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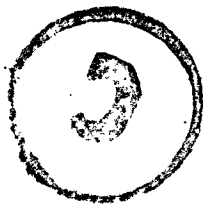
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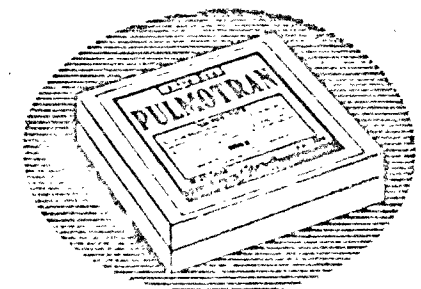
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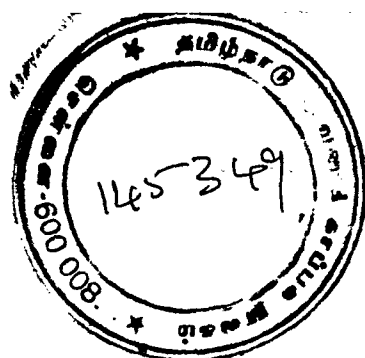
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No. 2

Nasopharyngeal Irradiation

BY

Dr. J. V. De SA, M.S., D.L.O.

The Nasopharynx the uppermost division of the Pharynx is of great importance to the Otolaryngologist, for within the boundaries are lodged various structures of significance ; furthermore, this inverted cone shaped recess, small and overcrowded in infancy and childhood, grows to variable sizes in adult life, with regression of its structures in some cases, to none, or very little in others. (Fig. I).

It would not be out of place to revise the anatomy of this recess, which has a sloping roof formed by the Basi-sphenoid and the Basi-occiput to the first cervical vertebra, a floor formed by the dorsum of the soft palate, and between it and the posterior pharyngeal wall, we have the pharyngeal isthmus by which it communicates with oropharynx. Anteriorly there are the two posterior openings or nasal choanae, separated by the posterior border of the Vomer and bounded by the Sphenoid above, the medial Ptergoid lamina laterally and the horizontal plate of the Palatine below.

On the lateral walls there are the important openings of the Eustachian Tubes, marked by the small elevation the torus tubarins lying in line with the posterior end of the

inferior turbinate. Behind this orifice there is a recess of variable size called the Pharyngeal recess or the Fossa of Rosenmuller.

The function of the Nasopharynx being respiratory, it is lined by ciliated columnar epithelium and provided with a large amount of lymphoid tissue, the first defenders of our bodies, these are distributed along the roof and posterior wall, constituting the adenoid tissue, in the pharyngeal recess and on the surface of the Eustachian Orifices known as the Tubal Tonsils, these lymphoid masses constitute the upper circumference of the ring of lymphoid tissue known as the Waldeyers ring, but differ from the pharyngeal or faucial tonsils, in that, these masses are not capsulated, but form an integral part of the mucous membrane.

The Adenoids form the largest of the lymphoid aggregation and may vary in size from a small amount to an amount completely filling the Nasopharynx, and blocking the entire posterior nares as also the Eustachian Orifices.

The Eustachian Tube a bony and cartilaginous canal connecting the middle ear cleft with the Nasopharynx, and representing the embryological evolution of the middle ear from the first and second Pharyngeal pouches, was named after Eustachio, who in 1563 published the first complete description of its course, position and structure. Tulpus in 1654 was the first to describe the relationship of tubal closure to certain types of deafness. Some 50 years later, Valsalva elaborated upon the value of inflation as an aid in the treatment of deafness. Guyot the postmaster of Versailles was the first to catheterize the tube in 1724 *via* the oral cavity. Catarrhal deafness was first treated by nasal catheterization and injection into the Eustachian Tube by Johanathen Wathen in 1775, but it did not come into general use until the first half of the 19th century. These facts drawn from literature show that even in the earlier days the importance of a patent Eustachian Tube for a good hearing was realised.

Let us then shortly recollect the anatomy and the topography of such an important structure. The Eustachian Tube is a cartilaginous and bony structure surrounded by muscles and lined with mucous membrane. It extends from the anterior carotid wall of the tympanic cavity and courses medially, inferiorly to the lateral wall of the Nasopharynx; the lateral 1/3 is bony and the medial 2/3 is cartilaginous, at the junction of these two parts the lumen is narrowest, and is called Isthmus, the Tympanic opening being 4.5 m. m. diameter, while the pharyngeal opening is 9 m. m. in diameter, the cross section of the Osseus portion is triangular and its medial end is seen at the angle formed, by the junction of the Squamous and the Petrous portion of the Temporal Bone, this part is related medially to the carotid artery and is separated by a thin bony lamina from the tensor tympani muscle, above (a slide of a temporal bone serially sectioned by me, at this level is kept for your examination, in which you will notice that this portion of the tube has irregular walls for more often than not it is frequently invaded by cellular pneumatic spaces the so called tubal cells.)

The cartilaginous part formed by a triangular plate of fibro cartilage, folded into a troughlike structure with a short antero lateral lamina and a long postero medial lamina, the opening left in the circumference below and laterally being completed by fibrous connective tissue. This portion is firmly attached to the jagged end of the osseus part and lies in a groove between the petrous portion of the temporal bone and the great wing of the sphenoid. The Pharyngeal end of the cartilage lies directly under the mucous membrane of the nasopharynx, where it forms an elevation behind the pharyngeal opening of the type known as the torus tubarius.

The lumen of the tube is not uniform throughout, it being widest at its pharyngeal end and becomes progressively narrower at the isthmus and again grows wider, until the expanded bell-shaped opening in the tympanum is reached. The lumen is lined by mucosa covered with ciliated cylindrical epithelium

which is quite thin, smooth and firmly attached in the bony portion but becomes thicker, looser and occasionally thrown into folds in the cartilaginous portion; these folds at times may be so pronounced, as actually to prevent the passage of an Eustachian bouggie, and act as valves preventing the injection of fluids into; as also impairing the drainage of the middle ear, for, efficacy of the Eustachian tube for drainage is dependant on its inclined position, the pharyngeal end being 2.5 cm. below the level of the tympanum, the ciliary action which is centrifugal towards the pharynx, and a patent Eustachian Orifice.

All the above details can be well studied from the collection of serially sectioned Temporal Bones kept in The Otological Laboratory of the Johns Hopkins Hospital, and fully reported by Leroy Polvogt. The submucosa of the cartilaginous portion also shows many acinous glands especially near the pharyngeal orifice, where the mucosa also shows a considerable amount of lymphoid tissue which at times is so pronounced as to be termed the tubal tonsils.

Literature is very scarce and indefinite as regards the distribution of lymphoid tissue in the cartilaginous part of the eustachian tube, Gurlachs tonsils, the gross lymph tissue in this part is frequently mentioned but whether such a finding is a constant normal structure is not confirmed. Wolfe in her study of 500 temporal bones found circumscribed lymphoid tissue between the isthmus and the nasopharyngeal end in only one case. Tutleben and Zollner described such tissue in adults but concluded that when it is present it is pathological. Fowler taking advantage of the last war obtained specimens from dead airmen killed in action to study the Eustachian tube and from the material obtained, he concludes that lymphoid tissues are rare except near the pharyngeal orifice but may occur anywhere along the length of the Eustachian Tube, and substantiates the statement of those who believe that infection is the cause of the presence of lymphoid tissue in the eustachian tube and of any excess about its mouth.

It is now the carefully considered opinion of most Otolaryngologists that infection of Nasopharyngeal lymphoid tissue is a factor of greatest importance in diseases of the respiratory tract and the ear. From the history alone it is apparent that in many patients recurrent infections of the ear, nose and throat have their beginning in the nasopharynx. Hence frequent colds, upper respiratory infections, repeated attacks of acute otitis media, sub acute otitis media, chronic otitis media, sinusitis, bronchitis and bronchial asthma, in children, may result from nasopharyngeal infection, while post nasal discharge airo otitis media and the sequel of improper functioning eustachian tubes, revealed clinically by retracted drums with blocked feeling in the ears, unilateral tinnitus, vertigo and the subsequent conductive deafness the worst aftermath are well known in adults. (Fig. III.)

My teacher, Dr. S. J. Crowe, in his colossal study of the prevention of deafness in children, on examining hundreds of school children between the ages of 8 and 14 years, observed a pronounced recurrence of lymphoid tissue in the nasopharynx in more than 75% of cases previously subjected to adenoidectomy and tonsilectomy, this he states is not due to incomplete operation but to the fundamental fact that I have stated above namely, that the lymphoid tissue of the nasopharynx is an integral part of the mucous membrane and inspite of all the various types of curettes devised and techniques used in the past, the lymphoid tissue cannot be completely removed by surgical means unless the entire thickness of the mucous membrane of the Nasopharynx be removed.

That the recurrence of adenoid tissue following adenoidectomy before puberty as early as 6 months is more the rule than the exception and may be considered a normal reaction. Furthermore, one should not be surprised when a discharging ear stops after an adenoidectomy and tonsilectomy to start again 6 to 8 months later with all its fury.

Such findings then set an impetus to discover a means of irradiation of hypertrophied and infected lymphoid tissue in the nasopharynx and a cure for the various maladies.

Heinlke in 1905 in a study of biological effect of Roentgen rays on lymphoid tissue noticed that after long exposure of animals to irradiation, both the circulating lymphocytes and lymphoid tissue were almost completely destroyed. This observation led to the use of Roentgen Rays in the treatment of Lymphatic Lukemia, Lymphosarcoma, and in reducing the size of enlarged spleens and lymph nodes occurring in other diseases.

Akaiwa and Takishima in 1930 studied the actual changes in the Lymph Gland by exposing the Lymph Gland in the popliteal spaces of the rabbit and state that 30 minutes after exposure the lymph follicles of these nodes were enlarged; after 1 hour the nuclei of many of the cells began to show disintegration which reached its height in 2 to 6 hours, from this time on, pronounced phagocytosis was noted, the phagocytes taking up the chromaticles from the decomposed nuclei, owing to this disintegration there was a considerable reduction in these cells, in the lymph follicles after 48 hours. Following these changes there was a period of regeneration, so that after 7 days the lymph nodes resumed its normal appearance. Thus although microscopically, there may be an increase in size of the node, after the first 2 hours of irradiation, there was a gradual reduction in the size of the node so that in 2 weeks the node was smaller than normal. Thus we see that the lymphocytes and lymphoid tissue are much less tolerant to raying and stand next to sex cells in their high sensitivity towards radiation.

Dr. S. J. Crowe and Curtis F. Barnum nearly 20 years ago, planned and carried out various methods of irradiation in treating Nasopharyngeal neoplasms and as early as 1926 an applicator identical with the one now employed had been developed and has been used ever since for various purposes.

It should be remembered, however, that irradiation even when no visible effect is present is probably an injurious agent, the less the injury to any living tissue the more rapid and complete the recovery, furthermore, the ideal application of irradiation is one in which the pathological tissue receives all the treatment and the other none.

Regarding the exact effect of irradiation on lymphoid tissue the most vulnerable part of the lymph cell is the nucleus, a dividing cell is more sensitive than the same cell in other phases of its life, thus in the lymphoid masses of the nasopharynx, the effect of radiation is mostly felt by the cells of the germinal centres, which show even after one application of radium a fragmentation of its nuclei together with a diminution of the lymphocytes, as the cells present are shed away and are not replaced from the germinal centre thus leading to a diminution in the size of these tissues at the end of the treatment.

The next (Fig. IV) shows these changes which I have just described in planning a method of irradiation of the lymphoid tissue of the nasopharynx, three points should be kept in mind:—

- (1) That it must remove or reduce the offending adenoid and lymphoid tissue and thus give relief to the symptoms.
- (2) That no injury should be done to the nasopharynx or to the patient.
- (3) It should be a treatment which is time saving as also comfortable to the patient, easy for the doctor to employ, and by a technique where the chances of error are few.

Such a treatment can be done in two ways.

- (1) By placing the source of radiation, radium or its decomposition product radon in the nasopharyngeal applicator.

- (2) Radiation from the surface or the mouth-Roentgen Rays. The first is a safe and a harmless procedure as the absorbed radiant energy is limited to the nasopharynx while the surrounding tissue receives only homeopathic dosage.

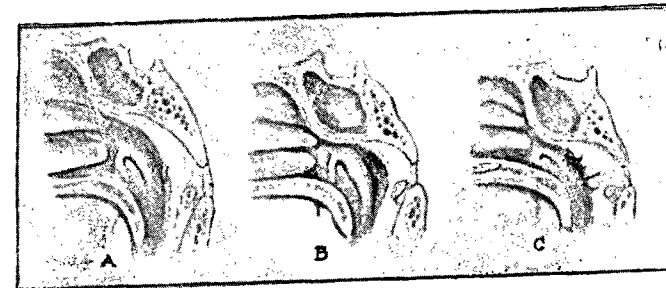
The same is not true where x-ray is employed, for a great deal more radiation is absorbed in tissues which receive treatment given only to reach nasopharynx, and inspite of using small portals not more than 4 cm. square and by small fractional doses requiring oftener attendance by the patient as also the help and co-operation of a radiologist; complications like skin-burns, parotitis, exacerbations of otitis media have been reported, invalidating this method of treatment. In certain cases however, as we shall see later, we may have to have a recourse to such a treatment.

As regards Radium practically all spontaneous radioactive substance belongs either to the uranium or thorium group of elements. Radium by far the most used and best known, is a member of the Uranium family which starts from Uranium 1 and ends in lead as seen in this table.

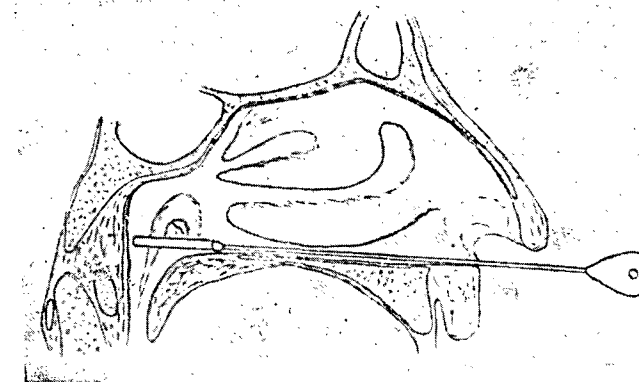
Omitting from consideration the predecessors of radium and the descendants of Radium B, and Radium C, there remains only Radium Radon and Radium B, and Radium C of importance and which form the constituents of the active element in a radium applicator.

The effectual Beta and Gama Rays from a Radium containing tube are from Radium B and Radium C; both these rays are invariably given off together. The effect aimed at and obtained by radiation therapy is entirely dependant on ray absorption and is roughly proportional to the amount of absorption. Rays that pass through the body and are not absorbed have no therapeutic effect. The amount of rays absorbed will depend on the time of the exposure to the applicator the thickness, and composition of the walls of the capsules and the amount of Radon or Radium which it may contain. The

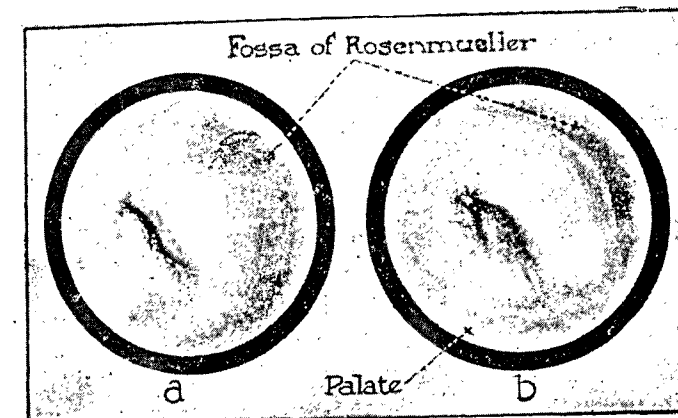
NASOPHARYNGEAL IRRADIATION.



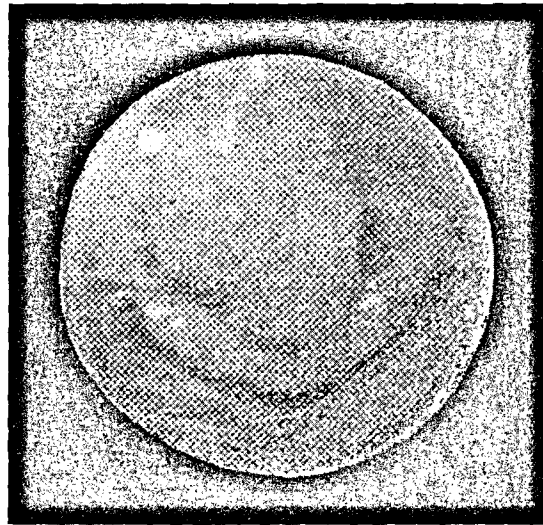
Relation of pharyngeal orifice of Eustachian tube to the inferior concha (A) Adult (B) Adolescent (C) Infant.



Applicator in Position.



Change in Eustachian orifice from (a) closed (b) open.

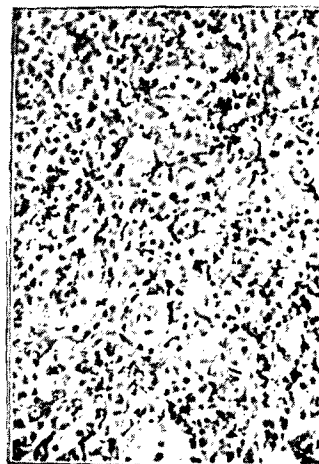


Enlarged Adenoids.

LYMPHOID TISSUES



before treatment from a portion of salpingopharyngeal fold of an aviator.



From the same source taken one month after 50 hrs. exposure to radium contained in a platinum capsule with a 0.5 m.m. wall.

absorptive capacity of any metal used as a filter is proportional to its density thus to absorb all Beta Rays only. 5 mm. of platinum gold or tungsten is required; 1 mm. of lead or silver, 2 mm. of brass or monel metal and 10 mm. of aluminium. Even when all primary Beta radiation is absorbed there are secondary Beta and Gamma Radiation from the filter which is most penetrating for metals of high density, this second irradiation is not large from monel metal and thus a secondary screen of lighter metal is not necessary.

It is also known that the intensity and the time of radiation determines the dosage, and that the intensity varies inversely with the square of the distance of the irradiated tissue from the source of irradiation. Thus if a determined dosage from a given source of irradiation is obtained in a unit of time at 1 cm. distance at 2 cm. distance, only $1/4$ of such dose is obtained and at 3 cm. only $1/9$.

The following table shows the doses or Roentgen units for 50 mgm. of radium received by the tissues at various depths for commonly used filters and dosage times when the radium applicator lies in the nasopharynx.

Dr. S. J. Crowe who was the pioneer in this method of treatment started by using upto 1000 millicurie of Radon in a capsule, 15 mm. long and with a shell of 1 mm. brass. He used 33 millicuries hour at first to each side for 3—4 treatments at 2—6 weeks intervals. Recently however, Dr. Crowe and his co-workers use a capsule of the same dimension with 3 mm. monel metal wall containing 50 mgm. of radium and is the applicator used by me in this present study.

