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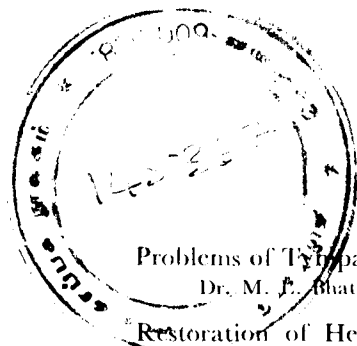
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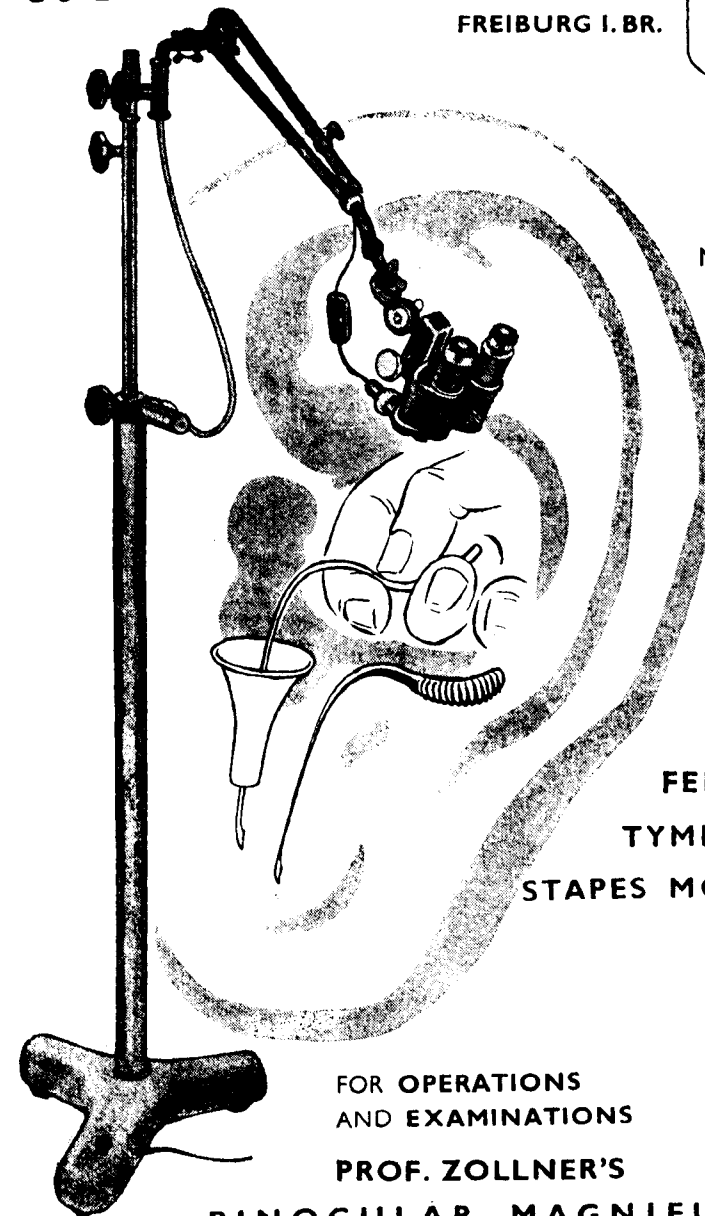
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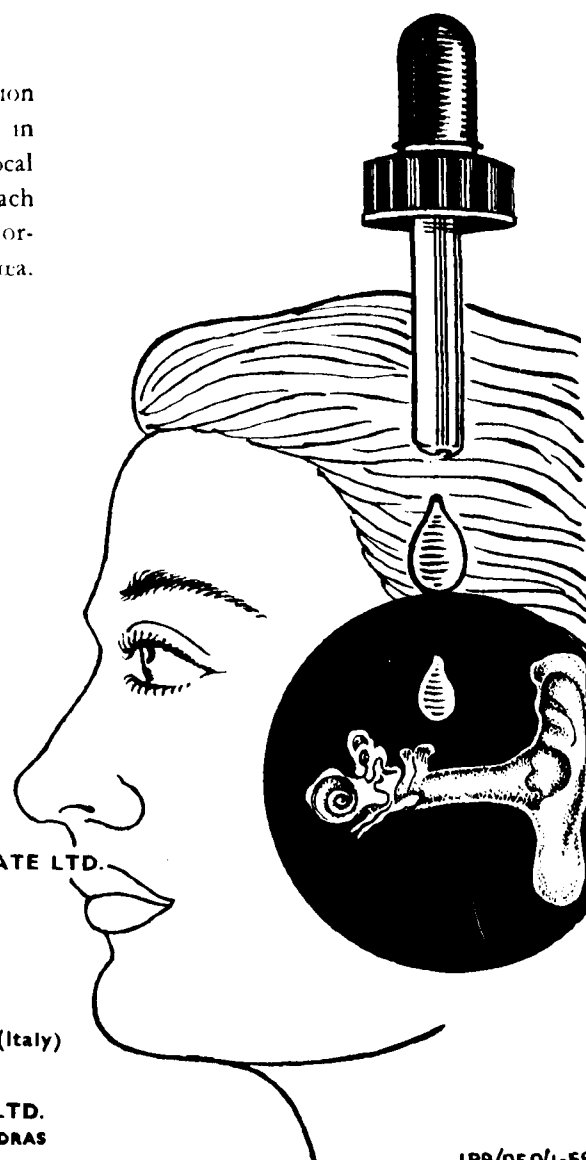


