not injured.

It seems possible that the permanent type of deafness following tangential blows on the skull with high velocity bullets may be due to small fractures, as well as the normally conjectured or observed haemorrhages in the cochlea. Without X-Ray evidence it is impossible to tell whether a microscopic fracture exists in a living subject. Actual histopathological lesions that cause deafness are haemorrhages into the canals of the cochlea and internal meatus, or rupture of Organ of Corti, so that it is thrown off the basilar membrane as is seen in the severe concussion of the labyrinth. Deafness is usually complete and the endochondral middle layer of bone does not regenerate and lays a potentially open track for meningeal infection later. It is possible that such a fracture could occur without immediate ear symptoms being noticed and thus could act as a cause of some of the unexplained cases of perceptive deafness. Any patient still suffering from perceptive deafness 6 months after a diagonsis of concussion has been made, may well be considered as suffering from a 'contusion injury' and this could be due to a microscopic fracture.

Since the deafness is nearly always immediately complete, any residual hearing after an injury is, perhaps unjustifiably, taken to indicate that the fracture has not occurred. It is therefore

unnecessary to consider whether such trauma initiates a slow progressive high tone deafness as may be seen after 'concussion'.

Concussion Deafness.—Occurs after falls or blows on the skull or mandible. In some cases comparatively trivial blows, such as box on the ears, may lead to a perception deafness; in the absence of any abnormality such as rupture, ecchymoses or marked hyperaemia of the Tympanic membrane, it seems unlikely that it is a 'blast' effect and the disability is a true concussion. It is in these cases that Watkyn Thomas (1939) noted that there is a complete absence of vestibular symptoms and he suggests that this is due to the action of utriculoendolymphatic valve.

Deafness may be marked. If bilateral, it is more marked on one side than the other.

By its usually accepted definition concussion is a temporary paralysis of nerve function and resolves completely in any period upto 6 months. It is the usual finding that very few cases of concussion deafness become permanent. Recovery usually occurs within a few days, but may take a few weeks and rarely several months. If a perceptive deafness from direct trauma lasts for more than 6 months, pathological process is probably a different one, and the occurrence of 'contusion' perhaps with microscopic fractures, may have to be envisaged.

Although 6 months is the recognised time after concussion before a permanent lesion is assumed, some Scandinavian workers have found recovery occurring upto 2 years after a head injury.

Colledge (1940) suggests that once a 'concussion deafness' is established, there is a progressive deterioration over the whole range of frequencies, so that eventually an early senile deafness is produced.

Case Report.—Examined on 20th October 1955.

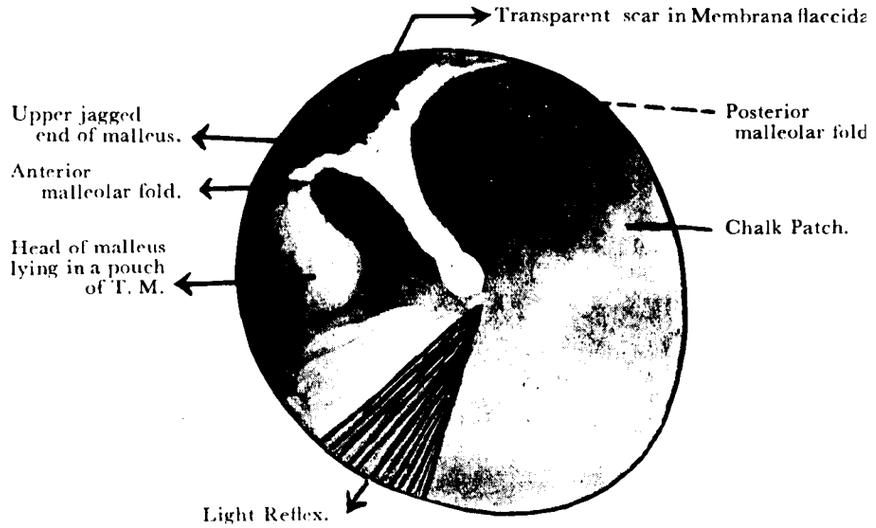
S. N. Laet 26 years, teacher, got involved in a house collapse on 27—10—1954. A family of 6 members was sitting under a ledge over the roof of the house, when the ledge fell upon them killing five instantaneously. The roof in turn gave way and all the six fell down by another 10 ft. This survivor was removed to a district hospital in an unconscious state where he is alleged to have regained consciousness after about eight hours. Relatives report that he had flow of blood from the left ear. After 3-4 days of injury patient realised that his hearing was impaired. Subsequently he did not develop any pain or otorrhoea. He did not have any tinnitus. He does not remember having had any vertigo. He also developed facial paralysis on the same side as well as loss of taste over the left half of the tongue which started improving after about 2 months of injury and have completely recovered now.

His hearing and the power to localise sounds has improved since 3 months. Power of discrimination is still subnormal. He has a weak memory for the recent past. Speech is normal.

He had typhoid when 12 years old but his hearing was absolutely normal till after this accident. No family history of deafness.

On examination the right tympanic membrane was found normal while the left T. M. presented a uuique appearance which we have tried to depict in the accompanying pencil diagram for want of photographic facilities.

It was pearly grey shining tympanic membrane with a chalky patch over the posterior superior quadrant. Light reflex was normal. The neck of the malleus presented a jagged and through a transparent thin membrana flaccida indicating a fracture. Posterior malleolar fold was in its normal position while the anterior malleolar fold sagged to form a pouch containing the bony white globular head of the malleus. The appearances were confirmed by an otomicroscope and the mobility of the drum tested. The drum was mobile except in the region of pouch containing the head of the malleus. The chalk patch and papery



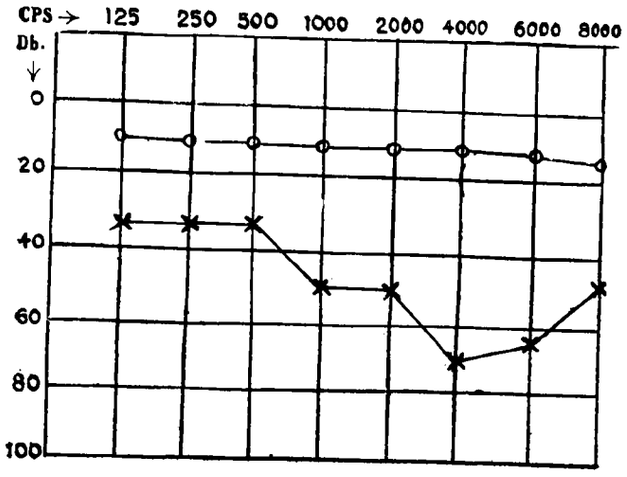
Pencil Diagram Showing Left Tympanic Membrane. There is fracture of the Neck of Malleus, the head is lying anteriorly within the tympanum in a pouch of the Tympanic Membrane.

thin triangular area above the fractured neck of the malleus flapped with compression and decompression of the air in the meatus. Incus could not be seen. No spontaneous nystagmus. Nose and throat normal.