This applicator has the advantage that it allows a larger amount of Beta radiation to escape from the capsule and reduces the time of treatment from 40 minutes required by 1 mm. of brass to 9 minutes. Practically all the Beta rays emitted by this applicator are absorbed, 75% being absorbed by the tissues of the nasopharynx in the adjoining 3 mm. of tissue; but 6—7% of hard Beta Rays may be detected after

passing 20 mm. In contrast less than 10% of the Gama Rays are absorbed.

Since the object of this treatment is to affect the lymphoid tissue in the nasopharynx and the eustachian cushion we can easily appreciate the usefulness of the monel metal applicator, at most of its effect is obtained 3 mm. away; thus concentrating on the pathological tissues which we desire to remove without affecting the deeper structures. Furthermore, the dosage employed is so small that there is no danger of a burn or a dry nasopharynx. If however, deeper radiation is required as in those cases where irradiation of the surface lymphoid tissue does not relieve the symptoms, which may probably be due to lymphoid tissue deeper down in the tube, then Gama Ray radiation from a brass or platinum capsule or deep x-ray may be resorted to. The applicator used by me is shown in the diagram, both in its entirety and also in its various parts.

For a proper examination of Nasopharynx and the selection of the cases for the treatment the electric nasopharyngoscope is as essential to the Otologist as the cystoscope is to the urologist. For an examination of the nasopharynx is more difficult and often inaccurate if one depends on palpation or inspection with a postrhinoscopic mirror alone. As one has to be precise as to the exact distribution of the lymphoid tissue of the nasopharynx. This examination should be routinely done as also before every radium treatment.

After local anaesthesia being obtained by spraying or applying with a cotton applicator 1% percaïne or 2% anethaine, along the inferior meatus the patient may be either seated or reclined, but if reclined he should have a pillow under his head which should also be slightly flexed. As it is necessary to direct the instrument along the floor of the nose. (Fig. VI, VII, VIII).

Through the nasopharyngoscope a direct vision is obtained of the middle turbinate, the posterior end of the inferior turbinate, the orifices of the eustachian tube, the fossa of Rosenmuller, as also the roof of the nasopharynx. Normally

the mucous membrane around the Eustachian Orifice is perfectly smooth and pale pink in colour. The mucous membrane however, may show varied appearance from a smooth swelling reducing the orifice to a chink to any irregular bumpy appearance of the cushion indicating the presence of an excess of lymphoid tissue. So also the fossa of Rosenmuller and the nasopharynx may vary in the amount of lymphoid tissues, from a large sized adenoid, sitting as it were and obstructing the Eustachian Orifice to a fullness of the Fossa of Rosenmuller which may be seen in some cases to extend upwards, towards the posterior end of the middle turbinate. By this examination acute nasopharyngitis with mucoid discharge, as also the discharge from the posterior group of sinuses may be detected. Such findings will require the treatment to be postponed until these infections are controlled, as acute infections are a contra-indication to this treatment. In one of my cases, who insisted on the treatment for want of time, as the patient was from outside Bombay, the patient developed a severe headache, acute pharyngitis and a temperature 103 degrees. In another case with maxillary sinusitis, the sinusitis was first treated and radium treatment was given later, with a good improvement in his symptoms Conductive deafness.

I have known and used this form of treatment since 1945 when working on the staff of Johns Hopkins Hospital, and on my return to India, both at the K. E. M. Hosp., and in my private rooms. I shall refer however, in this paper to the 150 cases treated by me during the past 3 years.

The technique taught me by Dr. Crowe and one that I still follow is:—

(1) To properly select the case for treatment.—Here I should like to summarise the indications for and preliminaries to radium therapy as stated by Donald Proctor, namely that;

- (a) Infected and large adenoids as seen by the electric naso-pharyngoscopic examination is the *sine quo non*.

- (b) Chronic infection of the sinuses or tonsils must be treated simultaneously with or cleared up before radium therapy.
- (c) Severe allergies should be properly treated before or during radium therapy.
- (d) When the tonsils are infected or there is large mass of adenoids or rapid elimination of the adenoids is desired, irradiation should be preceded by tonsillectomy or adenoidectomy or both.
- (e) Treatment should not be given during an acute infection of the upper respiratory tract.
- (f) Deafness apparently associated with obstruction of the eustachian tube is a clear indication for treatment.
- (g) Chronic infection of the ear, recurrent acute infection of the ear, recurrent acute infection of the sinus, recurrent acute infection of the tonsils (associated with preceding naso-pharyngitis) recurrent acute colds, post-nasal discharge are all usually amenable to this type of treatment.
- (h) Mouth breathing due to the obstructing masses of adenoids will subside when breathing space is restored.
- (i) Bronchial Asthma thought to be wholly or partly on the infectious bases, especially when the attacks are preceded by infection of the upper respiratory tract, is usually greatly helped.

(2) The method of treatment.—The patient is first assured that the treatment is a painless procedure and thus gaining his confidence. Even children subject themselves easily to this treatment. The nose is anaesthetised as for nasopharyngoscopic examination. The patient is then made to lie down on a couch or bed, looking straight in front of him. An extension

of the head should be avoided. No pillow or hand under the head be allowed. When the patient is ready then only should the radium applicator be removed from its container, and immediately introduced along the floor of the nose avoiding any deflections or spur of the septum, till it touches the posterior nasopharyngeal wall, when it is slightly withdrawn the handle is then moved towards the septum and the applicator kept in this position by a piece of an adhesive plaster wound round it and stuck to the opposite cheek. In the case of very young children it is better to wrap them in a sheet and ask the child's relative to secure the child and steady the head during the treatment, for the only security that the otologist giving this treatment has from receiving a large dose of radiation himself, is to put as much distance between the patient and himself during the treatment; 20—30 feet; is the lowest distance of safety. These treatments are given for 12½ minutes on each side and repeated every 14th day. Before the second and subsequent treatments are given an examination of the nose and the nasopharynx should always be done to see that the patient is not suffering from any acute infection; which if present will require a postponement of the treatment for a week, (Fig. IX.)

After the 4th sitting an examination of the nasopharynx will give us an idea whether the patient requires any further treatment as the number of treatment will differ according to size of the nasopharynx and the amount of lymphoid tissue to be destroyed. I have given as far as 6 treatments with no untoward effects.

In consequence to what I have said before, the diminution of the lymphoid tissue is a gradual process and final results should not be expected for at least a period of 2 months after the sitting. The patient therefore, should be thoroughly checked up after a lapse of 2 months; and the effect of the treatment as regards the original symptoms noted, improvement in deafness should be confirmed by an audiometric test and the decrease or absence of lymphoid tissue in the nasopharynx,

and a patent eustachian orifice ascertained by nasopharyngoscopy. In my series an improvement of 20-30 d. b. in the threshold of hearing after this treatment has not been uncommon.

In my series of 150 cases treated by Irradiation youngest patient was 14 months and the oldest 52 years of age. The symptoms for which the treatment was given and the number of cases in each group are the following:—

Recurrent Otitis Media	....	16
Chronic Otitis Media	....	35
Tinnitus	....	9
Post Nasal Discharge	....	5
Aero Otitis Media	....	3
Bronchial Asthma	....	8
Repeated colds and upper respiratory infection	....	8
Otosclerosis	....	5
Conduction deafness	....	62

Of the first group all recovered completely, in the second group of Chronic Otitis Media, in 25 cases the perforation was central and anterior inferiorly situated. The remaining 10 cases showed marginal perforation. Of the 25 cases treated in three cases the perforation healed completely. 14 cases were dry, and in 6 cases T. A. R. done first; and then Radium used; whilst in 2 cases no improvement was noted. Of the 10 cases of marginal perforation in 3 cases, Radium was given after Mastoidectomy, and one of these became dry. 2 cases had to have an operation after radium sitting; whilst in 5 cases the patients did not return for a check up.

Tinnitus.—Of the 9 cases treated for tinnitus, 2 were Bilateral; tinnitus with no improvement, whilst 7 were Unilateral; 5 completely recovered, 2 were unimproved; in spite of E. C. course after radiation.

Post Nasal Discharge.—Of the 5 cases of the post nasal discharge, 4 recovered completely, and one of these cases the associated laryngitis also cleared up.

Aero Otitis Media.—All civilians who complained of severe ear-ache while travelling by air, had no trouble in flying after the treatment.

Bronchial Asthma.—8 cases were treated; the youngest was 14 months and the oldest 6 years. Of these 4 children were tonsilectomised. Of this group 4 were completely cured. In 2 the number of attacks were greatly diminished, and in remaining 2 cases no improvement at all. In this group those children in whom the attacks of asthma was preceded by the upper respiratory infection, like a severe cold and where the Eosinophilia count is not very high and there is no marked familial history on both sides the treatment should be advocated.

Repeated colds and upper respiratory infection.—In this group 6 were treated after T.A.R. with marked improvement. In the other two T.A.R. was first done and in one of these one sitting of radium was given immediately after the Adenoidectomy on the operation table.

Otosclerosis.—Regarding the Otosclerotic group irradiation is by far not a cure, and the 5 patients treated by me, 4 were post-operative; they being all operated by my colleague Dr. Subramanian but complained of frequent colds with a blocked feeling of the ears at times; and in which hypertrophied lymphoid tissues in the nasopharynx was detected; and as a prophylactic against any deterioration of the good hearing obtained by Fenestration. 3 sittings were given with gratifying results; namely a decrease in the attacks of the frequency of colds, and a relief of the blocking sensation in the ears.

Conductive Deafness.—In this last and largest group of cases in my series, 62 patients received treatment; the youngest was 8 years of age, and the oldest was 44. Cases of deafness with

adherent and scarred drums are not included in this study. I have divided my cases on the same basis as that done by Donald Proctor in his study of Radiation Therapy for the removal of adenoids into 3 groups:—

- (1) Those patients with threshold for one or more tones higher than 20 db., but no 3 thresholds above 30 db., were classed in the group of slight impairment of hearing. Marked A in the graph.
- (2) Where the threshold for three or more tones were higher than 30 db. The impairment was called moderate. Marked B in the chart.
- (3) While those cases with thresholds for 3 or more tones higher than 50 db. were considered to have a severe impairment of hearing. Marked C in the chart.

After irradiation the hearing in these cases was again tested audiometrically and where an improvement of 5 db. or more, in four or more tones; or 10 db. in 2 or more tones, was noted, the hearing was said to be improved. If the reverse was true, the hearing was said to be worse.

In group A the results were very encouraging. Of the 30 cases, 10 were between the ages of 8 and 20; and the others between 20—25 years of age, 25 of these cases showed an improvement of hearing. In 2 cases there was no improvement, whilst 3 patients did not return for a check audiometry. Thus 83% were improved in this group.

In group B there were 16 cases all between the ages from 20—40 years. In 9 of these an improvement was obtained and in one case the improvement was as far as 25 db. In the remaining 7 cases—3 showed no improvement at all, but on subsequent audiograms a deterioration was not obtained. 2 cases became worse; in one of these cases an history of allergy was not given before the treatment, with the result that after

irradiation an acute attack of Allergic Rhinitis was precipitated which may have led to a decrement in the hearing, 2 did not return for a check up. Thus 56% showed an improvement in hearing.

In group C there were 14 cases all within the 3rd and 4th, decade of life, of which only 2 cases showed an improvement; whilst of the other 12 cases, 10 showed no improvement and 2 did not return for a check up. Thus in this group only 13% were helped by irradiation.

The better results obtained in group A may be attributed to younger age incidence of patients, whilst in the other groups where the patients belonged to 2nd, 3rd, and 4th, decade of life, the results were poorer, because in the words of Dr. S. J. Crowe, and often repeated by many after him, that radiation is not a cure for deafness, but rather a prophylaxis in the prevention of deafness.

Of the entire group of 62 cases—36 showed an improvement in their deafness by this treatment, that is, 58% whilst only 2 cases became worse.

In conclusion therefore, we see that Nasopharyngeal irradiation is a definite advancement in the field of Otolaryngology, for not only does it completely remove the nasopharyngeal lymphoid tissue and gives relief from the symptoms caused by the infections of this tissue as also it is a great prophylaxis in the treatment of prevention of deafness in children, upto the age of puberty, and controls the rapid progress of deafness in adults.

I wish again to make myself clear, by repeating that it is by no means a cure for deafness and should never be used, except for the indications mentioned by me before.

*Otosclerosis

BY

Dr. S. G. JOSHI, M.S.

Otosclerosis was recognised as a separate disease involving the otic capsule since the days of Politzer in the last two decades of 19th century. Though the histopathology and clinical picture of the disease was well recognised then, no progress was made either as regards the etiology of the disease or by way of any therapeutic measures to alleviate deafness. The next credit goes to Professor Holmgren of Sweden who made a fenestra in the bony capsule of the labyrinth, as early as 1917. Immediate improvement in hearing occurred—but the fenestra got closed, by bony regeneration or by fibrous tissue—and the hearing returned to preoperative stage. The present position of the achievements of fenestration surgery—the credit must go to Dr. Julius Lempert who in 1938 reported one stage endaural, antiauricular approach to make a fenestra on the external semicircular canal. He later on changed the position of the fenestra to the ampula of the lateral semicircular canal. Since then he has been working on this subject and has added considerably to our knowledge by his experimental work, improvement in the operative technique, and findings of the revision operations and the post-operative follow up. Dr. Lempert has been an admirer of professor Holmgren. It goes to his credit in establishing the "Lempert Research Laboratory", which has trained several medical men in fenestration surgery and most of the prominent workers in this field to-day have been his students. There are several other workers—who have added their share in the field of Otosclerosis and we are all indebted to them.

You can thus see this is a subject which has revived interest amongst the otologist and most of the literature accumulated on this subject has been during the last five years.

*Paper read at Lucknow during the Third Annual Conference of the Association of Otolaryngologists of India.

Labyrinthine surgery which one would not hazard in the past has been made safe due to the use of penicillin and sulpha drugs.

To-day we can reasonably assure an otosclerotic deaf a hopeful future—either by fenestration, an hearing aid or by both—than at any time in the past. There is a lot to be known yet. We cannot cure otosclerosis—we have yet to know what brings about this peculiar bony change in the otic capsule. The chances of cure are only possible then.

We have been slow in taking the advantages of the progress, science has made in other countries. It is partly due to our economic problems and for want of proper planning.

I saw the first fenestration operations by Cawthorn, and audiometry in early 1947 in London and the same year we received an audiometer in Bombay at the K. E. M. Hospital where I am working. Since I knew that otosclerosis is quite prevalent in our country, I spent more than half of my time in the study of the subject when I was on a tour abroad. I should make special mention of the work done in this field by Lempert, Stacy Guild, Shaunbaugh, Meltzer, Cawthorn and Dr. Miss. Wolf, whom I saw at work. It has taken twenty years for Guild to collect autopsy section of 1,161 temporal bones. In some of these cases he was fortunate to get their audiograms and history, while they were alive and in this way, it has given us data to compare the clinical findings with the histological appearance.

Unless, we have a State regulation—making it a condition that every patient must sign a form—who seeks admission to the hospital; allowing a P.M. to be done on them in case of death irrespective of caste or creed.

We propose to study on these lines—the prevalence of otosclerosis among our countrymen. Odds are against us particularly in getting postmortem material for study. It will take some years to present our findings to you. It is very

essential to have a clinical laboratory attached to the department for practice, teaching purposes and research—in temporal bone surgery and fenestration work in particular.

Otosclerosis is primarily a disease of the otic capsule. A distinction must be made between the terms "Clinical otosclerosis" and histo-pathological otosclerosis. Guild and other workers have shown that there can exist otosclerotic areas in the routine post-mortem sectioning of temporal bones—who in their life time had no clinical or audiometric evidence of deafness. This is called "Mute or Silent type of otosclerosis." Symptoms arise with involvement of either the foot plate and oval window, the round window, or the cochlea or with encroachment on the internal auditory meatus.

Clinical otosclerosis is usually associated with progressive deafness in a young person with patent eustachian tube and normal tympanic membrane.

The disease is prevalent all over the world. It produces a localised osteo-dystrophy—similar to but, not identical with Pagets (osteites Deformans) and Recklinghousens (osteites fibro-cystica or parathyroid osteitis).

Etiology.—For more than half a century otosclerosis has been and still is the subject of intensive research. Various factors have been considered in the causation of otosclerosis e.g. Biologic, metabolic and vascular. However, the present state of elucidation takes one but a short way from the periphery to the centre of the problem concerning its cause. Most of these aspects have been investigated intensively and repeatedly, yet the solution is no nearer now than, when Politzer first described the condition as a disease entity.

Incidence.—*Guilds findings in 1,161 routine autopsies:*—The existence of otosclerosis in children under five years 0.4%. Over five years of age 4%.

More prevalent in white	....	1 in 12.
Less prevalent in Negroes	....	1 in 96.

The incidence in activity was greatest under 20 and diminished rapidly after 60 years of age.

Age.—It is a disease of young age. Deafness usually begins between ages 16 and 30. But it may manifest even after 40. The older the age when symptoms of deafness manifest themselves better is the prognosis. Also the prognosis is unfavourable if in a young person the deafness has advanced rapidly in a short time. The deafness may come on rapidly once the defect has been detected or it may be very gradual taking years before there is great handicap. The deafness may remain stationery for some years and then start again.

Sex.—The disease is more predominant in females than in males in the proportion of 2:1 and some have given the ratio as much as 8:1. My personal observation for cases of clinical otosclerosis 10—15% of otosclerosis—among those who have sought advice for defective hearing 120 cases—in 150 cases is 2:3—females 47: males 73. This series is too small and requires more observations. However the findings may not be far from facts—[the ratio of extrinsic to intrinsic carcinoma is much different in our country than in the western countries] as also cases of cancer tongue—posterior $\frac{1}{3}$ very common here—that—anterior $\frac{2}{3}$ in other countries.

Heredity and familial occurrence.—It is known that otosclerosis runs in families. One has met such cases in practice several times. In some families the deafness has been on the increase e.g. the father had some difficulty in hearing after forty while the son has become stone deaf at 25 years of age only. However there are cases of otosclerosis without any familial history and cases of otosclerosis found in one generation alone are not uncommon. The British otological Committee found 44.4% of patients with otosclerosis, gave a family history of deafness.

The fact that so many theories have been put forth as etiologic factors in the causation of otosclerosis, none of them has been satisfactory. As a student when I read the Logan

Turners Text book—an encyclopedia of diseases have been mentioned as etiological factors.

Only a few deserve a mention here:—

1. **Fissula ante-fenestrum** as described by Bast.—The fissula ante-fenestrum which is the connective tissue between the vestibule and the middle ear in the area between the stapes and the cochlea, is resistant to ossification but contains in some fetuses and young children, areas of cartilage. Such areas later change to a typical or unstable osseous tissue which gradually obliterates it, with newly formed bone, resembling that seen in otosclerosis. He believes that the otosclerotic area surrounding the connective tissue of the fissula is a secondary invasion. The stapes and its foot-plate are involved secondarily. This does not explain the development of other foci about the round window, cochlea, the internal auditory-canal and the semi-circular canals and the vestibule.

2. **Metabolic theory.**—Disturbances of calcium, phosphorus and parathyroid metabolism as in Pagets and Recklinhausen's disease, has been considered as an etiologic factor in otosclerosis. However the blood calcium and phosphorus in otosclerous is normal and there is little evidence between them and otosclerosis. Otosclerosis develops more slowly than other two diseases and otosclerosis has never been found in any bones of the body other than the temporal bone.

Some considered it as a localised fibrouptic disease of the otic capsule.