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OTOLARYNGOLOGY

OFFICIAL SCIENTIFIC JOURNAL OF THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

Problems of Tympanoplasty

BY

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Within the span of a few years, modern surgical methods have succeeded in producing further advancement in otological micro-surgery. It is in keeping with other great events of the present time like "man's first rocket to moon" that new operation known as *Tympanoplasty* has been introduced.

It comprises the surgico-plastic procedures for reconstructing the middle ear after tympano-mastoid operations. This is all due to the inspiring experimental work of pioneer surgeons like Zollner and Wullstein who reported in 1952 showing that surgery today in a chronically infected middle ear and mastoid is no longer considered as a deceiving task or a jump in darkness.

The operation is still in its infancy although the basic principles are very sound and romantic.

Eradicative and constructive are the two important parts of the operation. The former includes the classical operation of mastoidectomy and it is the latter about which we are concerned more at the present moment.

The success of these operations depends upon various factors which still stand out as great problems. The problems are multitudinous as every other surgeon must be feeling, but

I have my own. It is not within the scope of this paper to deal with all of these, therefore I will confine myself to only the important ones, the solution of which is not yet fully settled.

Selection of suitable cases for such operations, complete eradication of the pathology from the middle ear and mastoid, creating a blood-less operative field, studying the real and proper functional integrity of tympanic ossicles, preparing the plastic bed for the skin graft, taking and shaping the graft and establishing an air-containing tunnel between the patent eustachian orifice and the round window thereby preventing adhesions between the under surface of the flap and the round window niche all appear to be the problems.

Since the time of our last paper on "Tympanoplasty" read by my co-author Dr. R. N. Misra at the All India Conference at Delhi in 1958 including the report on 70 cases, we have by now done about 300 such operations. A good many of difficulties have been found to be manageable, others we hope to solve in due course of time with a little more of perfection, but the one major problem which is actually concerned with the rehabilitation part of the operation for improvement and restoration of hearing is the last in the list *i.e.* of establishing an air filled tunnel. My present paper deals only with this item in which I have described my attempts to manage this problem.

Zollner has also pointed out that the greatest difficulty lies in bridging over an air-filled cavity by a graft. He has suggested to make the open groove narrower so that the bridge part may remain smaller.

Wullstein has suggested that gelatin foam should be inserted into the cavity which must be preserved but he further points out that it is by no means certain that the air-spaces will be kept open by means of such a foam. Our experience about the Gel-foam or Spongostan inserts in more than 200 cases is the same.

He has further reported an improved method in which he inserted a packing of fine silk-thread in the middle ear, one end

of which was passed out through eustachian tube with the help of a thin flexible metallic probe and drawn out through the external nares with the help of a nasopharyngoscope. He removed this thread packing after 8-10 days. He pointed out that this method was useful in cases having eustachian blockage on account of adhesions within the isthmus. The technique has been described by him as a difficult one.

Keeping this idea in mind I have tried a similar technique on six cases and have also attempted to make the method easier.