Tuning Fork tests.	Right		Left
128 CPS	+	Rinne	+
256 ,,	+	,,	+
512 ,,	+	,,	+
1024 ,,	+	,,	+
2048 ,,	+	,,	Air conduction : not heard at all.

Weber : Not lateralised.

Normal { Absolute, Bone, Conduction } Diminished.



Right ear 0–0–0

Left ear x–x–x

		Right	Left
Conversation	...	20 ft.	10 ft.
Whisper forced	...	15 ft.	3 ft.
Discrimination	...	Normal	Impaired

Barany's Rotation Test.

1. Right to Left Duration of Nystagmus ... 12 Seconds
2. Left to Right ,, ,, ... 12 Seconds

Patient was not available for further investigation.

COMMENTS

Anatomical Diagnosis.—In view of the severe trauma causing instantaneous death of other relatives and unconsciousness of our present subject, bleeding from the ear, fracture of the neck of malleus, facial paralysis and loss of taste on the same side one can conclude that the patient had a fracture of the temporal bone, the fracture line passing through the tegmen tympani and the medial wall of the tympanum involving the facial nerve and the labyrinth. Concussion was concomittantly present. Though not confirmed by X-Ray only such a lesion could explain the signs and symptoms elicited by us after a year of injury.

Patient possibly had a fracture of the tegmen tympani which also caused a rupture of the superior ligament of the head of the malleus and a fracture across the neck of the malleus. Anterior ligament of the head of the malleus probably having remained intact helped to keep the head suspended in the pouch provided by the sagging of the anterior malleolar fold. The chalk patch in the posterosuperior quadrant and the triangular thin transparent area above the upper end of the handle of malleus indicate the sites of the perforations which have healed.

In view of the absence of vestibular symptoms and a functioning labyrinth found by rotation tests one can presume that the transverse component of the fracture line has not passed through the internal auditory meatus (*i.e.* the VII & VIII nerves have not been completely divided) or the middle of the labyrinth (because the labyrinth is still functioning and there is not complete perceptive deafness) but has only grazed the medial wall of the middle ear where it involved the facial nerve in a contusion injury because of the complete recovery of the nerve later on.

Though the injury to the VII nerve is proximal to chorda tympanii nerve and would explain the loss of taste yet the chorda tympanii could have sustained an injury due to its involvement at the site of fracture neck of malleus in whose close proximity the nerve normally lies (more probable).

If the anterior ligament had also ruptured the head of the malleus would have dropped to the bottom of the tympanum and would have occupied any position in the anterior or posterior part of the middle ear but its suspended anterior position points to an unruptured anterior ligament. Since incus could not be visualised it is difficult to say where its present abode is.

Functional Diagnosis.—Patient had complained of deafness alone at the time of examination, the facial paralysis and loss of taste having improved already. Tuning fork tests and audiometry showed a perceptive type of deafness. Both the vestibules were functioning equally well.

The perceptive deafness could have been due to the typhoid patient had 14 years back but he was positive that he had no hearing defect till after this injury. The chalk patch may point towards a chronic otorrhoea but he was confident that he had no otorrhoea and the findings of perceptive deafness do not support a chronic otorrhoea.

Perceptive deafness is due to the traumatic involvement of the cochlea in the fracture line passing through medial wall of the tympanum. Though patient has noticed some improvement since 3 months in his hearing yet we do not have any audiometric proof for that. Probably the slight improvement he has noticed is due to the gradual disappearance of deafness due to concussion from which he is still recovering and shows remnants in the form of weak memory for the recent past. Power of localisation and discrimination are still poor. Or the improvement may be due to improvement in conductive deafness. Probably he will make further progress in view of the findings of the Scandinavian authors that concussion deafness improves even after 2 years, The residual deafness which will be probably permanent can be explained on the basis of haemorrhages into the cochlea and probably some dislocation of the Organ of Corti and microscopic fracture of the labyrinth.

Since the fracture line has not passed through the labyrinth the conductive component of the deafness in this case is due to

the fracture of the malleus, probable dislocation of the incus and the traumatic perforations of the drum which the patient had sustained.

Absence of vertigo and tinnitus, which should have been expected in the contusion of the labyrinth or even in dislocations of the ossicles, may be explained by the fact that the patient was in bed for 2-3 weeks after the accident and hence did not suffer much from these symptoms and these symptoms remained unnoticed.

Loss of taste and facial paralysis may be due to involvement of the parent trunk or the two nerves separately but complete recovery shows that the nerves were only contused.

Course and Prognosis.—As the patient is improving, probably he will not deteriorate further as suggested by Colledge but an audiometric check up can only decide after a follow up over years.

Treatment.—It was not considered wise to set the fracture as the treatment may have made the conductive deafness worse. There is no known treatment for the fractures involving the inner ear. Auditory training will probably help him to localise the sounds and also discriminate, between them. A hopeful attitude would probably improve his memory, power of concentration and hearing.

SUMMARY

(1) Literature on Traumatic deafness is reviewed.

(2) A case of traumatic deafness associated with fracture of neck of malleus is reported.

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A Case of Lipoma of the Larynx

BY

Dr. M. V. KURIAN, M.B B.S., D.L.O. (LONDON).

Benign growths of the larynx may arise from any of the structures of the larynx. They have been classified in groups according to the tissue from which they arise.

Lipoma of the larynx is a rare condition. These tumours vary in size from a small swelling to a large mass. They may occur at any age and they are usually extrinsic, though some intrinsic lipomas have been reported. They may be found on the epiglottis, aryepiglottic folds, pyriform sinuses and the base of the tongue. Lipomas consist of masses of fat cells with varying amounts of connective tissue. They may be pedunculated being attached by a fibrous pedicle of a varying length. The surface of the tumour is usually smooth. It is yellow or pinkish in colour, rather soft and somewhat moveable. It produces hoarseness when the vocal cords or arytenoids are interfered with, dysphagia when the epiglottis or mouth of oesophagus are involved; dyspnoea and stridor when the glottis is occluded by pressure or by extention of the tumour over the mouth of the larynx.