3. **Wittmack's theory of venous stasis.**—He believes that venous stasis is the factor in the production of otosclerosis. He produced in the labyrinthine capsule of chickens, by venous stasis, a disturbance in the bone, which he believes to be identical with that found in otosclerosis. This consideration appears to be more attractive but has not been proved conclusively and accepted as such. The cause of such vascular alterations is still to be determined.

Bilateral affection.—Usually otosclerotic lesion is a bilateral affection, though it might have commenced in one ear first, before the opposite ear is involved. In a few cases only one ear is involved and the other ear having normal hearing for years. 15% of 54 cases in Fowler's series showed only one sided lesion by serial sections of temporal bone. Guild's statistics of 1,161 routine autopsies showed presence of otosclerosis in 49 patients. Of these 32 had bilateral otosclerosis and 14 had unilateral lesion.

Site of lesion.—Guild's series-65 anterior to oval window in 81 cases. 25 in the region of round window in 81 cases.

Sites of Predilection in their order.—

The oval window and the foot plate of stapes. Round window, Cochlea, Internal auditory canal, Vestibule and semicircular canals.

It may start as one or more foci in the otic capsule.

Influence of pregnancy and child-birth.—It is known 'Otosclerosis is frequently manifest near puberty during pregnancy, the purperium and the menopause.

In Fowlers' series of 733 females — Otosclerosis 350 were unmarried, 85 of the other group were aware of any increase of deafness with child bearing, 79 attributed progression of deafness to pregnancy.

I have seen number of cases whose deafness was on the increase with each pregnancy and there is doubt in my mind that in some cases, there is some toxic factor circulating in the system during pregnancy and purperium, which has an adverse effect on an already otosclerotic patient.

Histo-Pathology.—Circumscribed, localised area or areas of bony activity in the otic capsule which is peculiarity of this disease. No other bones in the body are similarly affected.

The development of foci seems to occur at the junction of the enchondral and the periosteal layer of the bony labyrinth. It usually begins in the enchondral bone. The endosteal or the periosteal layers are involved later. The otosclerotic areas are more vascular than normal bone but may become sclerotic in later stage. Marrow like cavities are seen in earlier stages. These cavities contain, connective tissue cells, osteoblasts and osteoclasts. The enlargement of foci has been attributed to an absorption of normal bone by osteoclasts and replaced by otosclerotic bone. Depending on the distribution and size and potency of the blood vessels in the marrow spaces, the otosclerotic areas may take a sclerotic, vascular, medullary, cystic or fibrous growth types.

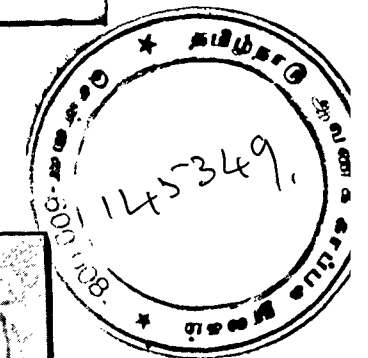
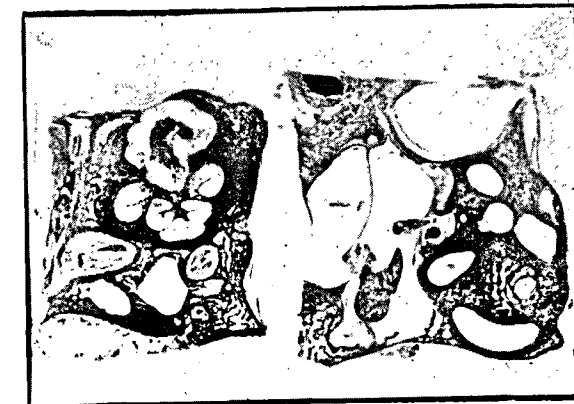
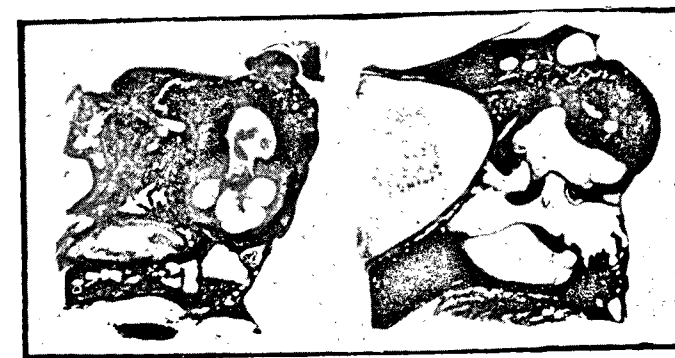
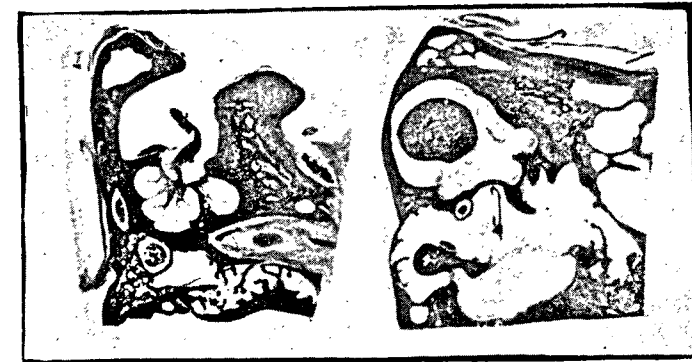
The otosclerotic process may go on continuously and the disease is never arrested. However, the disease may become stationary at any period and may start up anew in previously apparent quiescent areas.

Symptoms.—Symptoms vary with the anatomic structures involved. Bezoldtz's syndrome consists of progressive deafness in a juvenile or adult patient with a hereditary and familial deafness and normal drum and eustachian passage. This is the usual type of picture presented by majority of patients.

If only the oval window is affected, the ankylosis of the stapes may be partial or complete with symptoms of middle ear deafness only. If cochlea is involved there may be a picture of nerve deafness, indistinguishable from other types of nerve deafness. In mixed cases, there will be a mixed type of picture.

When I was at Lempert's Clinic, I discussed with him this question of nerve type of deafness in otosclerosis. He held the view that the deafness is probably toxic (neuritis) type and not due to pressure effect of otosclerotic process. Histopathological examination of temporal bones has shown that Cochlea is very infrequently involved, whereas mixed type of deafness—picture is so very common, and which in time to

OTOSCLEROSIS.



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come may give a picture typical of nerve deafness. There is loss of lower tone limit—prolonged bone conduction (-ve Rinne) with normal tympanic membrane and patent eustachian tube.

The tympanic membrane is normal, slightly thinner and shining and sometimes shows a pinkish glow. This last sign is considered a sign of a rapidly progressive lesion and not suitable for operative work. However one would be guided by other clinical data in the selection of a patient for fenestration.

Tinnitus is usually present and varies in intensity from mild to a very severe type. It may be low pitched, roaring or pulsating in quality. This is sometimes more annoying to the patient than deafness. If the tinnitus is in the range of 1024 to 2048 frequencies—difficulty will arise in recording the bone conduction. As a result the nerve function therefore is likely to be underestimated, and a suitable case may be classified in the unsuitable group for operation. Origin of these noises is not clear. It is usually considered to be of cochlear origin and may arise out of the increased vascularity of the otosclerotic process or from irritation of the cochlear nerve fibres due to the same pathological process.

[The tinnitus of Meniere's disease—also of cochlear origin—is thought to be due to spasm of the cochlear branch of internal auditory artery and consequent ischemia of the parts supplied and relief can be obtained by sympathectomy, by excision of the stellate ganglion and division of the vertebral artery. The etiology and the site of tinnitus is still not clear as according to Crowe that in some cases tinnitus still persists even after division of the 8th nerve or after destruction of the labyrinth. May be in these cases seat of tinnitus is located to the cerebral cortex.]

Paracusis Willisii—or the apparent ability to hear better in a noisy place than in a quiet room, is more pronounced than in any other form of ear disease.

Vertigo and giddiness—not at all common in young subjects but is not infrequent, among elderly persons with clinical otosclerosis. It is rarely incapacitating. It is seldom relieved and may occasionally be exaggerated after the fenestration operation. One should be cautious in leading the patient to believe, that such a symptom will diminish or disappear as a result of the operation.

Diagnosis.—Since the histologic and clinical evidence cannot be correlated simultaneously, it is evident that this difficulty constitutes the main difficulty in diagnosis. It is not difficult in an average case with involvement of the oval window, by proper history taking, progress of the disease, family history, physical examination and special hearing tests—which will include conversation whisper, tuning fork tests and audiometry. Difficulty will arise with cases with mixed type of lesion or nerve deafness and where there is marked tinnitus in frequencies of 1024 and 2048.

Treatment.—

- (1) Medical.
- (2) Surgical-Fenestration.
- (3) Hearing aid.
- (4) Surgery and hearing aid.

Medical treatment has been a total failure. Iodides, Vit. B, local injection of Thyroxin, Prostigmine injections, Parathyroidectomy etc., have miserably failed to improve deafness.

Surgical treatment.—The window operation, Sourdille, Holmgren and Lempert alleviate deafness but there is no proof that it has any effect, on the actual progress of the disease. Whether or not fenestration surgery influences the rate of secondary neural degeneration is doubtful. It is likely that neural depression will continue to follow its destined course, regardless of successful fenestration operation.

There is no cure for otosclerosis. The etiology of the disease is yet to be known. While the etiologic picture has

remained obscure, remarkable progress has been made in developing surgical technics, mechanical equipment and electrical devices which offer the afflicted persons a chance to escape solitary confinement in the dismal atmosphere of deafness.

Most of us have been witnessing—the remarkable progress made during the last decade in alleviating deafness of otosclerotic origin. There is no E. N. T. Journal to-day which does not discuss the problems of deafness and fenestration surgery and the surgery of the Meniere's disease in almost every issue.

Factors concerned in selection of patients with deafness for fenestration.—

1. Degree of deafness.
2. Type of deafness as determined by audiometry—
air conduction, audiometry bone conduction;
Tuning fork test.—Caloric test, Speech reception
test. Serological reaction.
3. Condition of tympanic membrane.
4. Condition of eustachian tube.
5. Age of the patient.
6. Vocation, Psychology and temperament of the
patient.
7. Family history.
8. Degree of tinnitus.
9. General condition of the patient.

Degree of deafness.—In general the deafness should be of a degree that is handicapping the patient, that a 30 db. improvement with the operation would bring the hearing to a serviceable level. (This means that the hearing of the patient should be impaired to about 35 db. level in the conversational frequencies before the patient should be considered suitable for the operation and the operation should be contraindicated if the loss is greater than 65 db. But in practice, one meets with cases with loss less than 35 db. having a marked handicapping degree of deafness and others with loss more than 65 db. The handicapping may not be so great and with operation the

it has its disadvantages:—(1) Mental preparedness of the patient to a prolonged operation, (2) Occasional movements of the patient are very disturbing to the Surgeon, particularly when he has reached the stage during the fenestrum.

To test the result of the operation on the operation table, when under local anaesthesia is very interesting and exciting both to the Surgeon and to the patient. Haemorrhage is less or almost nil if the blood pressure could be sufficiently lowered during the operation. This could be achieved in two ways:—

1. Arteriotomy,
2. High spinal anaesthesia.

I had an occasion to listen to a paper on the method of lowering the B. P. during the fenestration operation by arterial bleeding at the time of the Academy meeting in Chicago in 1947. The patient is bled till his systolic pressure is near 70-80 mm. The collected blood is stored and transfused again at the end of the operation. He reported about 10-12 cases done with this method. Except for the speaker, none seemed to agree, in the audience, with his heroic method.

Simpson Hall advocates the use of high spinal anaesthesia after inducing the patient with pentothal sodium and introducing an intratracheal tube. He claims that the optimum point of blood pressure lies between 70 and 80 mm. of Hg. When the systolic pressure falls to this level the operator enjoys a facility which allows him a dry field for the delicate stage of the operation. In his experience the blood pressure remains down for about 90 min. and then begins to rise slowly reaching normal in 2 to 3 hours.

3. By syringing the wound with sterile ice cold saline,
4. Topical application of thrombin (Cewthorn) and adrenalin.

In Conclusion.—I must say, otosclerosis, provides a wide field for study and research. There are more otosclerotics

than we imagine. There is need for developing centres for proper investigations and treatment of deafness. Our national efficiency suffers due to handicapping of individuals from deafness. Incidence of otosclerosis is to be worked out. Post-mortem Examinations—must be easily available for study. It is a disease which is very widely being investigated all over the world and we shall contribute our share to the science. Hearing aids can come to the help of the deaf—otosclerotic or from any other cause. But the present costs are almost prohibitive in a poor country like ours. This problem is better solved in England than in the U.S.A. The State buys all the aids and are made available for use—at a very moderate cost. Each hospital has a hearing aid clinic—where there are a variety of sets available for trial. For instance the material cost of building a hearing aid may be as much as 20 dollars—which is sold in the market for 150 or 200 dollars. The margin of profit is too much.

Otosclerosis was passed as catarrhal, middle ear deafness. When I look back I feel guilty of having done—unnecessary surgery—by way of first tonsillectomy, Septum operation, eustachian catheterisation for genuine cases of otosclerosis. That was the teaching then, and the profession could not be blamed for that. I am afraid irradiation with 50 mg. R. is being in the same fashion and too much is expected out of it. Radium has its indications and limitation. It should not be misused.

E. N. T. budget falls in the 3rd or 4th rank of the hospital budget and very often has received a step-motherly attitude—If possible to train people in the art of fenestration—and investigation and relief of deafness—given the proper facility men and material. A dead body costs about 200 dollars—for experimental surgery. Fortunately or unfortunately life is not so dear in India. A lot of useful work could be turned.

Lastly fenestration has opened a new era in the relief of deafness. The subject is new and enough since has not passed as yet to assess its real merits. The young surgeon is likely to

be very enthusiastic about dramatic and spectacular results he expects from these surgical procedure. We must go cautiously and properly select our cases—for surgery. In our enthusiasm of any new surgical treatment—we may over look this factor of selection.

I am fortunate to have had the opportunity to watch the work of masters in this line and also to work with them. Dr. Lempert has made it a point to show and teach whatever he knows—about fenestration. He has trained several surgeons, in this art. I have his motto before me.

DeSa.—Limitation of hearing aids.

7 cases—two small—

Operation is usually—done in the nose side.

— if the operated side — goes down — open the 2nd side.

Dr. Joe V. DeSa.—Dr. Joshi has well summarised the subject but I wish to remind you of the opening words that the fate of one suffering from Otosclerosis can be helped by fenestration, hearing aid, or both. If so the amount and risk of operation can be circumvented by a Hearing aid.

Being a student of Dr. Guild and Dr. Crowe, I believe in conservative surgery and feel with the 7 cases—4 operated by Subramanian and myself, 2 by Lempert, 1 by Cawthorne checked by me for one year afterwards. 1 case had bleeding and lost hearing. 1 case a man of 49, whose daughter was operated, and had good result, was not improved. 2 cases became worst. Dr. Joshi has also shown that Dr. Lempert reoperates to find out why some of his cases have failed, showing that such a procedure is not settled and leaves much for experimentation. Furthermore fenestration does not fulfil the principles of surgery as it does not cure the otosclerosis and hence I still feel that a lot is still to be learned of this new procedure.

Abstracts

CONGENITAL CHOANAL ATRESIA

By F. H. McGOVERN, M.D.

(*The Laryngoscope*, LX, August 1950, No. 8).

There is a definite hereditary tendency for the defect to manifest. The development and physiology of the nose and paranasal sinuses is apparently little affected by total unilateral and bilateral choanal occlusion. Sinusitis is an uncommon complication of the condition. The finding of aural disease and hearing impairment associated with choanal atresia is not common. Adult patient complain of little comfort due to their disability. The patients have to empty the retained secretion by lowering the head. Bilateral choanal atresia in infants is of grave importance requiring prompt surgical correction.

N. K. APTE.

DISPLACEMENT THERAPY IN CHRONIC SUPPURATIVE OTITIS MEDIA

By W. O. REID,

(*The Journal of Laryngology and Otology*, Sept. 1950, Vol. LXIV, No. 9).

The article deals with the conservative treatment of the disease. The principle of the method is to evacuate the middle ear cleft of air as completely as possible and appropriate fluid is then allowed to fill the vacuum so created. The process is a gradual intermittent one. It is done by Tragal pressure or by a Siegle speculum fitted into the meatus with the bulb compressed. The fluid used contains Urea, Ephedrine Sulphate, Silver Proteinate, Phenyl Mercuric Nitrate, Monophenyl ether of ethylene Glycol, Spt. Meth. Indust and water.

N. K. APTE.

CARDIOSPASM OR ACHALASIA OF CARDIA

By W. B. HOOVER, M.D.

(*The Annals of Otology, Rhinology & Laryngology*, Vol. LIX, Sept. 1950, No. 3).

The author has given his personal observations and discussed practical considerations of achalasia of Cardia. Seven cases of Cardiactomy have been presented. Cardiactomy is suitable in 1. An unusually long and tortuous oesophagus, 2. When a large diverticulum is also present at the lower end of the oesophagus, 3. When a previous operation has failed to relieve the stricture or the stricture is so firm that plastic procedures or oesophago-gastrostomy may be difficult. The condition should be designated as stricture at the oesophago-gastric junction and any further description added as idiopathic dilatation of oesophagus or associated peptic ulcer, gall bladder disease etc. as any other associated condition present.

N. K. APTE.

PRIMARY TUMOURS OF NASAL SEPTUM

By F. A. SODY,

(*The Laryngoscope*, Vol. LX, Oct. 1950, No. 10).

Primary Septal tumours are uncommon. The author has reviewed the literature and outlined the clinical characteristics. The initial surgical resection should be sufficiently radicle. An appropriate surgical procedure

for each group is outlined and illustrated. Methods of intranasal radiation are described. The cytological smear technique is of value in diagnosis and treatment. The author has reported eleven illustrative cases.

N. K. APTE.

EFFECTS OF GUNFIRE ON HEARING

By F. W. OGDEN, M.D.

(*The Laryngoscope*, Vol. LX, Oct. 1950, No. 10).

The author has studied the effects of noise of gunfire (50 calibre machine gun and shot gun). The noise produces definite loss of hearing for high tones (2,048—11,548 cps) among gunnery instructors. A major portion of the temporary high tone hearing loss which is present immediately after exposure to the noise is recovered in subsequent 24—48 hours. The group of students who wore one of five types of ear plugs incurred only nonsignificant loss during the course.

N. K. APTE.

MAGNET EXTRACTION OF FOREIGN BODIES

By E. J. WHALEN, M.D.

(*The Annals of Otolaryngology, Rhinology & Laryngology*, Vol. LIX, Sept. 1950, No. 3).

The author has traced the historical development of the use of magnetic force in medicine and surgery. With the improvement in the Alnico permanent magnet and the simplification of biplane fluoroscopy together with our increased knowledge of intestinal intubation and the bronchopulmonary segments, endoscopists are in a better position to make use of the simple and effective technic of the magnet removal of the ferromagnetic foreign bodies from the air and food passages.

N. K. APTE.

AUREOMYCIN IN HERPES ZOSTER

By E. GAUS, M.D.

(*The Laryngoscope*, Vol. LX, Sept. 1950, No. 9).