In the first case where tympano-plasty of columella type was done, I inserted a 1 mm. bore polythene tube through the eustachian tube with the help of a eustachian catheter right upto the middle ear. This was done under local surface anaesthesia about an hour before the operation and the polythene was anchored *in-situ* with small strips of leukoplast near the external nares. At the time of mastoid operation the tympanic end of the polythene tube was drawn out a little and a thin nylon thread was passed through its bore which appeared outside the nasal end very easily. The polythene tube was then drawn out leaving the nylon thread *in-situ*. The tympanic end of the nylon thread was rolled in a small coil tied by a piece of thin catgut. The coil was sized and placed near the hypotympanum between the eustachian orifice anteriorly and round window posteriorly. The nasal end of the nylon thread was anchored by a stitch applied near the external nares. The two flaps made by a 'T' shaped incision on the mucous membrane covering the promontory were turned over the nylon coil, one to cover the eustachian orifice and the other the round window. These two flaps, when turned over, are never big enough to cover the two structures completely, presenting another problem in the operation.

The tunnel or cavum major in this case was then bridged over by the inlaying of full thickness skin graft over the coil and the everted flaps of the mucosa. A portion of the hypotympanum was made raw to serve as a suitable bed for receiving the

graft at its lower edge. This nylon thread was easily pulled out after 2 weeks because by this time the cat gut on the coil automatically got loosened. *In the second and third cases* operated by Tympanoplasty with round window baffling, the preliminary procedure of inserting the polythene tube was done at the time of operation. The rest of the technique was the same. *In the fourth case* where columella type tympanoplasty was done, the polythene tube was inserted by a retrograde method. After mastoid operation the polythene tube was inserted from the tympanic eustachian orifice and was drawn out of the nasopharynx by an assistant through the mouth by digital palpation. It was later drawn out of the nose by tying it with a thin rubber catheter passed through the nose. The rest of the procedure was the same.

In the 5th and 6th cases on whom tympanoplasty of columella type was done the nylon thread could be passed from the tympanic end of eustachian tube to nasopharynx without the help of polythene tube. This was possible because eustachian tubes had no blockage.

DISCUSSION AND COMMENTS

The use of polythene tube in the tympanoplasty operation is superb. It is by no means difficult to pass a polythene tube in the eustachian tube either by nasal route or by retrograde method. The method has already been reported by me in J.L.O. March 1956 in "Intra Eust. Treatment of C.S.O.M." (with the help of a Polythene tube).

No difficulty is experienced in passing this tube particularly when it is in the shape of a thin infant feeding tube which has a round blunt end and a hole on the side. The use of polythene tube is much safer and simpler than the use of a metallic probe which must have an eye, as well, to carry the thread.

This metallic probe, howsoever flexible, is more liable to cause trauma or false passages.

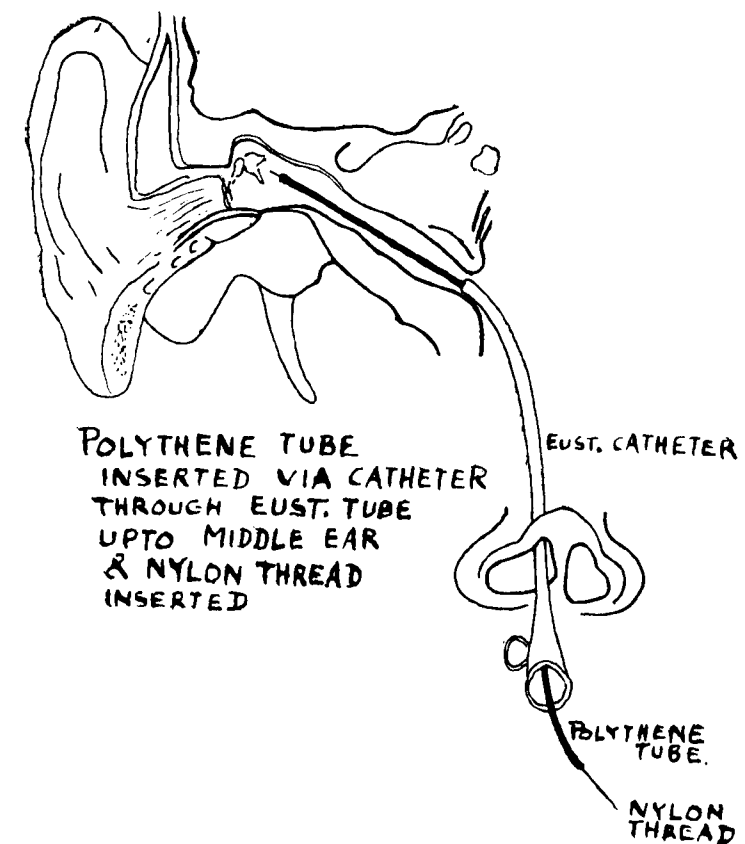
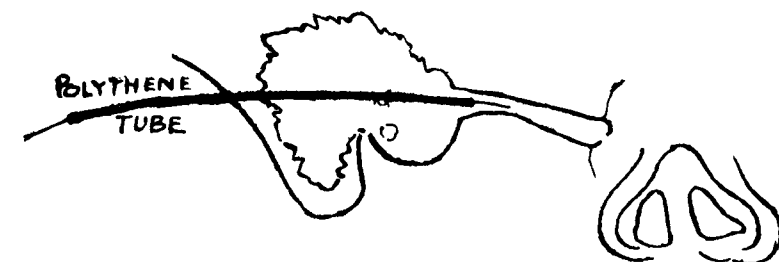