A case of lipoma of the larynx seen and treated in the Ear, Nose and Throat Department of the General Hospital, Madras, is presented because of its rarity.

Raghavalu, a Hindu male aged 55 years reported at the hospital early in June 1956 with a history of gradually increasing difficulty in breathing and swallowing for three to four years and a hoarse voice of six months duration.

There was nothing relevant in the family history.

Previous History.—In the year 1950 he had slight difficulty in breathing freely and a feeling of a lump in the throat with discomfort on swallowing. He was at that time admitted to the

hospital and after a preliminary tracheotomy a biopsy was done. The biopsy was reported as lipoma. The clinical findings at the time of admission in 1950 have unfortunately not been recorded. The patient appears to have got discharged without having any further operation. He next reported at the hospital in February 1952 with the complaints of difficulty in breathing and swallowing and occasional dyspnoea. Indirect laryngoscopic examination on this occasion revealed a smooth spherical swelling occupying almost the whole of the larynx. Digital Examination revealed the tumour to be cystic with a smooth surface. No emptying or filling was made out. The tumour was not pulsatile. In February 1952 after a preliminary tracheotomy. a laryngofissure operation was done. A tumour which was reported to have been arising from the left ventricular band was excised completely. The patient made a good recovery and at the time of discharge had a slight hoarse voice.

History of Present Illness.—His present complaints started nine months after the operation He has been having increasing severe snoring and lately has been having apparent choking attacks. His voice has been hoarse for the last six months.

Examination.—He was found to be of small build and his general condition was good. His voice was hoarse and he was having inspiratory dyspnoea. A linear scar was seen in the middle line over the thyroid cartilage.

Pharynx.—On depressing the tongue fully the upper smooth surface of a growth could just be seen in front of the posterior pharyngeal wall.

Indirect Laryngoscopic Examination.—This revealed a smooth pedunculated globular growth posterior to the epiglottis almost extending to the posterior pharyngeal wall. A little space was noticed on the right side of the growth. The glottis was visualised. The growth seemed to arise from the left side, from the ventricular band or the aryepiglottic fold.

A tracheotomy was done immediately on admission on 7—6—1956.

Specimen of Lipoma removed at operation.

A laryngofissure operation was done on 19-6-1956. The growth was seen to arise from the aryepiglottic fold on the left side and extending up. The pedicle which was fairly broad was partly excised. As the growth was large and extending upwards it was not possible to remove the growth through this wound. A lateral pharyngotomy approach was then made by making an incision along with anterior border of the sternomastoid from the level of the greater horn of the hyoid to the lower border of the thyroid cartilage on the left side. The structures were separated and the pharynx was opened into by incising the inferior constrictor along the posterior border of the thyroid cartilage. The growth was completely removed 2¼ inches and the maximum width was 1½ inches. He made an uneventful recovery and was discharged on 30-6-1956. He had a hoarse voice at the time of discharge.

Chevalier Jackson states that he has seen seven cases of laryngeal lipoma in forty years.

Burkett in 1934 described a lipoma of the larynx which was intrinsic in origin. This site was reported as being very unusual as most laryngeal lipomata originate in extrinsic structures.

Lauren (1904) treated a woman who had a slight but constant difficulty in swallowing for seven years and had two alarming attacks of severe laryngeal obstruction. Examination revealed a large rounded tumour filling the whole space between the root of the tongue and the pharynx. There was no passage for air or food and the landmarks could not be made out. This was removed by transhyoid pharyngotomy.

Palmer and Mehler in 1936 recorded a recurrent lipoma for which in all five operations were necessary between 1930 and 1935.

My thanks are due to Dr. C. M. Leelavathy, Professor of Ear, Nose and Throat Diseases for permission to publish this case.

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CASE REPORT

Petrositis

BY

Dr. P. BALAGOPALAN

E. N. T. Department, Government General Hospital, Madras.

PETROSITIS is a complication of acute suppurative otitis media with mastoiditis in a well pneumatised petrous bone. The etiology is one of extreme pneumatisation of the petrous apex. Myerson, Rubin and Gilbert in a study of 200 petrous bones found pneumatisation of the petrous apex in 11% of petrous bones. Hagens found that 34% of the bones studied by him showed pneumatisation in the petrous apex.

When the well pneumatised cells in the petrous apex get infected a localised abscess cavity may form in that part with a fistulous cavity leading through the petrous pyramid draining into the mastoid antrum of the middle ear cavity. If this natural drainage of petrositis gets obstructed the infection may spread through the periostium over the petrous bone, and may produce a localised serous meningitis or extradural abscess. This usually manifests itself by the appearance of Gradeneigo Syndrome. This syndrome consists of an acute otitis media with exudation, pain or headache in the temporo-parietal region and diplopia. The diplopia is due to paralysis of the lateral rectus muscle of the eye.

Miss J. Hindu, Female aged 23 years, reported to the E.N.T. out-patient department on 15-8-'56 with pain and discharge in the left ear. She was having a left sided headache with giddiness.

History.—On 10-8-'56 she had an injury over the left side of the head due to fall of a few books from a shelf. There was pain for the subsequent 4 days, for which she had no treatment.

On Examination.—Her general condition was good.

E. N. T. Examination.—Nil abnormal detected except in the left ear where the tympanic membrane was found congested with a slight bulge on the posterior half. She was treated as an out-patient with Sulpha drugs.

She was seen again a week later when she complained of increase in pain and headache. The left tympanic membrane was found to be congested with obliteration of the land marks and a bulging of the posterior part of the drum. Patient was advised myringotomy.

She did not consent to have the operation, and went home. She reported again after a fortnight, when she was acutely ill with pain behind the left eye, double vision, left sided headache and giddiness. She had slight mucopurulent discharge from the left ear and there was a small postero-superior perforation, in the T. M. Spontaneous nystagmus to the left was present. The 6th nerve was paralysed on the left side.

Hearing Tests	Rt. Ear	Lt. Ear
1. Conversational voice	20 feet	2 feet
2. Rinne Test	Positive	Negative
3. Weber's Test	Lateralised to the left	
4. Absolute Bone conduction Test	Normal	Normal

1. X-ray both mastoids 2. X-ray Towne's view	It was found to be a highly cellular mastoid with pneumatisation of the apex of the petrous temporal.