The author has given a short resume of the treatments of Herpes Zoster and considered the probable aetiology of the disease. The disease affects the areas about the head and face very gravely. Aureomycin shortens the duration of the disease, relieves pain and decreases complications. The lesions heal early. The dosage of Aureomycin administered in the illustrated cases was 500 mgm. every six hours for adults and the treatment continued for two to three days.

N. K. APTE.

LARYNGOCELES IN THE HUMAN

By K. HARRISON, F.R.C.S.

(*Societies Proceedings, Royal Society of Medicine-Section of Laryngology*, Feb. 3rd 1950).

The author has reported five cases. The anomalous air sac develops from the saccule of the laryngeal ventricle. The predisposing causes may be the presence of a congenitally long saccule or it may be a reversion to the presence of an air sac as in members of the ape family. The exciting factor is great increase of intralaryngeal pressure which may occur during coughing or playing a wind instrument. The laryngocele may be unilateral

or bilateral. The swelling lies between the perichondrium lining the medial side of the thyroid ala and the ventricular band. It then extends upwards and lies under the thyroid membrane. The laryngocele if untreated may become infected and distended and cause death by suffocation. Only laryngoceles causing distress to the patient require operation.

N. K. APTE.

THE REHABILITATION OF PATIENTS FOLLOWING SURGICAL REMOVAL OF THE LARYNX

By Miss. M. MASON,

(*The Journal of Laryngology & Otolaryngology*, Dec. 1950, Vol. No. 12).

Normally larynx has been shown to subserve a number of functions e.g. coughing, breathing, swallowing, expectoration, muscular effort, protection of the bronchi, and production of voice. All these are altered after laryngectomy. The first four are carried on although their laryngeal component no longer exists. Voice can be reacquired by reeducation and training; but the protection of lower air passages and the fixation of the chest during muscular effort are no longer possible. Crusts formed in the trachea may have to be loosened by instillation of paraffin or saline drops before they can be coughed out. Lower air passages can be kept protected by securing a damp gauze piece over an openwork duralumin shield over stoma. Sense of smell can be recovered if patient learns to swallow small gulps of air repeatedly with the mouth closed, thus air stream adequate for olfaction is sucked into nose.

If hair grow on the pharyngeal surface of skin where skin of the neck has been used in operation trimming of hair by oesophagoscopy is required.

N. K. APTE.

ACHALASIA OF THE CIRCOPHARYNGEAL SPHINCTER

By N. ASHERSON,

(*The Journal of Laryngology & Otolaryngology*, Dec. 1950, Vol. LXIV, No. 12).

According to the author the condition is not uncommon if diligently and deliberately sought for. The achalasia of the sphincter may be partial or complete failure or delay in relaxation of the Sphincter. Dysphagia is mild or severe. The inco-ordination if intermittent is known as Cricopharyngeal "stammer". Usually it persists permanently. Diagnosis is by X-ray of hypopharynx after an opaque cream is swallowed. The characteristic hold-up of the bolus is observed above the cricopharyngeus: this results in stagnation in the hypopharynx with secondary overflow or retention filling the Valleculae. Achalasia of the cricopharyngeus has been encountered in association with lesions as pharyngeal paralysis due to anterior poliomyelitis or thyrotoxic myopathy, recurrent laryngeal nerve paralysis and after partial pharyngectomy. There are two clinical types—(A) Latent case—only radiological diagnosis & (B) the dysphagia case. Differential diagnosis is from:—(1) Idiopathic dysphagia in adult female, (2) Sideropenic dysphagia (Plummer Vinson), (3) Dysphagia due to carcinoma of the hypopharynx or Post-Cricoid region, (4) Unsuspected foreign body within or without the lumen of the oesophagus.

N. K. APTE.

Association Notes.

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The last clinical meeting of the Bombay branch was held at Nair Hospital, on 18th April 1951, where Dr. L. H. Hiranandani showed a number of interesting cases e.g. Rodent Ulcer 2 inch x 1 inch of Right ear, four laryngectomy cases, one with oesophageal voice, cerebellar abscess etc. Quite interesting discussion followed after which Dr. Hiranandani, E. N. T. Surgeon of Nair Hospital served members with nice refreshment.

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The First informal meeting was held on 11th February 1951 at Dr. S. Roy's place and the executive meeting on 25th February 1951. The West Bengal State Branch has invited the Association for the Fourth Annual Conference at Calcutta in December 1951, which the Governing Body has accepted with many thanks.

Correspondence to be addressed to Dr. N. Banerji, 12, Dharamtala Street, Calcutta-13.

ANDHRA BRANCH :

Inauguration of the Association of Otolaryngologists of India.

The Andhra Branch of the above Association was inaugurated by Dr. C. A. Amesur, President of The Otolaryngologists of India during his short stay at Vishakapatnam, on the evening of 3rd May 1951 under the Chairmanship of Dr. B. Tirumal Rao. In his welcoming speech Dr. B. Tirumal Rao, a senior member of the profession, praised the services of Dr. C. A. Amesur and requested him to inaugurate the Andhra Branch.

Dr. C. A. Amesur, after tracing the early difficulties met with in the formation of the parent association and the sterling work that is being done at present, stressed the necessity of forming State and City Branches, so that useful work may be accrued by holding frequent clinical meetings and discussions among the specialists in the branch area. The following resolutions were passed at the meeting and office-bearers elected.

1. Proposed by Dr. P. Narasimha Rao and seconded by Dr. K. Krishnamurthi, it was resolved unanimously to form the Association of Otolaryngologists of India—Andhra Branch.

2. Moved from the chair, it was resolved unanimously that the office-bearers be elected for 1951.

President: Dr. B. Tirumal Rao.
Vice-President: Dr. Ch. S. John.
Joint Secretaries: Dr. S. Jagannadhan.
 Dr. G. Lakshmipathi.
Hony. Treasurer: Dr. V. S. Krishnamurthi.
Executive Committee: Dr. P. Narasimha Rao.
 Dr. K. Sriramamurthy.
 Dr. S. Mallikarjuna.

3. Moved from the Chair, it was approved unanimously to fix the Local Branch subscription at the rate of Rs. 6/- per annum.

Dr. P. Narasimha Rao proposed a vote of thanks.

This meeting of the Andhra Branch was preceded by a splendid At Home by Dr. P. Narasimha Rao.

EXAMINATION RESULTS.

M. S. (Otolaryngology) Andhra.

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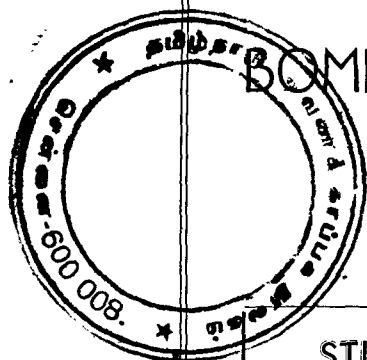
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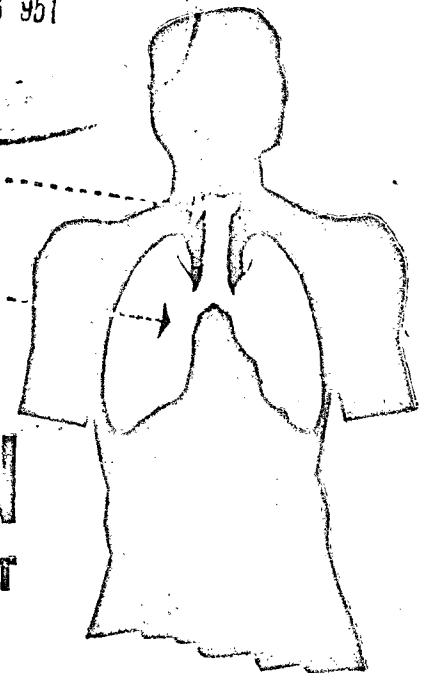
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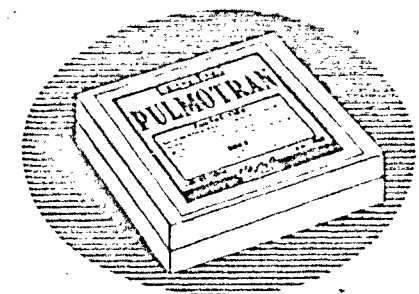
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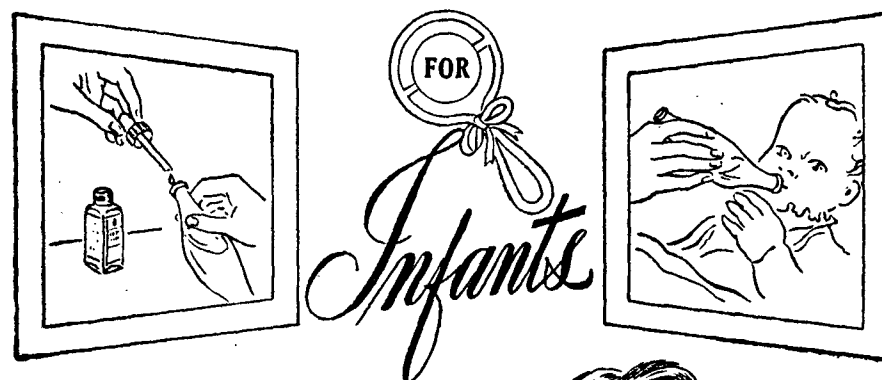
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Official organ of

THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

Vol. III

MARCH 1951

No. 1

Opening Address

At the Third Annual Conference of the Association of
Otolaryngologists of India at Lucknow on 22nd December, 1950.

BY

HIS EXCELLENCY THE GOVERNOR.

Before we begin the proceedings, I would ask you to stand for a minute and pay silent homage to the memory of Sardar Vallabhbhai Patel. He died full of years and honour, but India could ill afford to lose so sagacious a statesman and so great a leader of men. He has left a void which it may take years to fill, if ever, and India is infinitely the poorer for his loss.

As Head of the State, I have pleasure in welcoming you to this City and in opening the Third Annual Conference of your Association. I see that last year the Governor of Bombay had something to say about the name by which you delight to call yourselves. I have a somewhat different complaint to make. My friend, Dr. Cherian, a former President of your body, had written to me a long time ago that the annual conference of the Ear, Nose and Throat Surgeons was to be inaugurated on or about the 18th of December and that he would be coming to attend it. Weeks later, the Secretary of your Association wrote requesting me to open this Conference on the 21st and I agreed to do it. In a state of mental aberration, for which I hold you responsible, I had both the engagements

noted down by my Secretariat and I was quite annoyed when I found early this week that Ear, Nose and Throat Surgeons and Otolaryngologists were one and the same. Apart from misleading me, I do not know why you should prefer a jaw-breaker for a designation which does not even include the nose.

I suppose the only reason why I have been asked to open this Conference is that I happen to be Head of the State. I dislike Doctors and all their works and keep them at arm's length as far as possible. It may interest you to know that I have been going through life with a crooked septum and a smoker's throat, which, if I had consulted any of you, you would probably have liked to operate on. I may hasten to add that my ears, however are tolerably good, in spite of the fact that, through a long public life, they have had to listen to a lot of nonsense. My inclination, therefore, was to refuse your invitation, but since taking on this job, I have been doing all sorts of odd things and I felt that one more would not hurt me.

I am glad to learn that your Association is already a Member of the International Congress of Otolaryngology, which has not only got the blessings of two important world organizations, but is also likely to get financial assistance from them. I hope that by the contribution you make to the work of the Congress, you may not only justify the recognition accorded to you, but also establish the reputation of India for research on problems relating to the Ear, Nose and Throat. We have produced physicians and surgeons who, in many—respects, can take their place with the best anywhere, but in the realm of research, we have just begun to scratch the surface. There are some fine and keen workers amongst us and I have no doubt that, given adequate facilities, they can produce results which would increasingly command the respect of men of science in the advanced countries of the West.

The scope for the services of ear, nose and throat specialists is practically unlimited in this country. Millions of our children contract trouble in these organs, which, through poverty, ignorance and neglect, develop into serious ailments.

There are vast areas where the services of even an ordinary medical practitioner are not available. I hope your researches may lead to the discovery of preventives or cures which may be within easy reach of the masses of our people. There is much of educative work to be done in this connection and I am sure you will regard it as falling within the purview of your aims and objects and as worthy of serious attention.

I do not feel myself competent to say anything more. My Hon'ble Colleague, the Minister for Health will presently be addressing you and I have no doubt he has much to say which should interest you. It may interest you professionally to know that he has a sound throat, in spite of the constant wear and tear to which he is subjecting it.

I declare the Conference open and wish your session may prove to be one of purposeful endeavour and useful exchange of ideas.

Inaugural Address

At the Third Annual Conference of Otolaryngologists,
on December 22, 1950 at Lucknow

BY

Hon'ble Sri C. B. GUPTA,

Minister of Health and Civil Supplies, Uttar Pradesh.

I am grateful to your Association for asking me to inaugurate your Third Conference. As the Head of the Medical and Health Administration of this State I welcome you to this historic city of Lucknow.

We are meeting here under the shadow of a national calamity. The death of Sardar Vallabhbhai Patel, the warrior and the architect of India's unity, has cast a gloom throughout the length and breadth of our motherland. Our hearts are too full. What he was to us and what he did for our country is not necessary for me to mention here, for hardly there is anybody in this land who is not well conversant with it. The new India of today is his creation and we all to whatever profession we may belong, have to prove worthy of it and have to give the best in us of body, will and soul to the service of this land that he so nobly served. That alone will be our homage to the memory of that great man.

This is your Third Conference, the first two having been held in Madras and Bombay respectively. It is a matter of pride for the Ear, Nose and Throat Specialists of Uttar Pradesh that their capital city should have been given the honour of being chosen by your Association as the venue of this Conference.

The speciality to which you have the privilege to belong is comparatively younger than the specialities of other branches of the medical science. Opinion is divided on the question whether specialization is desirable or not. A considerable section of the lay public thinks that what is wanted is a large number of practitioners in general medicine and surgery rather

than specialists in particular branches. It is argued that specialists think only in terms of their particular speciality and lose that balance and sense of proportion which is required in a general surgeon or physician. From the point of view of the State Government, any advent of a new speciality brings an additional burden to bear on it. Besides with the rise in prices and the cost of living index, the common man with his limited means is finding it more and more difficult nowadays to secure the services of specialists except for what is doled out to him in a State institution in the outdoor or if he is fortunate enough to secure a seat in the indoor ward which is meant for the treatment of a particular ailment. On the other hand, as science advances it seems that specialization becomes more and more necessary because it amounts to a division of knowledge and labour. When highly specialized knowledge is being utilized for the treatment of diseases of certain organs, there is no reason why doctors should not come forward for specializing in the treatment of other organs on a similar level of efficiency. Specialization leads to more and more research and which I must say quite frankly has been most lacking in our country inspite of the fact that we have now many established medical institutions of repute in the land. So far we have depended on the West in the matter of researches, but it does not look proper that now when we are free we go on looking to the West in this matter, and do not add to the fund of knowledge by our own initiative, skill and hard labour. If India has to achieve its rightful place in the comity of nations, it will be able to do so only when it also draws the attention of the world by its contributions to the growth of scientific ideas as well as scientific researches. Associations of your type have to bring about the necessary atmosphere in the country so that aptitude of at least the brilliant men in the medical profession for real research work may grow. The plea of non-availability of resources and opportunities so far advanced has to be discarded and fought against, for where there is a will to work hardly any impediments of whatsoever nature can stand in the way of real research work. It is not necessary here to remind you of the stories of those numerous men and

women who inspite of meagre resources contrived to immortalize their names in the history of mankind by successfully carrying out researches and this was possible because they had a desire nay passion for scientific advancement.

The sensitive organs of hearing, smelling and speech are important organs of the human body. Everybody in the medical profession is conversant with the fact that small affections of the throat can easily, if at any stage neglected, be a source of larger troubles of larynx which is our soundbox and can travel upwards into the middle ear which is the organ of reception of sound. Similarly, cold is a very common disease among children and is seldom cared for by parents. The result is that in course of time the defect develops into chronic catarrh or causes other diseases in the body. It has been seen that people suffering from cold from their very childhood become subject to life long illness, grow into weaklings and are never able to enjoy a full and wholesome life. If it were possible to cure the common cold in its initial stages, we could make the lives of our countrymen healthier and happier.

Deafness presents yet another major problem. The Hon'ble Sri A. B. Shetty, Minister of Public Health of Madras in his inaugural address delivered in 1948, said that deafness was considered to be greater misfortune than blindness, because while the loss of sight did not prevent a person from communicating with other people, loss of hearing and speech deprived one of the joy of homely intercourse and shut him up in terrible isolation. While one may not subscribe to this view in its entirety, there is no denying the fact that a deaf person has to pass a very miserable existence. Due to loss of power of hearing, he loses his productive value to a considerable extent and thus becomes a partial drain on society. It, therefore, becomes the duty of the State to see that adequate measures for prevention and cure of deafness are provided.

The number of specialists in Otolaryngology in Uttar Pradesh—or for that matter in the whole of India—is yet very small. The Department of Ear, Nose and Throat has been

functioning as a separate unit at the Mahatma Gandhi Memorial and Associated Hospitals, Lucknow, for a very long time and a similar section was also brought into existence at the Agra Medical College in 1938 when the former Medical School of Agra was upgraded into a degree college. Since last year a diploma course in Ear, Nose and Throat has also been started in the Lucknow Medical College and the first batch of successful candidates has already passed out. Dr. R. N. Misra, M.S., D.L.O., who is a keen worker in this branch, is in charge of this department here.

The intention of my Government is that every district hospital in the State should in due course be provided with a team of specialists namely a physician, a surgeon, an ophthalmologist, and specialists in other branches such as Ear, Nose and Throat, Dentistry, Gynecology, etc. The number of specialists, however, in branches other than general medicine and general surgery is yet very small and it will perhaps take long years to fulfil this ideal. Besides, the financial stringency is also a great bottleneck at the moment. It may, however, be hoped that with the passage of time our finances will improve and adequate personnel would be forthcoming to fill in the specialised branches of our important hospitals.

You who have set upon the noble task of developing that branch of the medical science which has been somewhat neglected up to this time, deserve my heartiest congratulations and best wishes in your efforts. Your Association is a branch of that noble profession called the medical profession and along with the profession as a whole it can do a lot of service in the poor India of today which is suffering all round from disease of various types—diseases which cause wide-spread misery and ruination both moral and material resulting in loss in production to the tune of several crores. It is my earnest desire that your Association may prosper and take its rightful place in the evolution of knowledge which may in the long run bring relief to the ailing humanity and alleviate their suffering. I have now great pleasure in declaring your Conference open and asking you to start your deliberations.

Presidential Address

At the Third Annual Conference of the
Association of Otolaryngologists of India at Lucknow

BY

Dr. B. TIRUMALA RAO.

Ladies and Gentlemen,

I must in the first place express my heartfelt gratitude to His Excellency Sir H. P. Mody for having so kindly come and opened this conference. It is indeed a great privilege for a conference of medical men to be opened by the Head of a State. And to have enjoyed this rare distinction thrice in succession is a sure and striking indication of the deep and abiding interest of our popular Government in the problems of the medical profession. We are doubly fortunate in having the Hon'ble Minister for Health also amidst us to inaugurate this conference, and we are no less grateful to him. We are all very proud of this honour. It augurs well for the future of this infant Association.