Fig. 1
Use of Polythene Tube in Tympanoplasty.



Retrograde insertion of Polythene Tube Nylon Thread passed through its Bore.

Fig. 2
Use of Polythene Tube in Tympanoplasty.

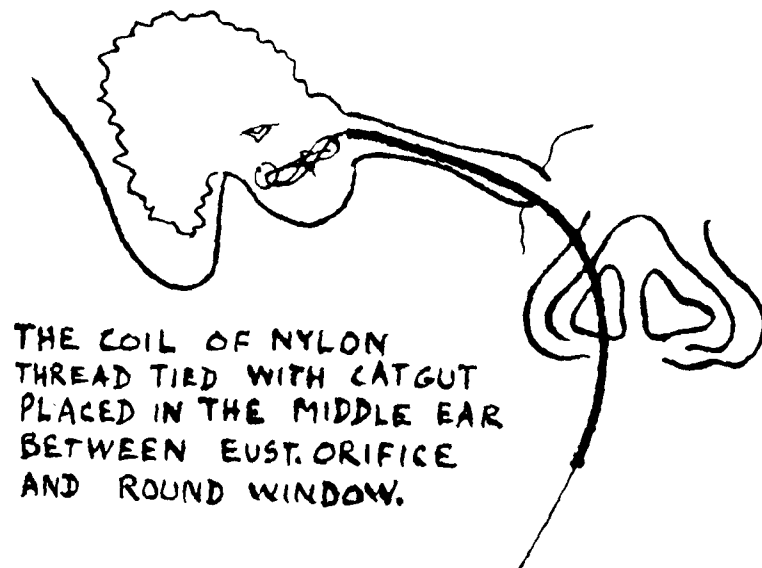


Fig. 3

Use of Polythene Tube in Tympanoplasty.

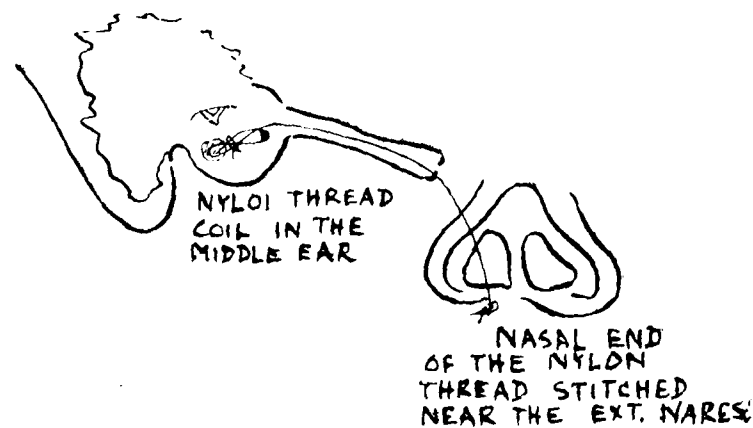


Fig. 4

Retrograde insertion of Nylon Thread in Eust. Tube from Tympanic side to Nasopharynx without the use of Polythene Tube.

A polythene tube is softer than the probe and there is no chance of its traumatising the mucosa of eustachian tube or of making a false passage. It is at the same time stiff enough to clear off the blockage or adhesions if any. It acts as a soft eustachian bougie.