Haziness of the left petrous apex seen in the X-ray taken in Towne's view. In view of the retro-orbital pain, severe headache, external rectus palsy along with A. O. M. a diagnosis of Petrositis with Gradeneigo's Syndrome was made.

On 1-9-'56 a Myringotomy was done to improve the drainage of the middle ear and the patient was put on a combination of antibiotics and chemotherapy. On 2-9-'56 the Retro-orbital pain was still present but the ear was draining well and the general condition was better. During the following week

antibiotics and chemotherapy were continued ; pain in the ear and the retro-orbital pain subsided. No congestion of the tympanic membrane was seen.

On 10-9-'56 the left ear was dry. Patient was comfortable except for a dull ache in the left parietal region. Myringotomy wound had healed. On examination on 17-9-'56 the lateral rectus palsy was still present and as there was no improvement inspite of the myringotomy and antibiotics, it was decided to do a cortical mastoidectomy. A cold caloric Test—elicited no response from the left labyrinth. On 18-9-'56 a cortical mastoidectomy was done, under general anaesthesia.

It was a highly cellular mastoid. The sinus was found to be far forward which is an unusual feature in a highly cellular mastoid. All the groups of cells were exenterated. The cells were found to contain polypoid tissue. No fistula, leading to the petrous apex, was evident. The patient was given Dicrysticin one vial daily. On 20-9-'56 she was comfortable. Drainage tube was removed. On 24-9-'56 the sutures were removed. The wound had healed. Slight improvement in the movement of the left eye was noticed. During the next week there was no appreciable improvement of the lateral rectus palsy. The ear was dry. Patient had no other complaint except diplopia. On 2-10-'56, the day on which the patient was discharged, the lateral rectus palsy and the diplopia had improved considerably. She was asked to report again every 2 weeks which she has not done so far.

Discussion.—The incidence of Petrositis is very rare in this era of antibiotics and chemotherapy. This case is presented for the presence of Gardeneigo syndrome. If the patient had come early and had the myringotomy done as advised when she was first seen in the Department, the paralysis could have been probably averted. Further improvement of the case depends on whether the 6th Nerve is completely fibrosed and destroyed or there is only an oedema and pressure on the nerve.

Conservative Treatment of Chronic Suppurative Otitis Media

BY

G. LAKSHMIPATHI, M.S., D.L.O.

Visakhapatnam.

Chronic Suppurative Otitis Media is a disease which has defied many a young otologist. The literature abounds in articles on the various drugs used and the various operative techniques recommended in the treatment of this disease. The advent of antibiotics has not very much changed the problem and the approach in this disease. The fundamental tenets of therapy have in no way been altered by the modern advances in pharmacology and bacteriology. A study of the history of therapy of this malady will not only uncover the past experiments, successes and failures but will also point out the goal to every otologist. We cannot hope to reach this goal of therapy unless and until the basic principles are appreciated and applied rigidly and conscientiously.

Every chronically discharging ear is a standing monument and a sad commentary on the neglect in the management of acute otitis media. It is observed that chronic otitis media has become more frequent after the advent of sulphonamides and antibiotics and this is chiefly attributable to the irregular treatment of acute middle ear with these drugs to the neglect of the fundamental dicta indicating surgical drainage. It has been repeatedly stressed that the antibiotic therapy is only complimentary to surgical measures and can never replace them. Despite this there is an unfortunate tendency for too much dependancy on these drugs. This tendency has led to an empirical and promiscuous usage of these drugs and a complacency in the treatment of ear infections thereby leading many a patient into the phases of chronicity and to the limbo of intra-cranial complications.

It should be realised that a chronically discharging ear is not simply a nuisance to the patient but is and should be regarded as an ammunition dump, or a time bomb or a smouldering fire in the ear awaiting ignition by way of an acute exacerbation of which one should be mortally afraid. During this latent period in which the ear is regarded as only a nuisance or an annoyance, the pathological process is dynamically progressing. An appreciation of this fact should raise a considerable alarm and a certain sense of alertness in dealing with the situation.

Chronic suppurative otitis media is almost always a sequela of badly treated acute suppurative otitis media. Chronicity in ear infections has been defined as the stage of secondary invasion by fresh organisms. Most otologists put an arbitrary time limit of six to eight weeks when chronicity is accepted. We regard it as that stage when the disease process is localised to the ear and which does not get better in a reasonable length of time with or without treatment. This is the one which leaves a permanent mark in its wake.

Many types of organisms have been isolated from the pus from these cases. Commonest being Staphylococcus, other organisms like Proteus Vulgaris[1], B. Pyocyaneus[2], Ps. Aerugenosa, Vincent's organisms, tubercular organisms, Streptococcus haemophilus have also been cultured. However the common experience is, that it is a mixed infection.

It should be realised that majority of cases of chronic suppurative otitis media improve with conservative treatment. However selection of cases for this is very important. The cases can be grouped into three classes from the view point of conservative or medical treatment. (1) Those that get cured entirely with this treatment. (2) Those that get better with this treatment, but however require some sort of minor surgical work for a complete cure, and (3) Those who require surgery alone for a cure. The first category of cases are those where there is a central perforation with a mucoid discharge. These ears will

always become dry with conservative treatment in about a week and there is nothing that threatens the life of the patient. Recurrence is prevented if care is taken to prevent re-entry of infection into the middle ear either from outside or from the upper respiratory tract. These are the ideal cases for conservative treatment. The second category of cases are those with central or marginal perforation with granulations but with no radiological evidence of bone destruction. These cases also clear up with conservative treatment coupled with destruction of the granulations by cauterisation or removal with a snare where they are pedunculated. However a close watch should be kept up for any evidence of spread of the destructive process.

It is those cases of marginal or attic perforation with a cholesteatoma formation or a facial paralysis or cases with a definite clinical or radiological evidence of bone destruction, that fall into the third category of cases. These do not get better with any form of conservative treatment. It is jeopardising the life of the patient if reliance is placed on conservative methods alone and surgery delayed. This process of cholesteatoma has been aptly likened to an iceberg in the sea[3] because that which is visible above the surface in no way represents the peril caused by the hidden portion. However even in these cases conservative treatment has a place in that it is an expedient to be relied on when the patient is under observation waiting for surgery.

Local conservative treatment has no place in those cases of chronic suppurative otitis media presenting with an intracranial complication.