Let me extend to you all, ladies and gentlemen, who have gathered here a most sincere and hearty welcome on behalf of my local colleagues and myself. You have come here despite several personal inconveniences in order to meet your old friends and to make fresh contacts and also to take part in the deliberations of this conference. In this beautiful city of Lucknow and in this happy atmosphere of cheer and welcome, let us all unite and partake freely in the social and scientific deliberations of this conference and carry home with us the most pleasant memories of our short stay here.

In this happy hour of union and reunion, let us not forget to recall to our minds how much we owe to the great pioneers—the leaders of our profession—who have originally conceived the idea of founding this Association and happily synchronised its birth with the very dawn of our political freedom. Theirs was indeed a prophetic vision. To Drs. Cherian, Amesur and Gandhi goes the full credit of founding this Association. It is most unfortunate that Dr. Gandhi should have been snatched away from our midst by cruel fate just as we had entrusted this lively little Association to his fostering care and protection.

PRESIDENTIAL ADDRESS

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The emergence of this Association into the medical world marks the end of an era in the history of Oto-laryngology in India. It is the end of an era of individualistic endeavour, each one of its practitioners ploughing his own lonely furrow, inspired by no loftier ideal than the pursuit of his own personal and isolated aims in life. The speciality was growing gradually and was gaining in numbers but they were all unorganised and widely scattered about in a huge geographical area. Now with the founding of this Association these scattered in-articulate elements are all gathered together and given a form and a shape and endowed with life. New interests are created, new ambitions and ideals stirred up amongst the members of our profession. Indian Oto-laryngology is now definitely on the World map of modern medicine. We are now members of the International Conference of Oto-laryngology. All this and much more we owe to the prophetic vision of those great pioneers whom we are proud to acknowledge as the founders of this Association. They will ever be remembered with love and gratitude by the future generations of Oto-laryngologists of India.

But even as I am congratulating you and myself over this happy event, I am only painfully aware of the grave doubts that are now being cast on the very future of Oto-laryngology. It is feared that the field for the practice of this speciality is rapidly dwindling and its very existence threatened as a major speciality. There is a likelihood of otology getting dismembered and submerged into intra-cranial surgery and laryngology into thoracic surgery and so on and so forth. This is indeed a matter for grave concern for all of us and I have spent some considerable thought over it. My own belief is that such doubts are the outcome of an inadequate appreciation of the past history of our speciality as well as of an incorrect reading of its present trends.

Oto-laryngology is not a speciality of recent origin nor is it one of those specialities of uncertain viability sprouting up like mushrooms on slender foundations. It has got a long and established tradition behind it. It is no doubt true that it is only just about a century back that it was revived as a branch of modern medicine. But it was practised after a fashion for

centuries before. Its origin can indeed be traced far back into ancient medicine, Aryan as well as Greek. Diseases of the eye, ear, nose and throat were accorded a separate place in their treatises. It was quite possible that there were specialities in those ancient times as well. We are told that specialism was a great feature of medicine in times of old at least in one country namely ancient Egypt.

From the times of Charaka and Sushruta in India and Hippocrates and Galen in Europe little was added to the store of knowledge which accumulated and was recorded by them till the Renaissance in Europe. The first great step was taken when Vasalius a most notable figure in the revival of medicine, started the accurate study of anatomy sweeping away all the old erroneous conceptions. A galaxy of brilliant anatomist-surgeons in Padua and other university centres of Italy followed the lead given by Vesalius. The intricate anatomy of the ear attracted the attention and aroused the interest of these workers. Text books soon appeared not only dealing with the anatomy and physiology but also its diseases. By the end of the 18th century the bold outlines of anatomy were well-nigh completed by Valsalva, Morgagni, Cotugno and Scarpa, names which are very familiar to us all. Considerable headway was made into the physiology and pathology of the ear. Corti's analysis of the organ which bears his name soon induced Helmholtz, the physicist to speculate on the function of these structures and formulate his well known resonance theory of hearing. Next came the discovery of the eustachian catheter, artificial perforation of the tympanic membrane and finally the development of mastoid surgery, the chief credit for which goes to the German surgeons, von Troltsch and Hermann Schwartz. Otology soon aligned itself as an accredited speciality of surgery.

The Italian school of anatomists who studied the eye and the ear did not fail to extend their attention to the throat. But laryngology made little progress till another mile stone was reached, namely the discovery of the laryngoscope by Turck in 1857. Its technique was perfected and its use was extended for the inspection of the ear and nose as well by

Czermack. Thus throat, nose and ear closely related as they are by reason of their structure and function were helped to weld themselves together into one separate branch of clinical medicine by the origin and development of this common diagnostic procedure. Though the leanings of laryngology were first towards medicine, it was overpowered by the surgical inclinations of otology.

The next landmark which notably advanced the prestige and domain of oto-laryngology was the discovery of bronchoscope by Killian of Freiberg in 1897. Chevalier Jackson of Philadelphia adopted distal lighting instead of proximal lighting, and has become the most notable figure in the world of broncho-oesophagology. Harvey Cushing, the great neurosurgeon paid a handsome tribute to him when he said "If the recording angel keeps score of the numbers any of us as may possibly have snatched from the very jaws of death, certainly Chevalier Jackson's name tops the list". The field of endoscopy gradually widened from mere extraction of foreign bodies to the diagnosis and treatment of many pulmonary and oesophageal conditions. It is impossible that a branch of medicine built upon such solid foundations and with such enduring achievement can be throttled out of existence by any inroads of other specialities into its domain. Nor does it appear ever likely that its own particular methods of diagnosis and treatment can be entirely replaced by any of the newer therapeutic discoveries like chemotherapy.

The present day trends of medicine bring out well the fact that oto-laryngology like medicine itself in general is constantly changing. The changes at present are rapid and profound. We are at the threshold of a new era in many ways different in theory and practice from the past. Otitis media and mastoiditis and its numerous complications have till recently dominated the practice of otology. But the advent of chemotherapy and antibiotics have now drastically curtailed the necessity of surgical procedures in the treatment and elimination of otogenous sepsis. The same blessings have, however, made it possible for the specialist to boldly interest himself in the surgical treatment

of oto-sclerosis and Meniere's disease. The etiology and pathology of both these conditions still await further investigation and elucidation. The treatment of facial paralysis with nerve transplants and end-to-end anastomosis is more hopeful to day. A new and vital interest has been created in the functional aspects of the ear consequent upon air and sub-surface travel. The numberless observations and interpretations on the physiology of hearing have not yet helped to unravel its mysteries.

Irradiation of lymphoid tissue in the naso-pharynx for the treatment of conductive deafness and tubal obstruction and re-education and rehabilitation of the deaf and deafened present themselves fresh fields for the otologist to study and solve. We still blithely remove the lymphoid structures of the hypertrophied Waldeyer's ring but we know very little of its etiology.

A fuller appreciation of nasal physiology has reduced the frequency of surgical operations on the nose and the para-nasal sinuses. At present many difficult problems of allergy claim the attention of the rhinologist, for allergy has been found to have constant manifestations in the nose and para-nasal sinuses. Nasal obstruction and nasal discharge still remain a common complaint. The relative parts played by allergy and infection require careful study. Mosher said in 1937 "He who can arrest or cure chronic progressive infection of the pharyngeal mucosa will prevent or cure progressive deafness" Chronic progressive deafness yet remains a problem. Atrophic rhinitis is fortunately becoming rarer in its incidence. Oestrogenic therapy and surgical operations designed to narrow the nasal passages have helped in keeping the condition under control. Yet we have no cure nor do we know the cause of this disease.

The rhinologist cannot disown the responsibility of reconstructing the nasal pyramid as a necessary corollary to that of reconstructing surgery of the internal nose and paranasal sinuses. He must necessarily, therefore, develop his talents as a plastic surgeon.

While we still seek an answer to the problem of cancer, many cases are still undiagnosed during the period when surgical removal would result in less physiological handicap.

The salivary glands and their diseases, infections and tumours of neck have too long been accorded scanty attention, if not entirely neglected. These as well as many other conditions should be the responsibility of the oto-laryngologist.

There is again the danger looming large of bronchoscopy slipping into the hands of the thoracic surgeon and oesophagocopy into those of the gastro-enterologist. It is true that endoscopy was discovered and developed by the manual dexterity, training in monocular vision and mastery of its technical problems by the oto-laryngologist. Other specialities have found it useful and adopted it for the elucidation of their own problems. The otolaryngologist should take it as a complement and should feel proud to offer his help and co-operation. He cannot claim any monopoly over any particular method of diagnostic or therapeutic measure. But he must ever maintain his mastery and superiority in the technical skill. Endoscopy should ever remain and be retained as an integral part of the daily practice of the oto-laryngologist for there will always be foreign bodies in the food and air passages. The oto-laryngologist should expect in his turn to be treated as the main custodian of its practice and teaching.

In spite of rapid changes in methods and expansion of knowledge there can be no doubt that certain diseases will always exist. The fundamental principles in their diagnosis and treatment remain the same. Sound practice is always based on a sound knowledge of anatomy, physiology and pathology. Oto-laryngology in future will become a speciality not only surgical but also of medical practice offering a great field for scientific thought and enquiry as well as for practical medicine and surgery. It should attract the ablest men in the profession. Our horizons are broadened rather than narrowed. The future demands of us to devote more time and effort to the wider application of our specialist knowledge, to become better physicians and much less of mere surgical technicians. We still have problems and there is abundant opportunity for work in our field if we seek its widest possible application and explore it intensively. The prestige of oto-laryngology stands

highly technical speciality and should enjoy the same status as neurosurgery or thoracic surgery.

In order to achieve a uniformity of standard, I believe a single evaluating agency—an All-India Board of Oto-laryngology should be constituted and entrusted with the proper conduct of examinations and the granting of diplomas and the supervision of facilities for training the candidates in the speciality. The award of diplomas by individual universities should be discouraged. It will help us secure a uniformity of standard and also save the universities from avoidable reduplication of work and expense. The universities may, however continue to grant the M.S. Degree with oto-laryngology as a special subject. The idea is not to infringe on the inherent rights of the university but to maintain a uniformly high standard amongst the practitioners of the speciality. A candidate for a teaching post ought to be expected to get a post-graduate university degree as well as a diploma of the Board.

Post-graduate training requires a long residence for a period of at least three years. There are no special hospitals at present in our country which can offer such residential posts to candidates aspiring to specialise. In the regular medical schools the facilities available are inadequate even for undergraduate teaching. Very few of them can be expected even in the near future to improve to a level enough to be considered as proper-teaching centres. The problem of providing facilities for post-graduate education in certain subjects is being tackled at present by up grading certain departments in the existing medical colleges. But so far as oto-laryngology is concerned a far better and more satisfactory solution would be to establish a central institute with an attached well equipped hospital. It shall be the growing point of knowledge in its special field with the greatest economy and efficiency. The essential clinical and pathological material and full facilities can be collected and exhaustively studied in one central place. Within the walls of such an institution shall be gathered a band of men specially trained and supremely devoted to the pursuit of knowledge in the speciality. It is only by team work amongst a team of workers with a common aim and endeavour that results can be achieved in any highly specialised branch of medicine like oto-laryngology. In a general hospital

with meagre facilities for work and without any adequate stimulus for production of any first rate work, a specialist tends to develop an intellectual stagnation and frustration. It devolves on us therefore, to work for three ideals, uniformity of academic standards, a central evaluating board and a central institute of oto-laryngology.

The acquisition of a good training and high academic attainments and the development of a broad interest in general medicine and surgery are the only effective safeguards against the degeneration of a specialist into an intellectual myopic, arrogantly believing in the selfsufficiency of his own limited speciality. A specialist should always work in harmony with the practitioner of each and every branch of medicine and surgery and much more so with the general practitioner. Specialism is the weakest link in the chain of medical knowledge and the strength of the chain is in its weakest link. After all oto-laryngology is a small, albeit an important aspect of medicine. We are not to encourage any spirit of isolationism. We should never ignore the fact that there is a bigger body with far greater numbers which takes care of the interests of all medical men and women, whatsoever speciality they may practise. I refer to the Indian Medical Association, the mouth piece of the medical profession of India. I think it is our duty that we in our individual capacity and probably later on as an affiliated body of that parent organisation render all help we can and associate ourselves freely with the activities of the Indian Medical Association.

Lastly, ladies and gentlemen before resuming my seat, I must thank you very sincerely for conferring upon me a great honour giving me this opportunity to preside over this conference. It is my earnest hope and desire that with your mutual help and co-operation, the proceedings of this conference shall have a most successful termination.

"JAI HIND".

The Association of Otolaryngologists of India.

SECRETARY'S REPORT

*At the Third Annual Conference of the Association
held on 22nd December, 1950*

BY

L. H. HIRANANDANI.

Mr. President and Friends,

The Association had 96 members on its register, though some of the members had not paid the subscription and 11 members were enrolled during this year.

Several members who have not paid the subscription for 1949 earlier were served with registered notice with acknowledgement due. Some of them paid up the arrears but 18 members who have not paid up the arrears, their names were suspended under Rule 6-B by the Governing Body on 28—9—1950. These members, if they volunteer to pay the arrears, their names can be restored under Rule 6-C by the Governing Body, otherwise their membership ceases.

There are about 18 members who have not paid the current year's subscription. These members will be served notice in January by registered post.

There was only one donation during the year of Rs. 50/-; I do hope that those members who wish to consolidate the finances, will send the Hon. Treasurer the donations along with their subscription for 1951.

During the year five meetings of the Governing Body were held; one immediately at the end of the Bombay session and another preceding Lucknow session.

We have suggested to the Indian Medical Council that (i) the D. L. O. should not be abolished but be the half way specialised examination in E. N. T.; the final being M. S.

SECRETARY'S REPORT

19

with E. N. T., (ii) the post-graduate examinations be held at different centres in rotation, where both internal and external examiners be present.

I am very sorry to have disorganised your pre and post Conference programmes on account of change of dates of opening of the Conference. This was entirely due to the sad demise of our venerable leader Sardar Vallabhbhai Patel. Therefore the Governing Body called one of the special meeting to resolve to postpone the Conference till after the State Mourning.

I am grateful to all the Members who have co-operated with me during the year and I hope they will continue to co-operate with the Hon. Secretary.

I am very grateful to Dr. Amesur for guidance and help.

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Attic Suppuration

BY

Dr. C. A. AMESUR, M.S. (Lond.), D.L.O., (Eng.).

Clinical observations have clearly demonstrated that acute inflammation of the middle ear may only affect certain of its parts, and at times only the highest portion of the tympanum, known as the attic or epitympanic recess. This is situated above the level of the short process of the malleus and is about six millimeters in height. Its outer wall is formed by the margotympanicus and the Sharpnell's membrane. The mastoid antrum opens into it by triangular opening of the additus. In it lies the head and the neck of the malleus, the body of incus and the ligamentous attachments of its ossicular contents, which divide in into outer and inner cavities. The outer is the larger of the two and is sub-divided into an upper and a lower or Prussak's space. Prussak's pouch being of otological importance deserves to have its relation mentioned in a nut-shell, here. It is bounded externally by pars flaccida, and a rough bone at the root of the zygome; internally by the head of the malleus and superior ligament; above by the tegmen tympani; and below by the anterior and posterior tympano-malleolar-ligaments. Anteriorly and posteriorly it communicate with the rest of the tympanum.

The causes of the attic suppuration are the same as those of the Otitis media in general and as such most of the cases show nasopharyngeal catarrh after inflammation of the adenoids or the catarrh of the eustachian tube. In some cases the inflammation enters the epitympanum from the external auditory canal especially after a sea bath, as in the cases reported by Herbert Tillerym, Knapp, Walb and others.

The chief symptoms of acute attic inflammation in children are high temperature and intense pain, causing the mistaken diagnosis of meningitis; whereas the invariable triad present in

ATTIC SUPPURATION

the adults is hemicrania, vertigo and tinnitus. The hemicrania is associated with a marked feeling of pressure and fullness in the ear; whereas the noises are usually slight and often subjective. Now naturally you would ask, what about the deafness. This is very slight amounting to just the hardness of hearing, if the suppuration is generally in the attic; and hardly any deafness if it attacks the Prussak's pouch. The Sharpnell's membrane is congested, and in some cases has bullea or tumour like projections on its surface. In a little advanced case one finds a pin-point perforation especially on suction, by the Siegel's speculum.

In chronic attic suppuration complicated with cholesteatoma, there is severe and recurring pain due to retention of secretion; this is also brought about if the attic perforation becomes temporarily sealed with a dry crust. The discharge is scanty and has as a rule epithelial cholesteatoma cells in it. On the other hand if the discharge is blood-stained it suggests the presence of granulations. The otoscopic examination reveals the perforation in the Sharpnell's membrane. This perforation, is as a rule small and often obscured by the dried crust of the foetid secretion. In a few cases the perforation is so large that the head of the malleus becomes visible. The position of the perforation is a guide to the source of infection. Thus the anterior perforation suggests the naso-pharyngeal and tubal infection; the central the caries of the outer attic wall and the posterior perforation the infection of the mastoid antrum. In some cases I have noticed the perforation healed between the period of recrudescence. To be sure of this one must see that there is no crust, and use the pneumatic Peter's speculum, to note that the membrane does move.

Attic suppuration is a potential danger to life. Chronic pus there, may be likened to the gun-powder, which the victim may carry for years, but is in constant dread of it's being ignited by even trivial cause such as cold. It may also be flared up by a small trauma to the head or an attack of influenza. This flare up may result in intracranial complications

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e.g., meningitis or brain abscess, etc. It is on account of this potential danger to life that the life assurance companies reject such cases in toto, whereas they may only *load* the cases of chronic tympanic suppuration, involving the membrana tensa. Further these people should be advised a very radical treatment if were to live at places where surgical hand is not available. Prognosis regarding hearing, is rather good if the suppuration is limited to the Prussak's pouch; but if the suppuration be general in the attic then there is always some hardness of hearing, but nothing compared to the deafness, if the tympanum is simultaneously involved.

To carry out successfully the treatment one must remember that though in health the floor of the attic affords ample drainage for the secretions, yet in disease this very floor consisting of the head of the malleus, the body of the incus and their ligaments get further attachments by various adhesions and so hinder the drainage. The golden rule of the free and spontaneous drainage of a suppurative cavity applies here ten-fold than elsewhere in the body. It is therefore essential that if the Shrapnell's membrane is building, in acute cases paracentesis should be done; and if a small perforation be present it should be extended in both the anterior and the posterior directions. Having done this the principles of further treatment are the same as in the cases of ordinary otorrhoea. One may use the wet treatment of syringing, but I prefer to use the dry method of cleaning with mops of cotton wool, except in incorrigible cases where irrigation becomes necessary with some form of attic canula fashioned after Milligan, Hartman, and others, the beak of which is introduced through the perforation into the attic. After cleaning the attic I always apply suction to the external auditory meatus with Peter's otoscope, so as to suck out the last drop of the pus. Then I insufflate powder consisting of 1000 units of Penicillin per one gramme of sulphathiazole. If granulations be present they may be removed with an angular Tilley's forceps, failing which may be cauterised with silver nitrate fused on a probe. If the suppuration still persists milk injection should be tried

and zinc ionisation be carried out. Failure after this necessitates the removal of the outer attic wall including the malleus and the incus, and in the last resort a modified mastoid operation.