The method should, however, be reserved for cases having some blockage in the eustachian tube but for other cases with patent eustachian tube, a retrograde passage of nylon thread without the help of polythene tube is always very easy and does not require any special skill.

These methods provide a suitable means for making a good desirable tunnel or an air filled cavity and in bridging over the eustachian orifice and the round window without giving any chance for adhesions to form between the undersurface of the graft and the round window niche.

RESULTS

Case Nos.	Type of Tympanoplasty.	Thread packing removed.	Use of polythene.	Valsalva after 2 weeks.	Healing of flaps.	Ear discharge.	Conversation hearing.
1.	Columella ...	2nd day	Yes	-ive	Defective	++	Poor
2.	R. W. Baffling.	14 days	Yes	+ive	Good	+	Maintained
3.	R. W. Baffling.	14 days	Yes	+ive	Good	+	Maintained
4.	Columella ...	14 days	Retrograde Yes	+ive	Good	Dry	Improved
5.	Columella ...	14 days	Retrograde No	+ive	Good	Dry	Improved
6.	Columella ...	14 days	No	+ive	Good	Dry	Improved

SUMMARY

Use of polythene tube in tympanoplasty operation has been described. New operative techniques on six cases have been described to manage the problem of preparing an air filled tunnel near the hypotympanum.

ACKNOWLEDGEMENTS

I have to thank my Senior Colleague Prof R. N. Misra, M.S., D.L.O. (Lond.) for his valuable guidance and Drs. D. Dayal, O. P. Gupta, and B. P. R. Bhatia for their kind assistance in these operative techniques.

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Restoration of Hearing in Chronic Suppurative Otitis Media by Tympanoplasty

BY

Major N. DUTT, L.M.S. (retd.), M.B. (Cal.), F.R.C.S. (Edin.), D.L.O. (Lond.),
Calcutta.

Otologists of all ages while treating cases of chronic otorrhoea are confronted with three main problems.

- (1) Eradication of the infection from the middle ear cleft, and saving the life of the patient from its intracranial complications.
- (2) Stoppage of the annoying aural discharge.
- (3) Preservation and Restoration of the hearing which is lost due to damage done to middle ear structures by the suppurative process.

In other words the otologist is to find out how to make the life of the patient safe, how to make ear dry, how to make the ear hear.

To solve these problems attempts were made and in some cases successfully, by resorting to modified radical and radical mastoid operations, but at what cost? At the cost of hearing.

In the pre-chemotherapeutic and pre-antibiotic era these operations gained popularity and E. N. T. Surgeons performed them with the hope of making the ear safe as far as infection and its spread into deeper regions was concerned. Later, intelligent and adequate use of these wonder drugs, when they were easily available combated infection efficiently; when these two objectives of prevention of the spread of infection and stoppage of discharge were achieved, the attention of the otologists was focussed more towards the distressing problem of deafness and the means as to how to make the deaf ear hear.

Hearing in Chronic Suppurative Otitis Media by Tympanoplasty 85

In their continuous, persevering, and painstaking search to gain that object Wullstein of Wurzburg and Zollner of Freiburg almost simultaneously developed a group of surgical procedures in 1948 and designated them as "Tympanoplasty". This is a plastic reconstruction of the middle ear structures for the purpose of eradicating infection and the preservation and restoration of hearing.

I am sure that this house will be in one accord with me when I express my indebtedness to them for their excellent work in this particular branch of otology. On our home front, I shall be failing in my duty if I do not express my gratefulness to Drs. Misra and Bhatia of Lucknow and Leelavati of Madras for their pioneer work and their papers with brilliant account, read at the 10th annual conference of the Otolaryngologists of India, 2 years ago. I must admit that their papers were my eye-opener and I started working on the same line last year.

Within the short period at my disposal, I would not like to go into the details of the different and complicated techniques of the various types of tympanoplasty operations for they have already been published in the Journals of the Association some months back. But, I would like to confine myself to the basic physiological principles, indications, contraindications and the record of a few cases of Tympanoplasty done by me in the R. G. Kar Medical College Hospitals, Calcutta.

(a) Derangement of the following physiological principles can be put right by different types of tympanoplasty.