The term 'conservative treatment' used here is synonymous with medical treatment. This is the type of treatment which can be carried out in the consulting room with the patient kept on out-patient record. Importance is given to this mode of therapy because a large number of patients can be treated by the otologist when on out-patient service and a fairly good number of them do get cured with this form of therapy alone.

The aim of treatment in these selected cases is three fold. (1) the diminishing or healing of suppuration, (2) the prevention of complications and (3) restoration of the efficiency of hearing. Reduction of suppuration and healing of infection is of primary importance because then only the ear is less of a nuisance and much more than that, then only the ear is made safe. Therefore the principles of therapy are to stop the discharge in those ears which are of the non-dangerous type and to prevent accumulation and create drainage in those cases of dangerous type where conservative treatment is carried out for some reason or others.

We have many methods of attaining this goal of disinfection and dehydration by the so-called wet and dry treatments.

Cleanliness and the effective removal of discharge from the middle ear is the important factor and the sheet anchor on which the whole therapy is based. Even after the introduction of the modern antibiotics, the cleaning of the ear holds the prime place in the treatment of ear suppuration. This is achieved by the use of cotton mops, swabs, aspiration, suction, syringing of Eustachian catheterisation. Time and patience are required for this, and the employment of one or more of the above methods is necessary to obtain a thorough cleaning of the middle ear. If this is not well carried out, the drug put in will not come into contact with the organisms in the diseased mucosa of the middle ear especially, with all the intricate anatomy of the region and so the very fundamental principle of pharmacology that the drug should come into contact with the organism is violated. The time spent in cleaning the ear and the thoroughness with which this is done are well rewarded by the good results obtained. Cleansing agents like Hydrogen peroxide or spirit have been made use of and they facilitate the thoroughness of cleaning. An objection has been raised about Hydrogen peroxide that the excessive foam tends to carry infection into the recesses of the attic and mastoid thereby laying the ground for a future complication. However in our experience this observation has not been corroborated. A similar objection has been raised against syringing the ear when there is a perforation. but even

here we have not observed any untoward reaction. However it is not desirable to syringe the ear when there is a dry middle ear with a perforated tympanic membrane for fear of reintroducing infection into the middle ear.

Once all the discharge is removed and the mucosa of the middle ear laid dry, the desired medicine is introduced through the external auditory canal. Various drugs have been used in the treatment of ottorhoeas and the history of this therapy dates back to the beginnings of pharmacology. The whole range of drugs known to be bacteriostatic or bactericidal in pharmacology have been used and extolled at various times. These are used dry as powders or as solutions dissolved in some liquid vehicle, which latter may also have some antiseptic properties. Boric acid, merthiolate, metaphen, iodoform, carbolic acid, zinc peroxide, hydrogen peroxide, iodine are some of the drugs used from a very long time. Sulphanilamides and the still recent antibiotics have fairly replaced the use of these older drugs in many clinics in the recent years. Inspite of all the recent additions and introductions into the range of antibacterial drugs, the age-long boric acid still holds the field in the treatment of chronic suppurative otitis media. It has the additional advantage of changing the pH of the middle ear to acid side, a climate not conducive to the growth of bacterial flora. The introduction of the antibiotics and their use in the local medication of otitis media individually or in combination has greatly shortened the time required for controlling the infection and obtaining a dry ear.

The ideal method is to isolate the organism from the discharge, test its sensitivity and use that particular antibiotic to which the organism is sensitive. This requires a well established institution with an efficient bacteriologic attache. In the absence of such a facility, a practical method is to use routinely that antibiotic which is most effective on the common organisms and if not found effective in a reasonable interval, to change it. To a large extent the nature of the infecting organism can be assessed from the type of the discharge, as for *e.g.* the thin pus

of streptococcal infections, the yellow, thick, curdy pus of staphylococcal infections, the chocolate coloured pus of Vincent's organisms, the greenish yellow pus of B. Pyocyaneus, the watery discharge in tubercular infection are well known. It must be remembered that Proteus Vulgaris and B. Pyocyaneus are very common complicating organisms in those cases which are hard to control and a judicious use of Streptomycin as powder or liquid, alone or in combination with boric acid has given satisfactory results.

However when a definite clinical response is not noticed inspite of adequate therapy, isolation of the organism and tests for sensitivity must be carried out. It is not advisable to use any drug for more than a week if there is no encouraging improvement because, besides the futility of continuing the drug, sensitivity to the drug may be developed thereby bringing in more complications.

The vehicles that are used to dissolve the drug when used as a solution vary equally widely. Water, saline, rectified spirit, absolute alcohol, propylene glycol, glycerite of peroxide and glycerine are some that are used. Of these rectified spirit is highly satisfactory in that it evaporates leaving its cargo in the middle ear. In addition it is an antiseptic by itself and is inimical to the growth of granulations.

The choice of wet or dry treatment, *i.e.* whether the drug is used as a powder or a solution, is decided chiefly by the size of the perforation in the tympanic membrane. Where there is a large perforation we usually use the drug as a powder and use it as a liquid where the perforation is small so as to facilitate the introduction of the drug into the middle ear through the perforation. The powder is introduced into the ear with a powder blower in sufficient quantity to form a thin coating over the middle ear mucosa. If a large quantity is put in, it forms a cake like mass and by impeding drainage leads to spread of infection into the neighbouring regions. When used in the form of a solution, the patient is made to lie down on a cot with the

affected ear upper most and the drug is introduced in sufficient quantity to fill the middle ear. After a few minutes the external auditory canal is closed with cotton wool coated with sterile vaseline on the inside (to prevent absorption of the drug) and the patient is allowed to go home. Ideally, the drops should be put in the ear at frequent intervals say three to four times a day, because the liquid is absorbed by the cotton wool on one side and flows down through the eustachian tube on the other and does not remain in the middle ear for a sufficient length of time.

Systemic administration of any of the antibiotics or sulphanilamides is not advisable when there are no acute symptoms and the disease is localised to the middle ear. Local medication is preferable because (1) the organisms are exposed to a greater concentration of the drug in local medication than through blood concentration in the systemic therapy; (2) local medication is economical, and (3) the toxic effects of the drug are not observed in local medication unlike in systemic administration. Sensitivity to the drug can occur in local medication just as in systemic therapy and it should be recognised early.

The first category of cases of chronic suppurative otitis media get cured with this form of therapy very quickly. On an average it takes about a week to obtain a dry ear. However in those cases which are refractory, efforts should be made to discover any extraneous factors responsible for maintenance of the infection and treat them.