In chronic cases if the intracranial complication be not present, it is advisable to give milk injections and remove granulations which are invariably present. If Cholesteatoma be present try to soften the same with the following warm drops on three successive nights and syringe:

Re:

Sodium. Bicarb	....	grs. xx
Sodi. Salicylas	....	grs. xx
Acid Carbolic	....	5 i
Glycerine	....	5 iv
Aqua Dist	....	ad. oz.

If this fails one should not hesitate to advice a radical mastoid operation because one invariably finds some cholesteatoma eroding the bones surrounding the middle ear space. It is one of Nature's wonder that cholesteatoma cases when they reach us have performed by themselves some of the perfect mastoid operations one could imagine. For the past two years I open up the attic by the Lemperts' endaural route, thus avoiding an occasional post-aural fistula.

In conclusion I may say that the existence of the attic suppuration is a real danger to life; and therefore its cause which is very often the suppuration of the naso-pharynx should be first attacked including the removal of the adenoid vegetations. Treat acute cases by paracentesis and attic syringing and chronic ones by removal of the granulations, and cholesteatoma and giving of milk injections. I may here mention that vaccines are very disappointing; and penicillin sulphathiazole insufflation has only given moderate results. Finally if the suppuration does not cease, open up the mastoid antrum and aditus endaurally and get to the attic and its contents.

Abstracts

ALLERGY-EFFECTIVE TREATMENTS USED IN OTOLARYNGOLOGY

By M. F. GONES,

(*The Laryngoscope*, Vol. LX, July 1950, November, 7.)

The author has described a simple programme to treat nonseasonal allergic patients. Patients most suitable for treatment along these lines, are those who have recurrent common colds, recurrent sinusitis, recurrent otitis media and interna, headaches and post-nasal drip. Such foods as milk wheat, eggs, shell fish, chocolate, nuts are completely eliminated during trial diagnostic period. The diet should consist of meat, vitamins, minerals and should have the necessary caloric value. Smoking and alcohol should be avoided in allergic patients. Drugs having an effect on vasomotor system afford symptomatic relief. Elimination of contacts is also essential.

N. K. APTE.

THE MANAGEMENT OF NASOPHARYNGEAL FIBROMAS

By F. A. FIGI, M.D. & R. E. DAVIS, M.D.,

(*The Laryngoscope*, Vol. LX, August 1950, November, 8.)

Spontaneous regression of varying degree has been observed at the age of 20 by some surgeons. The onset of these tumours is limited to the period of adolescence. These occur commonly in males. These tumours are highly vascular and invade locally. The lesion may remain symptomless for long periods. The attachment of the lesion is broad sessile, firm and immobile. Biopsy of the lesion is necessary if diagnosis is doubtful.

The most satisfactory treatment is combination of electro-coagulation and interstitial radiation. The approach may be through the nares, transorally, or by transantral approach. Ligation of external carotid artery may be necessary as a preliminary step.

N. K. APTE.

SUPRAHYOID NECK INFECTIONS

By C. HALL, M.D.

(*The Laryngoscope*, Vol. LX, August 1950, November, 8.)

The author has discussed three types of suprahyoid neck infections, e.g. pharyngo-maxillary, masticator and Ludwig's. Correct anatomical knowledge of cervical fascial spaces is essential. Antibiotics and chemotherapy should be used from the onset but these are no substitute for drainage which is essential if serious symptoms supervene. Fluctuation though important should never be awaited. An adequate air way is essential. The case reports are illustrated with good diagrams.

N. K. APTE.

FURTHER OBSERVATIONS OF THE EFFECTS OF THYROID INSUFFICIENCY ON THE NASAL MUCOSA

By A. W. PROETZ,

(*The Laryngoscope* 1950, IX, 627.)

The changes in the nasal mucosa due to Hypothyroidism might be either of the two types:—

- (1) Red, dry, irritated and desquamative or "chapped" type due to impaired regeneration of epithelial cells.
- (2) Pale, wet and boggy type due to reduced peripheral circulation.

ABSTRACTS

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The author has studied further 130 cases. The majority occurred in females between 20 and 50. The common symptoms are rhinitis, nasal obstruction, recurrent colds and headaches. These do not respond to usual measures.

The author concludes that "A low nasal metabolic rate is presumptive evidence; a therapeutic test conclusive".

N. K. APTE.

MODERN TEMPORAL BONE SURGERY-HISTORY OF ITS EVOLUTION

By JULIUS LEMPERT (New York).

(*The Laryngoscope*, August 1950, (Vol. LX, 8 p. 740-78).

The author is the father of our present day endaural Surgery, for twenty years ago, he first removed the obstruction—exostosis of the external auditory canal—by this route. He then went on, to close the postaural fistulae by this method by everting outward of inverted skin lining the fistula. His next step was a complete endaural subcortical mastoidectomy, by not only removing the diseased bone, granulations, polypi and cholesteatoma; but also the granulations near stapedial crura and from the niche of the round window. He removes the peri-tubal cells, but to avoid osteomyelitis does not use the eustachian tubal curette. The viable skin which he removes, is used as a post operative skin graft, of the mastoid cavity. Next he goes on to describe the Facial Nerve Injury Repair, another Radical Mastoid in which he removes the infected tensor tympani muscle.

The evolution in the technique of the incisions and details is profusely illustrated by thirty three photographic pictures. Finally let me quote the author's own conclusions as follows:—

"The viable tympanomeatal pedicle flap which I have created, as part of the endaural mastoidectomy technique for the surgical treatment of chronic epitympanic suppuration, suggested and made possible my subsequent creation and development for the first time in the history of otology the now universally employed, practical one stage Fenestration operation for the restoration of practical hearing in clinical otosclerosis".

N. R. AMESUR.

TRACHEOTOMY IN POLIOMYELITIS

By ROBERT J. STROBEL NORTON CANFIELD (New Haven)

(*Archives of Otolaryngology*, September 1950, Vol. 52 Number 3, P. 341-51.)

The cough mechanism can be considered to consist of five phases (1) inspiration, (2) closure of glottis, (3) increase in intrathoracic pressure, (4) opening of the glottis and (5) sudden expiration with release of the increased intrathoracic pressure. This mechanism may be interfered with in patients with poliomyelitis. The reasons for this are well discussed in the article. The number of patients admitted in 1949

for Poliomyelitis	...	168
Patients with bulbar poliomyelitis	...	17
Tracheotomized patients	...	10
Deaths	...	6
Deaths in tracheotomized patients (Bulbar Paralysis)	...	5

CEREBRAL ANGIOGRAPHY

By ALEXDER Jr. & P. H. DILLARD.

(North Carolina Medical Journal, March 1950).

Patient's skin test sensitivity should be negative to Diodrast. Then under local or pentothal anaesthesia in adult, or ether in children, 35% solution of Diodrast is injected in the common carotid artery. After 8 c.c. take the cerebral arteriogram and further 2 c.c. a phlebogram. By this method one can see in the X-ray picture intracranial tumours, abscesses, haematoma. If the patient has arteriosclerosis then use Thorotrast.

N. R. AMESUR.

OBSERVATION ON THE TREATMENT OF DEAFNESS AND TINNITUS WITH PARENTAL VIT. 'A' IN MASSIVE DOSES (LOBEL)

By J. R. ANDERSON, H. J. ZOLLER, & L. W. ALEXANDER.

(The Eye, Ear, Nose and Throat Monthly, February 1950.)

Lobel's theory is that since the neural and inner ear structures are of ectodermal in origin, Vit. 'A' is necessary for the maintenance of their normal function.

The authors give fifty thousand units of Vit. 'A' in oil intramuscularly twice a week for six weeks and if the response is satisfactory to continue for an additional 20 to 22 weeks.

N. R. AMESUR.

NEWER CONCEPT IN THE TREATMENT OF BRONCHIECTASIS

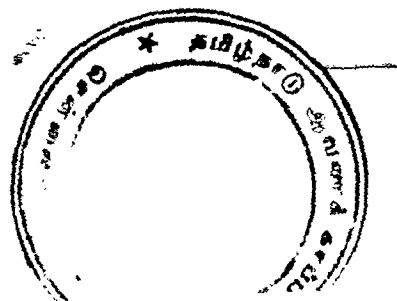
By R. L. ANDERSON.

(The Journal of Oklahoma State Medical Association, February 1950.)

Bronchiectasis occurs in two per cent of the entire population. Twenty per cent of these cases are asymptomatic, and twenty per cent are masquerading under the diagnosis of bronchiectasis and many under the diagnosis of pulmonary tuberculosis.

Now in recent years we know that the lung not only consists of various lobes, but each one of them have definite segments. The author suggests, after lipiodal bronchography, a segmental resection of the lung or the most affected lung. In bilateral cases the two operations should be at six to eight months interval.

N. R. AMESUR.



Ciba Specialities in Oto-rhino-laryngology

ANTISTINE AND

PYRIBENZAMINE

— Allergic rhinitis, vasomotor rhinitis, common cold, etc.

PRIVINE AND

PRIVINE EMULSION

— Acute and chronic rhinitis of an infectious and nervous nature, suppuration of the accessory nasal cavities, diagnostic decongestion of the nasal mucous membrane.

CIBALGIN

— Pains of all kinds and prophylactically before operations.

NUPERCAINE LOZENGES

— Produce prolonged local anaesthesia of the mucous membranes in sore throat and tonsillectomy distress.

RESYL

— Produces quick and lasting relief from the symptoms of bronchitis, tracheitis, etc.



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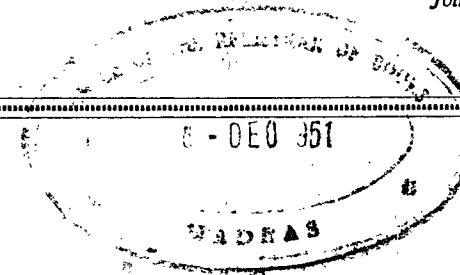
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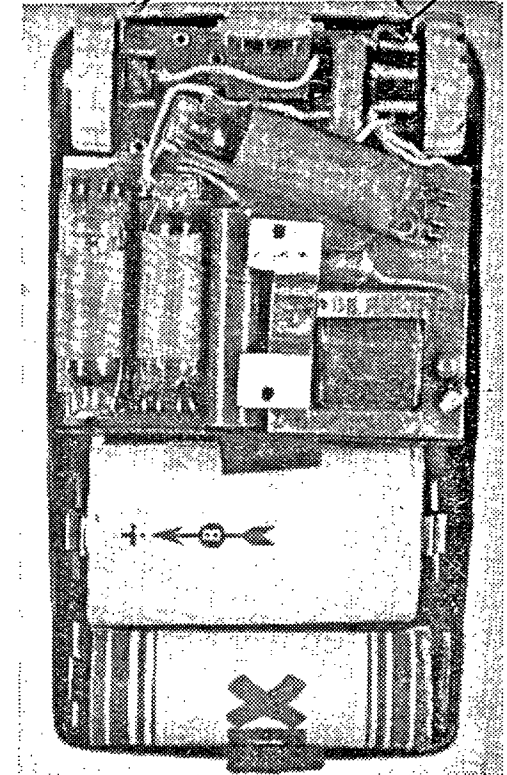
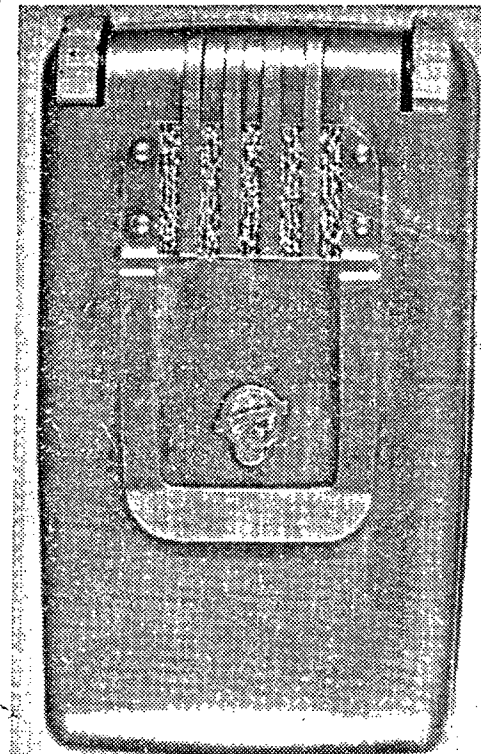
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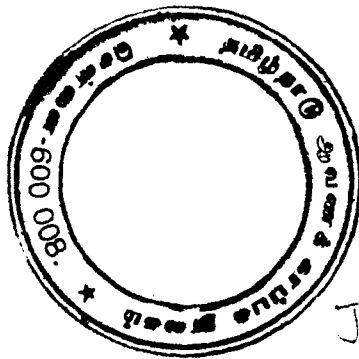
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Rhinoscleroma

BY

Dr. S. R. REGE.

Introduction :—The interest in the subject of the scleroma, a chronic granulomatous condition involving the upper respiratory tract in general, was perpetuated by a recent article by Gordon New of the Mayo Clinic (Published in Annals of Otolaryngology, 1948) where he has discussed the clinical cure of a case of scleroma of the larynx with streptomycin therapy. The disease so far had a very bad prognosis due to its recurrence following irradiation therapy but the streptomycin has entirely changed the outlook of clinicians in so far as the favourable results and recurrence is concerned.

In the following pages I have tried to discuss the important facts as far as it relates to its aetiology, pathology, bacteriology and therapy are concerned. With reference to recent articles I have tried to fill in some of the gaps in the epidemiological review but the subject is attracting more interest and new concepts are introduced very fast.

I have a very small number of cases to review but I hope it might serve as a background for a more intensive research on the subject so far as the treatment of scleroma with the new drug is concerned.

AETIOLOGY

Rhinoscleroma is considered by most authors to be of an infective origin. There have been differences of opinion as regards the causative organism. The work of Figi and Thompson tends to confirm this view. It is reported by English and American authors that scleroma is chiefly confined to Austria and Southwestern Europe. Some cases are reported in America, but a large majority of these were born in Poland and Austria. However it is quite prevalent in India but no statistics have so far been published as to its prevalence in our country. It is not at all infrequent to meet cases of Rhinoscleroma coming from all parts of the country. It usually begins in youth and most cases are observed between ages of 14 and 45. Sex and heredity seem to have no influence, though there is apparently a family predisposition to the disease probably due to its contagious nature.

Although scleroma is clinically and pathologically a recognized disease entity, knowledge of the disease is limited by a lack of precise information concerning its etiologic agent. Chevalier Jackson put the matter mildly when he said "Though unanimity of opinion is lacking, it is generally accepted that causative organism is the *Bacillus rhinoscleromatis*". Gay stated, "*K. rhinoscleromatis* bears as yet some obscure relationship with the disease rhinoscleroma. It appears, however, commonly to be a secondary invader in the lesions characteristic of the disease". Wilson and Miles said ".....there is very little evidence to show that this organism is primarily responsible for it. There is no means by which it can be distinguished with certainty before other members of the capsulated group; and since we know that members of this group may be present in the nose of healthy persons, it is difficult to prove that they play any part in production of rhinoscleroma. The probability is that they are mere secondary invaders which grow freely in the nose of patients suffering from the disease". Zinsser and Bayne-Jones in discussing the organism added that there is ".....further doubt as to its aetiological relationship to the disease".

Part of the difficulty lies in the supposed rarity of the disease but more in the inability of the pathologist, bacteriologist and Otolaryngologist to correlate their findings. The disease itself is not too rare. Without the aid of bacteriologic and serologic studies, only typical cases of the Chronic forms are recognized, whereas, as in every other disease, there should occur intermediate and mild, less recognizable stages of scleroma. Levine and Hoyt have studied the disease extensively, with emphasis on etiologic factors, and, in their opinion, have contributed some clarity to the subject, so that now clinical investigations could be undertaken in order to throw light on the remaining obscure phases of the problem.

Pedro C. Falcao and Ribeiro Preto have offered a suggestion that rhinoscleroma may be a general disease transmitted by mosquitoes and that rhinolaryngotracheal lesions render the secondary stage of the disease very similar to leishmaniasis. It would be interesting for investigators of this disease to determine whether or not the rhinolaryngotracheal involvement is a primary and unique manifestation of this disease or whether it is a secondary stage (mucous) of a cutaneous disturbance (ulcer) transmitted by mosquitoes, which gives rhinoscleroma a character somewhat similar to that of Leishmaniasis.

Poor hygiene seems to be a factor as by far the greatest number of patients seem to have a background of uncleanness or poor sanitation.

We have found this disease mostly in farmers and workers in the forests and coming from villages.

PATHOLOGY

The gross lesion most frequently described is the circumscribed, nodule type, which may appear as a single nodule or in groups. The nodules may vary in size from 1 to 10 mm. Their consistency varies; the early infiltrates are soft, while those of longer standing are harder.

Histologically, the picture is that of a granuloma which usually begins on the nasal mucosa trachea or larynx. In rare instances the reverse course is pursued. The ciliated epithelium is transformed into stratified pavement cells. In the deeper layers of the corium the protoplasm becomes more dispersed and partially disappears; vacuoles and pyknotic nuclei are seen. The substance of the swelling is composed of large plasma cells, irregularly distributed in all layers of the mucous membrane and in the submucous tissue. They accompany the blood vessels in the new portions of the growth. The plasma cells do not contribute directly to the hypertrophy but it is possible that they become changed partly into spindle cells, and then give rise to the formation of new fibrillary tissue. Two forms of retrograde metamorphosis occur in the plasma cells. They may be transformed into swollen, hydropic, so-called Mikuliez cells, or into hyaline degenerated cells, probably identical with the so-called Russel's fuchsinophils. The hydropic cells lie close together, have a distinct contour and spongy cytoplasm dilated into large masses, in which there is a smaller mass with faceted nucleus. In this stage one often sees from six to eight bacilli in the cells near the nucleus which lie always at regular distances. This stage appears, however, to be rapidly finished and when the cell membrane breaks, the fluid contents, together with some of the bacilli escape into nearest lymph spaces. These cells are, however, intimately related to the direct action of the bacilli. The diminished parvicellular infiltration is gradually replaced by fibrous connective tissue which hinders the formation of necrotic foci despite a live process of disintegration. The plasma cells and Mickuliez's cells disappear, and only the lymphocytes and rare Russell's bodies are seen. The development of collagenic fibrous connective tissue is most accentuated around the vessels.

BACTERIOLOGY

In 1882 Von Frisch described a gram negative nucoïd bacillus as the cause of the disease. Since it was impossible to produce an experimental lesion in animals, the organism was not generally accepted.

Much of the etiologic difficulty encountered is due to the allegation that the bacillus of scleroma or related organisms are present in normal throats. To test this one must establish criterion as to the characteristics of the bacillus of scleroma and study the frequency with which it occurs in normal throat. The very early literature may be discarded since the required facts about the related Friedlander bacillus and the coli-aerobacter group were not available to the first investigators. In recent years there has been remarkable uniformity in the descriptions of the organism by a number of reliable investigators.