(1) *Receptor Lesions*.—Perforation of the Tympanic Membrane impedes the sound pick up and hearing loss supervenes. This is rectified by Tympanic repair and Tympanoplasty Type I. Hearing loss in these cases from 10-20 Db.

(2) *Transmission Lesions*.—This is manifested by complete loss of continuity of the ossicular chain caused by necrosis of the

ossicles or by fixation of the ossicular joints by arthritic. Hearing loss is about 30 Db. Tympanoplasty Type II or Type III is done as the occasion demands.

(3) *Window fixation* by ankylosis of the stapedial foot-plate and osteo-genetic changes of the round window niche. Hearing loss in these cases is upto 50%. Tympanoplasty Type V is done.

(4) *Loss of normal difference in sound pressure* in the oval and the round window. In ossicular discontinuity sound pressure will reach both the windows equally and simultaneously; as a result of this, there will be no movement of the basilar membrane and stimulation of the organ of corti. In this connection, I cannot but mention the opinion of Rosen who has recently recorded a case (J. L. O. April 1958) in which he admits that during Corda Tympani section for a case of vertigo he inadvertently dislocated the incudostapedial joint. The incus was pushed behind the handle of the malleus and was locked in the incudo-malleolar articulation as if in a vice and could not be moved. The dislocation was irreducible and the distance between the stapedial head and lenticular process was about 6 m.m. The patient who was a normally hearing person maintained his hearing even three years later. Rosen states "Helmhotz's concept of the transformer action of the middle ear is sufficient but not a necessary condition for normal or near normal hearing". This finding has also been observed by others like Portman of Bordeaux and Altmann of New York. This has given me sufficient food for thought. I have, I admit, not been able to account for this particular phenomenon.

(5) *Acoustic Short Circuit.* Scar issue extending between the oval and the round window causes lack of movement of the foot-plate and membrana secundaria, differentially. Hearing loss is 50 Db. in these cases. Tympanoplasty or Tympanolysis anterior and posterior may be done as the case merits.

(6) *Combination of the above Lesions*— will require tympanoplasty, the particular type to be done must be decided by the Surgeon on the spot at the time of operation according to the merit of the case.

In my opinion the middle ear cavity is just like a magic box. In spite of the most careful pre-operative assessment of the pathology of the Middle ear we cannot always predict the actual condition existing inside the cavity, hence the type of operation to be undertaken cannot be decided prior to the operation.

INDICATIONS OF TYMPANOPLASTY IN CASES OF C. S. O. M.

1. According to Wullstein every case of C. S. O. M. may be rectified by Tympanoplasty. The only precaution to be taken is not to bury the infection under the plastic skin graft. Very meticulous care should be taken to eradicate infection from the recipient area.

2. Criteria of advisability of operation.

(a) Cochlear reserve must be adequate as evidenced amongst others by

(i) Pure tone audiometry— A. C. and B. C.

(ii) Acoustic measurement by acoustic probe.

(b) Patency of the Eustachian Tube—This must be thoroughly tested by different methods as valsalvas, polizerisation, and Eustachian Catheterisation.

CONTRAINDICATIONS OF TYMPANOPLASTY

(1) In cases of Nerve deafness due to various causes, even if the tympanic block is removed and the transformer action of the middle ear restored and by Tympanoplasty, hearing will not improve.

(2) Threatening or established intracranial complications that may endanger life as meningitis, brain abscess, Lateral Sinus thrombosis and the like are absolute contra-indications.

PRE-REQUISITES PRIOR TO TYMPANOPLASTY OPERATIONS

(1) *Training of the Surgeon.* A Surgeon who has not himself performed at least fifty modified radical or radical mastoid operations successfully should not undertake this painstaking and time consuming micro-surgery. The only exception to this would be if the Surgeon has had the opportunity of being specially trained by some one who is thoroughly conversant with this particular technique.

(2) *Equipment.* (a) Proper magnification - preferably an operating microscope having 10-16 times magnification. (b) Proper instruments.

(3) *Team work.* Willing staff to undertake this strenuous job, who should be properly trained by an expert at it.

Case Records. Taken over 25 cases done during 1958-'59.