The second category of cases are those where this form of therapy must be supplemented with other measures. These are the cases where there are granulations arising in the middle ear. These granulations are destroyed by cauterisation. Silver nitrate, Trichloracetic acid, carbolic acid, copper sulphate, and galvanocautery have all been used and have given very good results. Where the granulations are excessive and polypoidal, removal by cutting with a cold wire snare or scraping away with a sharp curette under anaesthesia should be carried out before further medication. When the granulations are curetted or the polypus

removed, the condition of the middle ear is examined more easily and further steps of therapy decided upon. Occasionally these ears are complicated with other factors like caries of the ossicles, necrosis of the tympanic ring, or infection lurking in the intricate and narrow attic region, or chronic eustachian tubal obstruction. Some of these require minor surgical attention like amputation of the necrosed handle of maleus, curetting of caries in the tympanic ring, or endaural removal of the outer attic wall.

It has already been stated that where there is a clinical evidence of cholesteatoma formation or radiological evidence of bone destruction or an intra cranial complication, conservative therapy has very little effect and so has no important place in the plan of treatment.

Other methods of Treatment.—Zinc ionisation, the method of iontophorosis, has given us good results in selected cases. Ears with a large central perforation and mucoid discharge, especially when sepsis dose not involve the attic or antrum are those that yield satisfactory results with this form of therapy[4]. The ear is thoroughly cleaned of all the discharge from the middle ear. The patient lying on the table with the affected ear upper most, the ear is filled with sufficient quantity of a weak zinc sulphate solution (75 grs. of zinc sulphate, 2 ozs. of glycerine, and 35 ozs. of water—the solution diluted with equal parts of water before use) so as to completely fill the middle ear and external ear. A weak galvanic current of three milli-amperes is passed into the ear for ten minutes with the anode in the ear and the kathode to a distant place on the body, say the thigh, taking care to see that the anode terminal lies free in the zinc sulphate solution without touching the skin of the external auditory canal. The dissociated zinc ions travel to the middle ear mucosa and form a thin coating over it. This is seen as a whitish membrane in the ear when the ear is cleaned at the end of the treatment. These ions have the effect of sterilising the middle ear thereby leading to a dry ear in 24 to 48 hours. The treatment can be repeated where necessary after a week.

X-rays, Infra-red rays and Ultra-violet rays have been recommended for sterilising the middle ear cavity. Our experience with these is limited.

Once the ear becomes dry and free from all infection every care should be taken to prevent recurrence of discharge which is invariably a result of reinfection of the middle ear cavity. If reinfection is prevented the ear remains dry for any length of time. The commonest sources of reinfection are the upper respiratory tract through the eustachian tube and the outside through the external auditory canal. If the ear remains dry and free from infection for a sufficient length of time a chance is given to the drum head to heal and the perforation if small is likely to close. Promotion of the closure of the perforation is important for two reasons—firstly to prevent reinfection of the middle ear and secondly to improve the efficiency of hearing. In recent times much work is being done along this line. Chiefly there are two methods of attaining this end. One method is to promote granulations on the margin of the perforation by irritation with a caustic like Silver nitrate, Carbolic acid, or Trichloracetic acid[5]. With careful and repeated cauterisation along the margin of the perforation and the growth of granulations kept under control, successful results have been reported. The time taken on average for the closure of the perforation by this method is four to seven weeks. The second method is to cover the defect in the drum by a thin membrane which is kept in position temporarily or permanently. As a temporary expedient cotton wool, parchment paper, waxed paper, collodion, rubber, plastic and such other substances cut to the size of the tympanic membrane have been used with good improvement in hearing. However these patients require constant otological attention and these artificial drums require frequent replacements. To attain a permanent closure, attempts are made to graft skin[6] or amniotic membrane[7] over the drum head and the results reported are excellent. Much work still needs to be done in this connexion. But these attempts in the closure of the perforations of the tympanic membrane represent a new line of approach to

the problem of Chronic suppurative otitis media--an approach probably with a bright future.

Thus we find that the disease so pathetically described as presenting a 'menacing spectre'[8] or a 'challenge to the otologist' can be properly treated and controlled if there is a good appreciation and application of certain principles. An attempt has been made to discuss the conservative treatment, a treatment which can be carried out in the consulting room of every otologist. As discussed, in a great majority of cases this treatment is very effective and leads to a dry ear in less than a week's time. However the limitations must be well appreciated. Firstly the category of ears which require surgical measures for a cure should be recognised in the beginning itself. These are the cases where there is an attic or a marginal perforation with a cholesteatoma formation or radiological evidence of bone involvement. Also the cases with evidence of spread of disease beyond the confines of the middle ear should be singled out as unsuitable for conservative treatment. Conservative treatment can be carried on however in these cases provided it is understood only as a trial or as an expedient to keep the ear under observation.

Secondly the failure of conservative therapy or indications for surgery should be recognised at the proper time. These are (1) continuance of persistant foul smelling discharge inspite of adequate local medication over a reasonable length of time, (2) sudden stoppage of discharge or a sudden increase of discharge per ear, (3) persistent mastoid tenderness inspite of adequate medical therapy, (4) quick recurrence of granulations or polypi after removal, (5) persistent bulging of the postero-superior meatal wall, (6) development of facial paralysis, (7) development of symptoms of intra cranial complications, and (8) evidence of malignant changes in the granulations removed from the ear.

Therefore by proper preliminary screening of the cases, and keeping oneself alert to the indications for surgery, much can be achieved by this form of therapy. The negligence with which

ear discharge is taken note of by the public and the pathetic helplessness with which the practitioner treats it have been responsible for the feeling that "chronic ear discharge can never be cured". One should realise that chronic suppurative otitis media is a potentially dangerous disease, but that it is a curable disease and so is a disease which requires treatment and careful treatment. A proper appreciation of the physical, social, psychological and economic potentialities of a chronically discharging ear should guide the otologist to the objective of restoring the patient to normalcy with a safe ear and an improved efficiency of his hearing. Then only this 'lethal and revolting' disease becomes less revolting and still less a challenge.

I express my grateful thanks to my chief Dr. P. Narasimha Rao, M.S., F.I.C.S. for the encouragement and help so kindly given to me in the preparation of this article.

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Association Notes

The next Governing Body Meeting will be held at Jamshedpur at 4 p.m. on 29th December, 1956.