Levine and Hoyt have isolated eleven strains from cases and come to the conclusion that the characteristic culture pattern is as follows:—

Lactose	Dextrose	Maltose	Mannite	Sucrose	Indole	Nitrate reduction.
—	Acid	Acid	Acid	Acid or —	—	+

The bacillus of rhinoscleroma is rod shaped and stains by Gram's method; it is motile, non spore bearing and aerobic. It always has a capsule in culture as well as in tissues. It occurs singly and in pairs. Gelatin plates show yellowish white granular bodies in 2-3 days. In gelatin tubes the growth appears along the needle track as a whitish granular line, with an almost hemispherical elevation on the surface. The growth in the tube has the appearance of a roundheaded nail. When grown upon agar it appears as a dirty whitish moist layer on either side of the needle track. On potato growth is creamy white. It grows rather rapidly at a temperature of 37° C. It is pathogenic for mice, guinea pigs and rabbits. No other related gram negative rod found on the human subject has been reported which gives same pattern of reactions. The variably fermenting Friedlander group may sometimes cause confusion; however the two species may be distinguished serologically. There is an interesting antigenic relationship between the latter and the Friedlander group C.

Regarding the second problem of normal flora of the throat a total 204 normal persons and 63 with various ailments of nose and throat were studied bacteriologically. Gram negative organisms occurring in the nose and throat that will grow on eosin-methylene blue agar include members of the coli-aerogenes and Friedlander groups, *Proteus*, *Pseudomonas* and *Alkaligenes*. Most cases did not contain a sufficient number of any of these to give positive culture. Of a total of 267 persons tested only 34 had positive cultures. None of them had the pattern which is characteristic of bacillus of scleroma. In the experimental study the bacillus of scleroma was not found in the normal nose or throat.

The finding that a specific organism can be isolated in all cases of scleroma and only in such cases certainly indicates more than a chance relationship between the organism and the disease. This finding is even more important when we consider the constancy with which the organism may be demonstrated in the sectioned granulomatous tissue.

SEROLOGY

As is true of the cultural studies, the early reports of serologic studies are confusing, and for the same reasons. However, more recent studies, if correlated, certainly are not to be disregarded. Goldzieber and Neuber, Brault and Masselot and Quast have all agreed that the serums of patients with scleroma or rabbits immunized with the organism are capable of fixing complement. Fitzgerald showed that a rabbit immune serum agglutinated specifically the decapsulated organism. Prasek and Prica and Morris and Julianelle have both demonstrated the specific antigenicity of the organism.

Levine and Hoyt have previously reported successful results with complement fixation test. Their most recent experience is even more gratifying. Using a heat killed (65°C. for thirty minutes) antigen they tested twelve serums from patients known to have scleroma. All showed marked positive reactions, whereas only 15 of 534 serums from patients with

other assorted diseases gave positive reactions, none of these as strongly positive as those given by the serums from patients known to have scleroma. The complement fixation test is a valuable aid in diagnosis of the scleroma.

EPIDEMIOLOGY

Scleroma was once thought to be confined to Central and South-eastern Europe but it is now admitted that the disease is worldwide in distribution. Cuning and Guerry reported in 1942 that 102 cases had been recorded in American and Canadian literature that date. Streit and others expressed the opinion that an endemic area exists in Central Europe especially in Poland. Lasagna stated that it is being recognized more frequently in Italy. In California the disease is found in people of Mexican extraction. Of significance in studies of contagion is the duplication of cases in the same family, instances of which have been reported by Lasagna, Robertson and Secretan, Gerber and Levine and Hoyt. The latter discovered 6 cases in one family. The family consisted of a father, four daughters and two sons. All, including father, were native born, of Mexican extraction. The father aged 37, had the disease for 10 years. The older son aged 20, had the disease for about one year. The daughters aged 19, 17, 14 and 11 were patients with unrecognized scleroma until studied by the authors.

Because of the slow progress of the disease the problems of contagion are difficult to solve. The general impression is that the epidemiology may be similar to that of leprosy, long exposure to which is essential for infection. The scleroma is contagious and transmissible by long contact under poor hygienic conditions. However, Levine and Hoyt are noncommittal as to its communicability. No facts are available as to mode of transmission. The father, in above mentioned case, appears to be most likely original source of infection.

Burack gives important data and a review of the pathogenesis etiology and contagiousness of scleroma; while Bellinoff, in 1936, gave an excellent review of the condition.

The results of statistic review of our cases ; 90% males and 10% females; The nose was involved in 20% cases, larynx in 30% ; meso-pharynx in 30%, the pharynx in 60% and trachea and bronchi in nil. Unquestionably some of the data represent involvement of several areas in the same individual. He states further that there are three autochthonous foci; the first is Galicia, Poland; second Sumatra and third in Central America particularly Guatemala. In these localities they are probably connected with very old populations. The other epidemic centres in isolated cases are usually secondary to immigrants from these original foci.

Incidence in India is not uncommon.

CLINICAL DESCRIPTION

Scleroma is characterised by a cartilage-like hardness and nodular enlargement of the nose and other portions of the upper air passages. The affected tissues have no tendency to ulceration or to inflammatory reaction either in the growth or in the contiguous parts. Rhinoscleroma frequently affects the other divisions of the respiratory tract. The hard, cartilage-like nodules may affect the skin and mucous membrane of the nose, pharynx, and trachea. They spread with greater freedom in the mucosa than in the skin.

When Von Hebra discovered rhinoscleroma in 1870, he assumed it to be an unusual form of cutaneous cancer confined to the nose - hence, the prefix "rhino". Now it is well known that the lesions are not limited to the nose but may be found anywhere in the upper respiratory tract, as well as in the external portions of the nose. The more inclusive term, "Scleroma" adopted at the second International Congress of Otorhinolaryngology, held in Madrid in 1932, is much more appropriate.

Clinically there is first an insidious growth of hard smooth nodules in the anterior nares. This growth spreads gradually until, in many cases, protruding, rounded, smooth masses with

RHINOSCLEROMA (Cases)





intact skin closes the nostrils. From the anterior part of the nose growth spreads backward into pharynx larynx and trachea and even into the bronchi. It may extend forward into the upper lip or involve the cheeks, gums, antrum, lacrimal ducts, soft and hard palate and tonsils. Because of the presence of these masses function is impaired, and such symptoms as foul nasal discharge, nasal obstruction, deafness, tinnitus, hoarseness of voice and difficult breathing may ensue; the latter might require a tracheotomy.

In the chronic form the disease is readily recognized. It is a granulomatous process primarily localised in the upper respiratory tract and secondarily appearing about the piriform aperture of the vestibule and the posterior nares. In the larynx the lesions are usually found in the subglottal space.

In a third of the cases the pharynx is the seat of lesions. These are found in the mesopharynx, occupying the posterior surface of the soft palate, the uvula, the pillars and the lateral portions of the posterior wall. The trachea is occasionally involved. Szmurlo, on the basis of extensive studies in Poland, described secondary lesions of the heart and the lungs. "..... caused by an obstruction in the respiratory tract, especially in the larynx and trachea, by scleromatous infiltrations which cause a diminution of the intake of air in the lungs, a lowering of intrathoracic pressure, an obstruction of the pulmonary vessels or atelectasis of the alveolus. Hypertrophy of the right side of the heart occurs, and in turn fatty degeneration of the cardiac muscle".

Clinically, the nodular type of the lesion described is early recognized. A prenodular stage must exist but the lack of specific diagnostic tests prevents its routine recognition. Three stages of the disease have been described. Szmurlo has actually described the first stage as "diffuse" stage of scleroma. "This first appears as atrophic rhinitis characterised by atrophy of the nasal mucosa with abundant secretion and gray crusts on the surface. The atrophic lesions extend along the pharyngeal mucosa, descending to the larynx and trachea, where the

characteristic crusts are formed. Besides the atrophic rhinitis there is a diffuse infiltration of the mucosa which extends to the neighbouring regions and occupies the subcutaneous tissue, passing to the vestibule of the nose, to the tissue around the piriform aperture and to the nasopharynx to the lips and the gums. Diffuse infiltration also strikes the pharynx, extending to the mucosa of the soft palate, the uvula and the pillars. This stage is characterised by profuse secretion, crust formation and foul smell.

The second stage is characterised by tissue proliferation leading to obstruction of the air passages. In the third stage cicatrization and stenosis cause severe deformity.

Onset is insidious and duration may be 20-30 years. It has little effect on general health, except for mechanical obstruction of the air passages, which in extreme cases may lead to death by asphyxia.

Early diagnosis is important particularly when, as Belinoff stated, the anatomicopathologic appearance, the Russell corpuscles, the Mickuliez cells or even the Frisch bacillus may not be present either in the early stages of the disease, in the stage of atrophy or later, when there is degeneration of the tissue. Identification of the Frisch bacillus (in a medium of horse serum with 5% glycerine) will help to differentiate this condition from ozena.

R. T. Acuna reports cases of bronchial scleroma. In one patient aged 20 who became dyspnoeic and was bleeding from tracheotomy opening no explanation was forthcoming until a bronchoscopic examination revealed the trachea to be considerably narrowed and mucosa thickened; when the lowest part of the trachea was reached small, isolated, reddish bleeding tumours were seen obstructing the lumen. These tumours were removed and sectioned for nature of pathology. Histologic examination revealed rhinoscleroma. Later a similar case was observed by him. These two cases made the author consider the necessity of examining endoscopically most of the patients

in whom typical rhinoscleroma was present. Also all patients who presented similar obstructive lesions were examined endoscopically. Many times he has been able to observe unsuspected lesions of larynx and in small number of cases of trachea and bronchi. A deep infiltration of the tracheal mucous membrane and characteristic nodules were often observed. His comments on the study of this subject comprise that the general conception that scleroma of lower respiratory tract is secondary to rhinoscleroma in the upper air passages could not be positively confirmed. He has noted a case of primary bronchial scleroma, proved histologically. In the latter there was no vestige of disease in the nose when the patient was observed for the first time, although there was partial stenosis of lower left bronchus characteristic of this disease. The nature of the lesion was not proved that time. Two years later a large tumour mass located at the entrance of lower left bronchus with infiltration of mucous membrane was noted and which on biopsy was a rhinoscleromatous granuloma. The moral is in every case of proved rhinoscleroma the trachea and bronchi should be inspected.

Laryngeal scleroma was first described by Gerhardt in 1876. Watkins, in 1921, reported the first case of scleroma in a native American and described it as being primarily of the larynx and trachea. The scleroma of the larynx manifests in subglottis region. The true cords may be slightly infiltrated and their movements restricted, but the obstructing lesion and crusting appear below them. Dark purple-red granulomatous masses that bleed easily are usually seen when the crusts present are removed. The lesions are painless, just as in the nose and pharynx. The involvement seems to be of the diffuse infiltrative type and is usually seen by the endoscopist in either the hard granulomatous stage or later stenotic fibrotic stage.

THERAPY

The various therapeutic agents used so far prove the uncertainty of each one of them and thus for the extirpation of the diseased tissue has been tried with negative results as to the

12.75 Gm. of streptomycin had been administered, the antibiotic was discontinued because of joint pains, a cutaneous rash, malaise and fever. After twelve days' rest it was possible to continue the administration of streptomycin for 43 consecutive days or until a total of 97.25 Gm. had been given.

The patient did amazingly well. After 18 Gm. of streptomycin had been given, patient stated that she felt 50 per cent. better, that the condition of the the nose was better and that laryngeal obstruction was less obvious. After 38 Gm. of streptomycin, patient stated that there was only one third as much mucopurulent material and crusting in her nose as there has been before therapy. After 53 Gm. of drug, tomographs of the larynx showed a good airway, and suspension examination of larynx showed some scarring anteriorly and on the left side but no evidence of active disease was present. The results of culture of tissue removed from the nostrils were negative for Klebsiella. After 95 Gm. of drug, the patient was cured clinically and cultural examination from nose were negative.

Patient was observed for 10 months and had no recurrence of active rhinoscleroma. The presence of large number of Klebsiella organisms in the tissue before treatment with streptomycin suggest that they may have been casually related, at least in part, to the pathologic process. The tomographs showed very strikingly the increase in the diameter of the airway following the treatment.

Streptomycin is, however, to be supplemented by surgery. Cicatricial stenosis of nostrils or larynx is corrected by dissecting out the scar tissue produced by the disease and relining the cavities by shaved grafts retained in position over soft rubber molds.

Describing his method of treatment for bronchial scleroma R. T. Acuna says that his experience with streptomycin has not been sufficient to warrant a true evaluation of its

efficacy. Radiotherapy has utter failure. Surgery endoscopically or by external method (lobectomy etc.) is the best than can be offered. Dilatation is very helpful during the phase of fibrosis. However, in spite of all known treatments, there are recurrences. "Continuous revision and treatment is the destiny of patients suffering this terrible disease".

Miller has also advised half a gram dissolved in 4 c.c. of normal saline being given daily by a nebuliser in four divided doses.

I have treated my cases in following way :

Streptomycin was given in doses of 0.25 Gm. every 3 hourly by intramuscular route. A total of 90 Gm. was used in all these cases. Caloric test using hot water 45° C. and audiometry was done as a routine during the course of therapy.

COMMENT

This is a short review of ten cases treated as indoor patients. Nine patients were males and 1 female between the ages of 14 and 40—the average age was 28. The occupation did not give any clue to a particular profession being able to victimise its pursuers of any special liability for the disease. The residence also varied far very distant places so that any particular part cannot be said to be autochthonous foci for original infection to lie dormant. We had 3 cases of scleroma involving one particular part of the respiratory tract, one involving only larynx and two only nose. All the rest of the seven cases had double or treble site of involvement. Those cases which had involved the nose and pharynx invariably also involved the nasopharynx. It is difficult to say why cases which involved the nose and pharynx did not involve the larynx also. We had no case of scleroma involving the trachea or bronchi; so that we did not think that bronchoscopy was necessary as a routine in the series of our cases.

As far as treatment is concerned we can divide the principles into four groups.

1. Streptomycin alone.
2. Streptomycin plus surgery.
3. Irradiation therapy.
4. Surgery alone.

We must confess that our results with deep X-Rays are very disappointing. We treated 3 of our cases with deep X-Rays. Streptomycin was not given because of the high cost of the drug which patients could not afford to bear. Whilst under treatment we had the opportunity of watching the good results of irradiation. In two of them the granuloma had shrunk in size but both these cases were very advanced in the organic defects they had produced and it would be improper to blame the deep X-Rays as a total failure. If the drug becomes easily available and cheap we hope to treat them with a course of streptomycin and give them the benefits of treatment. In one of these patients who had trismus the prognosis does not seem favourable even with the drug. The third case is just being started on deep X-Ray course.

We had very gratifying results with streptomycin. We had used a total dose of 90 Gm. in divided daily dose of 2 Gm. The lesion had almost disappeared at the end of the treatment. The larynx returned to normal appearances. The symptoms of nasal obstruction had disappeared in treating one case with streptomycin alone and getting a clinical cure. Five other cases, in addition to the drug therapy, required some form of surgery—either breaking down adhesions followed by skin grafting of the vestibule of the nose or laryngeal dilatation. In two cases we could succeed in closing a tracheal fistula after completion of treatment although patient was wearing a tracheotomy tube for the last 14 years and another for 2 years. Only one case was treated with plain surgery wherein excision biopsy was done for a "lump" in the nose which subsequently turned out to be a scleroma. It is rare to get pedunculated

ANALYSIS OF CASES OF SCLEROMA

Nos.	Age	Sex	Occupation	Residence	Clinical Features	Diagnosis	Treatment	Remarks
1.	20	M	Farmer	Karad	Sclerosing lesion on larynx wearing a Tracheotomy tube.	Scleroma Larynx	Streptomycin 90 Gm. Laryngeal dilatation Tracheoplasty.	Clinically cured.
2.	14	M	Farmer	Poona	Indurated, large swollen nose with several nodules involving hard palate also.	Scleroma nose and palate.	Deep X-Ray and Penicillin.	Relieved.
3.	35	M	Farmer	Kotah	Trismus with sclerosing lesion in nose and nasopharynx.	Scleroma nose Nasopharynx and Palate	Deep X-Rays.	Unchanged.
4.	40	M	Farmer	Poona	Corked tracheotomy tube. Obstructed left nostril.	Scleroma nose Pharynx and Larynx.	Streptomycin 90 Gm. Rhinoplasty Tracheoplasty.	Clinically cured.
5.	40	M	Cooly	Bombay	Friable bleeding pedunculated mass in left nostril.	Scleroma nose	Excision biopsy.	Clinically cured.
6.	32	M	Factory Hand	Bombay	Granulomatous lesion involving nose, pharynx and larynx	Scleroma Larynx Pharynx and Nose.	Streptomycin 90 Gm. alone.	Clinically cured.
7.	25	M	Student	Worli	Pedunculated mass from posterior pillar-nasal obstruction.	Scleroma of nose and pharynx.	Streptomycin 90 Gm. Rhinoplasty.	Clinically cured.
8.	22	M	Clerk	Ahmednagar	Sclerosing lesion in nose.	Scleroma nose Nasopharynx pharynx	Streptomycin 90 Gm. Rhinoplasty (one side only)	Relieved.
9.	25	F	Farmer	U.P.	Granulomatous indurated, nodular mass filling both nostril.	Scleroma nose	Streptomycin 90 Gm. and Rhinoplasty.	Relieved.
10.	40	M	Cooly	Satara	Scleromatous lesion involving nares and upper lip.	Scleroma nose and Nasopharynx	Deep X-Ray.	Under treatment still.

masses as manifestations of scleroma but we can recall at least two in this short series where scleroma has presented as unusually pedunculated mass. In one it presented itself in nose and another on posterior pillar of the tonsils. There were four cases in whom rhinoplasty was done. In two of these only one side was done so far. They are called later for repairing the remaining side. Cicatrical tissue is completely excised as thoroughly as possible and a skin grafting is done a week later. The grafts take on quite quickly and the lumen is patent. Three of the patients are now under observation for more than 6 months and still they have no complaints for nasal breathing.

My thanks are due to the Dean, K. E. M. Hospital, Bombay, to Dr. S. G. Joshi and to Dr. J. V. DeSa for the guidance and help given to me in preparing this article.

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Abstracts

AN ANALYTICAL SURVEY OF THE EVOLUTIONARY DEVELOPMENT OF THE FENESTRATION OPERATION

By JULIUS LEMPert, M

(The Annals of otology, Rhinology laryngology Vol. 61X1, Dec. 1950, No. 4.)

The author reviews his former observations to maintain an open fistula. These are aseptic technic, use of gold or lead polishing burrs for polishing edges of lateral wall, and implanting metallic particles in the wall, complete removal of bone dust and employment of cupola technic.

The author from his experiment on Rhesus monkeys and study of 72 cases of permanently patent fenestra, advocates invagination of the tympanomeatal flap into fenestra gap to prevent osteogenesis. The flap should be thin and retained accurately by cotton inlay over it and an intramastoid wound dressing. The present idea was logically conceived by the author in 1938, scientifically proved since and found to practical application, thus answering Holmgreen's question of 1937.

N. K. APTE.

EVALUATION OF OPERATIVE INDICATIONS & RESULTS IN FENESTRATION OPERATION FOR OTOSCLEROSIS

By E. H. CAMBELL, M.D.

(A. M. A. Archives of otology & Laryngology Oct. 1950, Vol. 52, No. 4.)

The author has analyzed the results of fenestration operation from three following stand points:—

- (1) The degree of deafness before operation.
- (2) The age of the patient.
- (3) The bone conduction before operation.