(A) Tympanic Repair with A.B.C. in sponge:

The method adopted by me was that advocated by Mitchell of Dundee. Cauterisation of the margin of the perforation and the adjacent surface was carried out under proper magnification with a loupe and proper illumination. As a rule no anaesthesia is required but in some cases 10% cocaine in ethyl alcohol gives adequate anaesthesia. Trichloroacetic acid is applied over the desired surface of the membrane on which a white eschar forms immediately afterwards some inert prosthesis Gelatin sponge, Gelfoam or Spongostan soaked in the patient's own blood (autogenous blood clot in sponge) and cut to the required size are pressed against the white eschar. The ear is kept packed with sterile cotton wool and left undisturbed for a week. After removal of the cotton pack the A.B.C. in sponge is seen to have finished its work of scaffolding and the fibrous structure of the membrane has taken the place of the perforation. Of the 4 cases

of Tympanic repair undertaken by me, three of them had small perforations of the Tympanic Membrane of recent origin, one gave the history of trauma to the drum directly by a hair pin. All of them had the infection controlled by antibiotic prior to sponge treatment. Healing was satisfactory in all the four cases. Hearing was returned to normal in all the four cases.

(B) Tympanoplasty Type I--Cases done - 6.

<i>Healing</i> : Satisfactory	...	4
Perforation	...	2
<i>Hearing</i> : Serviceable	...	6
Not improved	...	nil.

(C) Tympanoplasty Type II--Cases done - 4.

<i>Healing</i> : Satisfactory	...	2
Perforation	...	2
<i>Hearing</i> : Serviceable	...	2
Not improved	...	2

(D) Tympanoplasty Type III--Cases done - 10.

<i>Healing</i> : Satisfactory	...	5
Perforation or discharge	...	5
<i>Hearing</i> : Serviceable & Satisfactory	...	4
Not improved	..	6

(E) Tympanoplasty Type IV--Cases done - 1.

<i>Healing</i> : Satisfactory	...	1
Perforation or discharge	...	nil.
<i>Hearing</i> : Serviceable	...	1
Not improved	...	nil.

Summary of 25 Cases on review :

<i>Healing</i> : Satisfactory	...	16	<i>i.e.</i>	64%
Perforation or discharge	...	9	<i>i.e.</i>	36%
<i>Hearing</i> : Serviceable	...	17	<i>i.e.</i>	68%
Not improved	...	8	<i>i.e.</i>	32%

SUMMARY

(1) Advances in otology made in the last few years in eradicating aural infection and preserving the hearing has been reviewed.

(2) Advent of Chemotherapy and antibiotics, methods of proper magnification and visualisation of the middle ear pathology, knowledge of tissue transplantation has made it within the capability of the otologist to restore hearing in cases of chronic suppurative otitis media.

(3) In this short paper the technique of operation has not been described. Though the results of the few cases under review have (25) no statistical value, yet they seem not to be discouraging as a preliminary report.

CONCLUSION

My sincerest thanks are due to the Principal and the Superintendent of the R. G. Kar Medical College Hospitals, Calcutta, who have been so co-operative and have allowed me to use the departmental records in the preparation of this article, and to Dr. Ashish Mazumder, Ex-Registrar, Dr. Dilip Mukherjee Dr. Sumanta Boral, House Surgeon, E.N.T. Department who has helped me in looking after the cases in post-operative period and in the compilation of this article.

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Towards a Dry Ear*

BY

Dr. B. P. APTE,

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The idea of compiling this Paper occurred to me when the necessity demanded a clean field to do effective "*Plastic Surgery of the Ear*".

Considering mental pattern that is prevalent in our country in a layman's mind having a dry ear is the most effective proof of complete eradication of the infection in cases of chronic otorrhoea.

I am dealing in this paper with the type of chronic otorrhoea which needs surgery to eradicate infection which if allowed to advance would perhaps erode the intracranial contents. In short I am dealing with malignant type of otorrhoea.

It is superfluous to say in this gathering how we diagnose chronic otorrhoea of malignant type.