AGENDA

1. Reading of Minutes of the last meeting.
2. Vote of thanks to Sir Jamshed Gandhy, Director of Health, General Master, Reception Committee and Organizers.
3. Vote of thanks to the Railway Board.
4. Election of New Members.
5. Suspension of defaulting members.
6. Report of the Honorary Secretary.
7. Report of the Honorary Treasurer.
8. Vote of thanks to Messrs. Bhansali & Mehta & Co.
9. Appointment of Messrs. Bhansali & Mehta & Co., for Auditors for the year 1957 on enhanced remuneration.
10. Change of date of the annual closing of accounts of the Association as per Resolution of Government of Bombay. (demanded by Charity Commissioner.)
11. Vote of thanks to Messrs K. John & Co., Honorary Auditors at Madras.
12. Reappointment of Messrs. K. John & Co., Honorary Auditors for the year 1957.
13. Rescinding of the Resolution No. 17 passed by the Governing Body on 29th December, 1955 at Trivandrum, with reference to the sitting arrangements at Group Photo.
14. Any other business with the permission of the Chair.

R. A. F. Cooper,
Honorary Secretary.

The Annual General Meeting of the Members of The Association of Otolaryngologists of India will be held at Jamshedpur on 1st January, 1957 at 10 a.m.

AGENDA

1. Reading of the minutes of the meeting of the General Body held at Trivandrum on 1st January 1956.
2. Individual confirmation of the various resolutions passed by the Governing Body on 29th December, 1956.

3. Election of the New President.
4. Election of the New Governing Body.
5. Vote of thanks to the Retiring President.
6. Vote of thanks to the Retiring Governing Body.
7. Any other business with the permission of the Chair.

R. A. F. Cooper,
Honorary Secretary.

Botawalla Building,
7-10, Horniman Circle,
Fort, Bombay.

Report on the Audited Accounts of
The Association of Otolaryngologists of India

Registered No. F—417 (Bombay)

We have audited the annexed Balance Sheet of the Association of Otolaryngologists of India, as at 30th September, 1956 and also the annexed Income and Expenditure Account for the year ended on that date as prepared from the Receipts and Payments Account, for the year ended on that date, drawn from the Books of Account maintained by the above Association and Report that :

The Books of Account are maintained on cash Basis, hence the Income outstanding as at 30th September, 1956 is not provided for. Further the said Income is not ascertainable because of the prevalent system of accounts and hence not verified by us.

Subject to our above remarks we have to report that :

(*a*) accounts are maintained regularly and in accordance with the provisions of the Act and the Rules ;

(*b*) the Receipts and Disbursements are properly and correctly shown in the accounts ;

(*c*) the Vouchers in the custody of the Trustee on the date of the audit were in agreement with the accounts, there was no cash in hand ;

(*d*) all books, accounts, and records required by us were produced before us ;

(*e*) no inventory of the moveables is maintained ;

(*f*) the person in charge of accounts appeared before us, whenever required, and furnished us the information required by us ;

(*g*) no funds of the Association were applied for any Object or purpose other than the Object or purpose of the Association ;

(*h*) as the accounts are maintained on cash Basis the amounts of outstandings whether of Income or otherwise, are not ascertainable ;

(*i*) the Association has no immoveable property ;

(*j*) the Investments of the Funds of the Association, as at 30th September, 1956, were not in accordance with the provisions of section 35 of the Act ;

(*k*) the question of the alienation of the immoveable property does not arise as the Association has no immoveable property ;

(*l*) there is a contingent Liability of calls on Shares partly paid up ;

(*m*) interest on Securities has been taken into account after deduction of Income-tax at source.

Dated *3rd Dec. 1956*

(*Sd.*) **Bhansali & Mehta,**
Chartered Accountants.

The Bombay Public Trusts Act 1950—Shedule IX-C-Vide Rule 32

THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

Registered No. F—417 (Bombay)

Statement of Income Liable to Contribution for the Year ended 30th September 1956

		Rs.	A.	P.
Income during the year (As per annexed Income and Expenditure Acct.)	...	3,491	2	10
Less : Income not chargeable To contribution :				
(1) Cost of collection of receipts from stocks etc. at 1% of such receipts	...	2	2	0
Income liable to Contribution	...	3,489	0	10

Subject to our Report of even date on the Audited Accounts.

Dated : *30th Nov. 1956.* **R. A. F. COOPER,** *Trustee.* Dated : *3rd Dec. 1956.* **BHANSALI & MEHTA,** *Chartered Accountants.*

The Bombay Public Trust Act, 1950—Schedule IX Vide Rule 17 (1)

Registered No. F.417 (Bombay)

THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

Income and Expenditure Account for the Year ended 30th September 1956

EXPENDITURE	Rs.	A.	P.	Rs.	A.	P.	INCOME	Rs.	A.	P.	Rs.	A.	P.
To **Establishment Expenses :**							By **Subscriptions :**						
Salaries ...	330	0	0				From Ordinary and Associate members ...				3,264	0	0
Printing and Stationery ...	106	4	6										
Postage and Telegrams ...	102	10	0				,, Interest						
Bank Charges ...	35	3	0				On Securities ...	115	6	0			
Sundry Expenses ...	8	0	0				(after adjustment of Income-tax deducted at source)						
				582	1	6							
,, **Expenses on objects of the Trust :**													
Subscription to the Indian Journal of Otolaryngology ...	791	0	0				Other ...	4	10	6			
Annual Conference Expenses...	250	0	0								120	0	6
				1,041	0	0							
,, Audit Fees ...				350	0	0	,, Dividend ...				92	1	4
,, **Share of Subscription to Branches :**							,, Miscellaneous Receipts being the Profit realised from Compensation Received on 1 Imperial Bank Share of Rs. 500/- each ...				15	1	0
West Bengal Branch ...	372	0	0										
Bombay Branch ...	123	0	0										
Delhi Branch ...	120	0	0										
				615	0	0							
,, Excess of Income over expenditure subject to provision of depreciation during the year transferred to Balance Sheet ...				903	1	4							
Total ...				3,491	2	10	Total ...				3,491	2	10

As per our Report of even date.

Dated : *30th Nov. 1956.* **BHANSALI & MEHTA,** *Chartered Accountants.*

The above Income & Expenditure Account to the best of our belief contains a true account of the Income & Expenditure of the Trust.