The amount of improvement obtained in mildly deaf patient (38 or less decibels) was much less than the improvement obtained in the severely deaf patients (62 or more decibels.)

The hearing improvement after operation was practically same in young and old. There was a higher percentage of patients in the younger group that obtain hearing to a practical and serviceable level.

The improvement in hearing was almost as good in those cases with poor bone conduction at 2048 as it was with normal preoperative bone conduction at 2048. The author concludes that a considerably reduced bone conduction at 2048 frequency does not indicate auditory nerve degeneration at that level as to give a bad prognosis after operation because tinnitus near the pitch of the 2048 frequency, masked reception of the audiometric tone in some cases.

N. K. APTE.

RECRUITMENT OF LOUDNESS IN THE DIFFERENTIAL DIAGNOSIS OF END-ORGAN AND NERVE FIBRE DEAFNESS

Lee G. EBY & Henry L. WILLIAMS,
(*The Laryngoscope*: 61: 400-14 (May) 1951).

The authors have investigated 32 patients with unilateral deafness diagnosed as Meniere's disease (End-organ lesion) and 16 cases of nerve deafness, in eight cases the diagnosis of the nerve fibre involvement was substantiated by the operative findings. The following findings are in agreement with the findings of Dix, Hallpike and Hood but opposed to those of Fowler.

1. Loudness Recruitment was present in a lesion of organ of corti but absent in a lesion of auditory nerve fibres.
2. There was no recruitment of speech of intelligibility when end-organ was involved but recruitment of speech intelligibility was present when nerve fibres were degenerated.
3. The threshold of discomfort for speech was within the limits of audiometric scale when organ of Corti was affected but was beyond the audiometric scale in nerve fibre deafness.

These findings prove the value of Loudness Balance test in differentiating the deafness due to End-organ lesion and that due to nerve fibre degeneration.

K. U. SHAH.

OBSERVATIONS ON THE LOCAL USE OF CORTISONE IN THE NOSE IN ALLERGIC RHINITIS

By J. LEWIS DILL & Donald S. BOLSTAD,
The Laryngoscope, 61: 415-22, (May) 1951.

Treatment with topical application of Cortisone in selected 25 cases of Allergic Rhinitis—cases of asthma, nasal polypi and cases positive to allergic tests—was carried out. Nose was sprayed with saline suspension of Cortone acetate (1 c.c. Cortone acetate in 4 c.c. of normal saline) every half hour for first four hours and later the patients sprayed each side once daily at home. It appears to produce a more or less temporary local effect. The patients had relief from nasal stuffiness and postnasal drainage. Objectively it lessened the nasal secretions and decreased oedema of the nasal mucosa. Polypi may be shrunk or may disappear but no nasal mucosal atrophy can be discerned. Headache of allergic origin may be relieved.

12 (48%) showed marked improvement, 6 (24%) doubtful improvement and 7 (28%) no improvement.

K. U. SHAH.

LYE BURNS OF THE ESOPHAGUS

By RICHARD W. HANCKEL,
Ann., Otol., Rhin & Laryng: 60: 22-38 (March) 1951.

The author has made a passing reference to different methods of treating benign esophageal strictures from blind bouginage and retrograde bouginage to the resection of esophagus. Esophageal strictures due to caustic swallowing are common in children between two and five years age. The important facts of 35 cases with detailed presentation of four cases treated by different methods is presented. In recent lye burns, the author prefers Salzer method where alkali is neutralized with 2% acetic acid and Levin tube is inserted. After few days peroral bouginage beginning with No. 14F is begun and continued upto No. 40F at appropriate intervals. Well established stricture is treated by Retrograde dilatations with Tucker bougie upto No. 34 to No. 38F and then peroral dilatations with mercury-filled rubber bougie are continued. Esophogastrostomy is the procedure of choice where retrograde dilatations fail.

K. U. SHAH.

THE NERVE SUPPLY OF LARYNGEAL MUSCLES

By A. F. WILLIAMS,
(*The Journal of Laryngology & Otolary May*, 1951 Vol. LXV, No. 5).

The author has given the result of his investigation of nerve supply of Larynx. The methods adopted for study were dissection, histology and nerve stimulation during operation. The recurrent laryngeal nerve divides extralaryngeally into motor and sensory branches. The interarytenoidens and cricoarytenoidens posterior are supplied by proprioceptive fibers from internal laryngeal nerves. The internal laryngeal nerve occasionally sends a branch which pierces thyroid cartilage to supply pharyngeal mucosa. There are no communications between the nerves of the two sides of the larynx.

N. K. APTE.

PRIMARY AURAL CHOLESTEATOMA

By B.M. VOLK, M.D.,
(*A.M.A. Archives of Otolaryngology June*, 1951, Vol. 53, No. 6)

The author is of the belief that all cholesteatomas occurring in the temporal bone or tympanum are primary real tumors formed by the inclusion during embryonic life of fetal epidermal cells. If suppuration occurs, it may be considered due to a defect in the wall of the cyst which allows bacterial invasion of the growth. The author reports a case where infection of the middle ear developed after biopsy of the cholesteatomatous tissue.

N. K. APTE.

CLINICAL EVALUATION OF SUBSTITUTED AMMONIUM SACCHARINE FOR NASAL MEDICATION

By SAMUEL L. FOX, M.D.,

(A.M.A. Archives of Otolaryngology June, 1951, Vol. 53, No. 6)

A brief review of properties of a new vasoconstrictor drug is presented along with results of a critical investigation of its use on 355 patients. The mixture consists of desoxyephedrine saccharinate and lauryl ammonium saccharin in a buffered isotonic aqueous solution. Its action is rapid without interference with ciliary activity and undue rebound action or local or systemic toxicity.

N. K. APTE.

ESOPHAGEAL SPEECH

MARTIN, H.

(Ann., Otol., Rhin & Laryng: 59: 687-89 (Sept.) 1950.)

Eradication of the growth and rehabilitation of the patient by speech re-education are two important phases in the treatment of cancer of the larynx. The author discusses the mechanism of esophageal speech from the laryngectomy point of view. Any laryngectomized person who can belch—particularly if he is capable of a sustained belch—can produce articulated esophageal speech. Speech training following laryngectomy is best carried out in specially organized clinics where the instructor himself is a laryngectomy with the excellent esophageal voice.

K. U. SHAH.

THE RISK OF POLIOMYELITIS AFTER TONSILLECTOMY

By G. W. ANDERSON & OTHERS.

(Ann., Otol., Rhin & Laryng 57: 602-613 (Sept.) 1950.)

The authors have tried to probe a very controversial problem—Whether tonsillectomy operation carries any increased risk if carried out during an epidemic of poliomyelitis. The exhaustive study of 2881 records of poliomyelitis cases of 1946 epidemic, including 21 cases of poliomyelitis occurring within a month after tonsil operation proves that the attack rate for the group whose tonsils were removed during the preceding month is three times or more greater than among those undergoing no such operation and that the risk of bulbar infection was eleven times as great.

K. U. SHAH.

INCIDENCE AND CONTROL OF TRAUMA ACCOMPANYING ENDOTRACHEAL ANESTHESIA

By P. J. FLAGG,

Arch. Oto-laryn. 53: 439—(April) 1951.

This article is a survey of the responses received from 150 laryngologists to a questionnaire issued by the author. He tries to get an answer to the cause of relatively high morbidity and mortality after endo-tracheal

intubation as compared to bronchoscopy whereas contrary should be expected. Over 90% of the answers to his questionnaire and his experience of last 25 years, bears out that blind intubation and oversized tubes are the main causes of high morbidity and mortality. The outside diameter of the tubes should not exceed 4 mm. in infants and 10 mm. in adults.

K. U. SHAH.

THE PERMANENTLY PATENT FENESTRA NOV-OVALIS

JULIUS LEMPERT,

The Laryngoscope, 61: 217-29 (March) 1951.

Mr. Lempert enumerates all his attempts at patent fenestra nov-ovalis from bone-dust free fenestra to gold burnishing and lead burnishing techniques. Not satisfied with his latest lead burnishing technique to prevent osteogenesis, he puts forward yet another observation that it was accidental invagination and adhesion of tympano-meatal flap to fenestra rim which prevented osteogenesis in some cases where fenestra nov-ovalis remained patent and that much wider fenestra favoured invagination and adhesion of flap. He now advocates wider fenestra (about 2 mm. wide and about 6 mm. long) and invagination of flap into fenestra gap by moulding of a moistened cotton inlay with the hope to get a much larger percentage of permanently patent fenestra.

K. U. SHAH.

ABSORPTION AND EFFECT OF PENICILLIN INJECTED INTO THE TONSIL ON THE BACTERIAL FLORA OF TONSILS

By Dr. EDE GYORGY & Dr. ARON SZEKELY,

Acta otolaryngologica. Vol. XXXIX, Feb. '51.

The experiments were carried out on children admitted for tonsillectomy. Penicillin was injected into the substance of the tonsil a day before operation to ascertain whether removed tonsils contain penicillin. 50,000 to 1,00,000 units of crystalline penicillin in saline was injected. It was found out that absorption of crystalline penicillin injected into tonsils as compared to intra muscularly injected penicillin is of longer direction.

Blood penicillin level of 50,000 units of crystalline penicillin injected into pharyngeal pillars was observed half an hour after injection and no assayable amount was found after four hours. With intra muscular injection it was found one hour after injection and disappeared after four hours. In case of penicillin injected into the tonsil blood penicillin was found after three hours and assayable amount was found nine hours later.

The effect of locally injected penicillin on bacterial flora of Scarletina patients showed that it has no effect on streptococcus haemolyticus while it shows a definite drop in other bacteria (Staphylococcus, pneumococcus etc.)

V. A. DESAI.

PREAURAL TYMPANIC SURGERY (POPPER'S APPROACH)

By L. B. W. JONKEES,

(Acta oto-laryngologica Dec. 50.)

Now a days there is tendency among increasing number of Surgeons to remove exact amount of bone that is necessary to expose the horizontal canal and the external auditory canal and no more. Popper has gone farther in this respect. He takes a preaural incision and reaches the site of operation through the outer wall of the attic and makes his flap from the upperwall of external auditory canal. After removal of incus the dome of horizontal canal comes into view. The author has followed this technique in his series of twenty five cases and gives the advantage and disadvantages over the classical approach followed by Lempert & Others. The advantages are (1) Time required to do this operation is short. (2) Tympano meatal flap is easily made. (3) Tympanic membrane is detached to a small extent (4) Operative trauma is less. (5) Post operative healing is quick.

The disadvantages are (1) Technique is difficult as the space is limited. (2) The Square on view of fenestration in vestibular dome is good for orientation but makes drilling difficult. (3) There is little gain for tones of high frequency. (4) There is chance of infection of mastoid cells which are not opened.

V. A. DESAI.

FUNCTION OF ROUND WINDOW IN TRANSMISSION OF SOUND WAVES AFTER FENESTRATION OF THE LABRYNTH

By M. VAN EYCK,

(Journal of Laryngology and otology Vol. LXV.)

Experiments on a pigeon with an abnormal middle ear in which the columella was fixed to the oval window similar to that found in otosclerosis were done. Fenestration was done on this pigeon. The electro physiological study of the auditory function of that pigeon showed that the round window transmits the sound waves to the cochlea and that the new opened window permits only the compensatory liquid motions and it does not work as new oval window transmitting the sound to the cochlea. This function is assumed by round window.

In man the round window and artificial window are both in the middle ear and approximately at the same level. It is advisable therefore to arrange operation so that these two windows do not receive simultaneously the sound waves which would interfere with movements of fluid. This can be done by perfect application of plastic flap on the horizontal canal after removal of incus and head of mallens, in this way the artificial window remains outside the middle ear.

V. A. DESAI.

Association Notes

THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

Fourth Annual Conference—Calcutta.

PROVISIONAL PROGRAMME

- | | |
|------------------------------|--|
| 17th Dec. 1951. | Meeting of the Governing Body at the residence of Dr. S. Roy at 9 p.m. |
| 18th Dec. 1951 }
Morning. | Registration of delegates.
Members Photo.

Opening address by His Excellency the Governor of W. Bengal State.
Presidential Address:—by Dr. C. A. Amesur. |
| 12 Noon. | Luncheon. |
| Afternoon Session. | Scientific Session.
Symposium on } (1) Opener West Bengal
Sinusittis } delegate (30 minutes)
(2) Seconder West Bengal
delegate (20 minutes)

Discussion for 5 minutes each
(Please give names in advance)
Short paper Otomycosis—Dr. P. S. Ramachandran. |
| 5 P. M. | Presidential Reception by Dr. C. A. Amesur. |
| 19th Dec. 1951 }
Morning. | Peroral endoscopy.
Openers: Dr. C. Satyanarayana (30 min.)
Dr. J. V. De Sa (20 min.)
Followed by discussion
5 minutes each.
(Please give names.) |

Short papers.

- (i) Allergy and deafness by Dr. Rege.
- (ii) Carcinoma of the Oesophagus by Dr. S. Roy.
- (iii) Some experiences on othmoidal cell variation. By Dr. C. A. Amesur.
- (iv) Nasopharyngeal tumours—By Dr. Tulsidas.

12 Noon

Luncheon.

Afternoon Session.

Brain Abscess Dr. L. H. Hiranandani.

Short papers: Dacryocystorhinostomy By Dr. Dukharram.

Papers by Dr. Joshi and others to follow.

Tea

5 P. M.

Ten minutes talk on "Selection of cases of clinical otosclerosis for fenestration" followed by film : Dr. Subramanian.

20th Dec. 1951
Morning.

Business Meeting of the Association.

1. Annual Report by Honorary Secretary.
2. Treasurer's Report.
3. Journal Report by the Chairman of the Editorial Board.
4. Resolutions.
5. Elections of the Office-Bearers for 1952.

12 Noon.....Subscription Lunch.....

The proceedings of the Conference will be held at the Medical College Hospitals, CALCUTTA.

Accommodation at Calcutta is difficult to be obtained at Christmas times. Therefore please communicate as early as possible with Dr. N. C. Banerjee, 12, Dharamtala Street, Calcutta 13.

CALCUTTA

Name of Hotel.		Charges.	
		Rs.	A. P.
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4. Hotel Majestic	 Single room	„ 17/-	
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5. KOMOLA	Vegetarian (South Indian type)		Rs. 8/- per day.
6. Broadway		„ 11/- per day.	(2 in a room.)

EXAMINATION RESULTS

Roll No. 2 Chatar Singh Anand is declared successful at the Diploma in Laryngology and Otology Part II Examination of October 1951.

Lucknow University, }
27th October 1951. }

K. V. JEEVARAJ,

Registrar.

The Association of Otolaryngologists of India.

(BOMBAY BRANCH)

A Clinical meeting of The Association of Otolaryngologists of India, (Bombay Branch) was held on 27—7—51 in the Aural Dept., of the K. E. M. Hospital, Parel, Bombay, where Dr. S. G. Joshi and Dr. J. V. De Sa presented the following cases :—

- (1) Carcinoma of the Larynx.
- (2) Carcinoma of the External Auditory Canal.
- (3) Cholesteotoma.
- (4) T. B. Larynx.
- (5) Cardio Spasm.
- (6) Plastic Operation for Laryngial Stenosis.

Dr. C. A. Amesur, Hon. E. N. T. Surgeon, J. J. Hosp., presented :—

- (1) Pharyngial Tumour.
- (2) Pharyngial Fibrosis.

Dr. L. H. Hiranandani, Hon. E. N. T. Surgeon, Nair Hospital, presented interesting cases of Carcinoma of Maxilla; and post-operative results in cases of Extensive Carcinoma of the Larynx and Hypopharynx.

The meeting was well attended by all the members of the local branch, as well as by guests interested in the subject of Otolaryngology. Every case was discussed at length. The members present were treated to refreshments by Dr. S. G. Joshi, and Dr. J. V. De Sa, the Hon. E. N. T. Surgeons of the K. E. M. Hospital.

The Journal meeting was held at the headquarters of The Association on 19th Septr. 1951. The articles extracted from our speciality journals were discussed. The manuscripts were handed over to Dr. S. G. Joshi, the joint editor for further sub-extracting; and forwarding to the editor at Madras.

Dr. H. D. GANDHI MEMORIAL LIBRARY

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Dr. A. V. Baliga		Rs. 1000/-
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Dr. S. R. Rege		„ 25/-
Dr. V. C. Sangani		„ 25/-
Dr. K. U. Shah		„ 25/-

*Amount promised is expected shortly.

Remaining Bombay Branch members are requested to remit their contributions to Dr. C. B. Bharucha.

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RECEIPTS		Rs.	A. P.	PAYMENTS		Rs.	A. P.
Balance at 1st October, 1950	...	2,932	2 0	Advances to Indian Journal of Otolaryngology	...	2,482	0 0
Subscriptions:				Lucknow conference expenses	...	245	3 0
Ordinary members	Rs. A. P. ... 3,144 0 0			Salaries	...	355	0 0
Associate members	... 492 0 0			Printing & Stationery	...	466	3 0
Donations	...	3,636	0 0	Postage & Telegrams	...	205	12 6
Lucknow delegation fees	...	1,299	0 0	Sundries	...	50	14 3
		210	0 0	Balance in current account with Lloyds Bank Ltd.	...	4,272	1 3
Total	...	8,077	2 0	Total	...	8,077	2 0

(Sd.) R. A. F. COOPER,

Hon. Treasurer,

(Sd.) G. A. AMESUR,

President,

(Sd.) L. H. HIRANANDANI,

Hon. Secretary,

BOMBAY,

6th November, 1951.

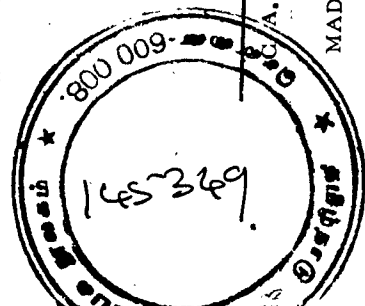
Examined and found correct.
(True copy)

(Sd.) SHARP & TANNAN,

Chartered Accountants, Hony. Auditors.

ACCOUNTS OF THE JOURNAL OF THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA
WITH THE HONORARY TREASURER AT MADRAS
Receipts and Payments Accounts for the year ending 30-9-1951.

RECEIPTS.	Rs. A. P.	PAYMENTS.	Rs. A. P.
To Opening Balance:		By Printing Charges	1,004 7 6
S. B. Account with Canara Banking Corporation Ltd., as on 1-10-1951 ...	1,399 9 0	" Establishment Charges	240 0 0
" Central Office Contribution	2,482 0 0	" Postage and Stationery etc.	50 0 3
" Advertisement	1,570 0 0	" Bank Charges	8 12 0
" Subscription to Journal	15 0 0	" Cost of Typewriter	493 13 0
" Interest from Bank	43 0 0	" Photo Prints	14 8 0
		Closing Balance:	
		On S.B. Account with Canara Banking Corporation Ltd., as per Bank Pass Book ...	3,633 0 3
		By Cheque of M/s. Bombay Surgical Co., Bombay (Not Credited in Bank)...	65 0 0
Total ...	5,509 9 0	Total ...	5,509 9 0



A. AMESUR,
President.
MADRAS,
16th November, 1951.

P. V. CHERIAN,
Hony. Chairman.
Examined and found correct.

M. N. PRABHU,
Hony. Treasurer.
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Egmore, Madras.