Dated : *3rd Dec. 1956.* **K. K GHOSH,** *President.* **R A. F. COOPER,** *Hon. Secretary.* **J. V. DeSa,** *Hon. Treasurer.* **R. A. F. COOPER,** *Trustee.*

The Bombay Public Trusts Act 1950—Schedule VIII Vide Rule 17 (1)

Registered No. F. 417 (Bombay)

THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

Balance Sheet as at 30th September 1956.

LIABILITIES	Rs.	A.	P.	Rs.	A.	P.
Income & Expenditure Account :						
Balance Brought Forward ...	10,169	11	0			
Add: Excess of Income over Expenditure during the year as per annexed Income & Expenditure Account ...	903	1	4			
				11,072	12	4
Liabilities :						
* Amount Received from the Indian Journal of Otolaryngology for purchase of Investment (Invested per Contra) ...						
Amount Brought Forward ...	3,029	8	6			
Add: Amount Received during the year for the purchase of Investment Rs. 2,500/- ...	2,500	0	0			
				5,529	8	6
				16,602	4	10
* Interest received by the Lloyds Bank Ltd. on 4% 1954-64 Bombay Municipal Debentures of the face value of Rs. 3,000/- has been remitted by the Lloyds Bank Ltd. to the Canara Banking Corporation Ltd. Madras to the credit of The Indian Journal of Otolaryngology.						
Total ...				16,602	4	10

ASSETS	Rs.	A	P	Rs.	A.	P.
Investments (At Cost)						
3% 1966-68 Government of Indian Funding Loan of the Face Value of Rs. 2,000/- ...	1,816	4	0			
5% Registered taxable debentures of Tata Locomotives & Engineering Co. Ltd. of the Face Value of Rs. 1000/- ...	1,030	6	0			
10 Fully paid Ordinary Shares of The Ahmedabad Electricity Co. Ltd. of Rs. 100/- each ...	1,111	4	0			
3 Ordinary Shares of The Ahmedabad Electricity Co. Ltd. of Rs. 100/- each Rs. 75/- per Share paid up ...	229	4	0			
5 Fully Ordinary Shares of the Surat Electricity Co. Ltd. of Rs. 100/- each ...	616	4	0			
10 Ordinary Shares of the United Commercial Bank Ltd. of Rs. 100/- each Rs. 50/- per Share paid up ...	369	7	6			
3 Ordinary Shares of the Surat Electricity Co. Ltd. of Rs. 100/ each Rs. 50/- per Share paid up.	84	12	0			
1 Fully paid Ordinary Share of the Imperial Bank of India of Rs. 500/- each Rs. 1,750 9 0						
Less : amount received by way of Compensation Rs. 1,765 10 0						
Credited to Income & Expenditure Account Rs. 15 1 0						
3¾% Loan 1974 of Government of India of the Face Value of Rs. 1500/- ...	1,477	8	0			
3½% National Plan Loan 1965 of the Face Value of Rs. 1400/-...	1,379	0	0			
Call Money at Rs. 75/- per share on 3 Shares of Surat Electricity Co. Ltd. paid in advance ...	226	0	0			
Call Money at Rs. 25/- per share on 3 Ahmedabad Electricity Co. Ltd. paid in advance ...	75	0	0			
(Market Value Rs. 8,500 Approximately).				8,415	1	6
Furniture & Office Equipment (At Cost) ...				669	2	3
The Indian Journal of Otolaryngology :						
Being 4% 1954-64 Bombay Municipal Debentures of the Face Value of Rs. 3,000/- held on their Account per contra ...	3,007	8	0			
Add: Purchase of 3¾% Loan 1974 of Government of India of the Face Value of Rs. 2,500/- ...	2,462	8	0			
				5,470	0	0
Cash at Bank :						
In current Account with the Lloyds Bank Limited standing in the name of the Hon. Secretary & the Hon. Treasurer...				2,048	1	1
Total ...				16,602	4	10

As per our Report of even date.

The above Balance Sheet to the best of our belief contain a True account of the Funds & Liabilities and of the Assets of the Trust.

Dated: 3rd. Dec. 1956. **BHANSALI & MEHTA,** *Chartered Accountants.*

Dated: 30th Nov. 1956. **K. K. GHOSH,** *President.* **R. A. F. COOPER,** *Hon. Secretary.* **J. V. DeSa,** *Hon. Treasurer.* **R. A. F. COOPER,** *Trustee.*

Accounts of the Journal of the Association of Otolaryngologists of India with the Hony. Treasurer at Madras

Receipts and Payments for the Year ending 30th September 1956

RECEIPTS	Rs.	A.	P.	Rs.	A.	P.	PAYMENTS	Rs.	A.	P.	Rs.	A.	P.
To **Opening Balance:**							By Printing Charges ...				2,115	12	9
On S. B. Account with Canara Banking Corporation, Ltd., as on 1-10-1955 ...	4,419	5	0				,, Establishment Charges ...				320	0	0
Cheque of India Advertising Service, Bombay ...	85	0	0				,, Postage ...				183	4	3
Securities with Lloyds Bank, Bombay ...	3,000	0	0				,, Bank Charges ...				12	9	0
Cash with Clerk (Contingencies Account) ...	7	8	6				,, Auditors' Honorarium ...				50	0	0
				7,511	13	6	,, **Closing Balance:**						
,, Advertisements ...				3,286	8	0	On S. B. Account with Canara Banking Corporation Ltd., as per Pass Book on 30-9-'56 ...	2,872	3	6			
,, Subscription to Journal ...				156	0	0	Cheque on Canara Banking Corporation Ltd., (Suspense Account) ...	85	0	0			
,, Reprints Supplied ...				40	0	0	Securities with Lloyds Bank, Ltd., Bombay ...	5,500	0	0			
,, Back issues of Journals supplied				50	0	0	Cheque of M/s. Raptakos Brett & Co. Ltd., on hand ...	65	0	0			
,, **Interest:**							Cheque of Head Office contribution to Journal ...	791	0	0			
From Securities ...	86	12	0								9,313	3	6
From Canara Banking Corporation Ltd. ...	72	12	0										
				159	8	0							
,, Head Office Contribution ...				791	0	0							
Total ...				11,994	13	6	Total ...				11,994	13	6

Examined and found Correct.

Madras
5th Dec. 1956

K K. GHOSH, *President.*
TULSI DAS, *Hon. Chairman.*
C M. LEELAVATHI, *Hon. Treasurer.*
K JOHN & CO., *Chartered Accountants. (Honorary Auditors.)*