In modern era the ultimate aim in treating the malignant type of otorrhoea by surgery is to produce (i) A safe ear, (ii) A Dry Ear, and (iii) Useful Ear, in this order of priority. This objective can be accomplished by doing mastoid surgery with a Tympanoplastic outlook. If we trace the history of the modern surgery of Temporal Bone, we would find that the first objective of making the ear safe has been achieved with good success by doing a Radical Mastoid operation. When a young Otologist is asked by a patient "I am having running of the ear for the last 15 years, I have tried many ear-drops. Can you do something to stop my discharge?". To that a young surgeon after a thorough examination would tell that he needs Mastoidectomy. An intelligent patient would always ask a question "Will this

*Paper read at 12th Annual Conference of the Association of Otolaryngologists of India, Baroda, January 1960.

operation stop my discharge? ". The usual answer from a young surgeon would be "the operation will protect you from a hanging sword of intracranial complication. I cannot promise about the dryness of the ear." This uncertainty was prevailing in my mind for a long time. The reason being uncertainty of removing all decessed structures because of the fear of injuring vital structures in the temporal bone.

In the new horizon of Tympanoplasty there is every likelihood that an enthusiastic surgeon in an attempt to do mastoid surgery with a tympanoplastic aim may not remove the decessed structure in a radical way, with the result that the discharge may continue. There may be difference of opinion whether dryness of the ear should have a priority or a leaking but useful ear should be preferred. I am of the opinion, which is subject to correction, that in cases of malignant type of otorrhoea, priority should be in this order of preference, (i) A safe ear, (ii) A dry ear, (iii) useful ear. I do not want for a moment to minimise the importance of tympanoplasty but the surgeon will be more suited to do tympanoplasty with success, if he knows how to first achieve a dry ear. With a limited experience of 1300 Mastoidectomies, in last 13 years and after examining thousands of ears in our out-patient department, I have formed an opinion that in the majority of cases the pathology is highly advanced with destruction of the contents of the middle-ear and hence eradicating completely the decessed process is difficult, painstaking and demands considerable skill on the part of the surgeon.

In malignant type of otorrhoea the decessed process is usually unilateral and therefore a loss of hearing is not the complaint patient has uppermost in his mind. He is worried more with the discharge, pain, headache, giddiness etc., and therefore it will be desirable to offer the patient primarily a safe dry ear. Improvement in hearing in that case would be secondary to be achieved not compromising with the safety and dryness.

Before considering the measures to obtain a dry ear, it will be worthwhile to get acquainted with the pathogenesis of malignant otorrhoea in brief.

In malignant otorrhoea the pathology is mainly restricted to the attico-antral region. Discharge is purulent, foul-smelling, and is maintained by continued suffocation in upper compartment of the ear with destruction of mucosae, bony, tympanic ring in part and often mingled with cholesteatoma. The typical perforation is situated in posterior superior quadrant or in attic region or is marginal. The factors which are basically important in attic infection are (i) the type of mastoid on which an infection gets a hold, (ii) the type of organism, (iii) the importance of nasopharynx in modifying the structure of the middle ear and mastoid (iv) formation of cholesteatoma.

The process of cholesteatoses may manifest as (i) a closed otitis media (milder infection), (ii) attic perforation with erosion of incus, (iii) Rapid destruction of the ossicles with formation of polyp or granulation tissue.

Before doing surgery of the mastoid one should get acquainted with the following factors (i) the type of mastoid and the extension of decess in it, (ii) the type of organism invading the ear, (iii) the condition of the nasopharynx, (iv) the detailed topography of the soft tissues of the middle ear, such as ossicles, eustachian tube etc.

The causes of persistent discharge after surgery can be divided into five groups such as:—(a) Inadequate surgery of the bone, (b) inadequate removal of the soft parts of the middle ear, these two could be due to (i) lack of perseverance on the part of the surgeon in meticulous toilet of the ear, (ii) it may be due to error of judgment of instituting less radical procedures. (c) faulty management of soft tissues around the temporal bone, (d) improper skingrafting of the mastoid cavity resulting into dying of the graft (e) omitting smear, culture, and sensitivity test of the offending organisms as a preoperative measures.

INADEQUATE SURGERY OF THE BONE

This is seen more often in cases of extensive pneumatic mastoid where uncovering of diseased cells is difficult. The sites which remain unexplored are (1) tip cells and (2) Sinodural angle (3) Zygomatic region (4) Petrous parts. This thorough exploration is greatly facilitated by (i) good radiographic aid during surgery, (ii) by combination of endaural incision and post-aural one.

INADEQUATE REMOVAL OF THE SOFT PART OF THE MIDDLE EAR

When one is convinced that the pathology is quite advanced no useful purpose will be served by keeping Necrosed ossicles, unhealthy tympanic membrane, mucoperiosteum studded with granulation tissues and infected tensor tympani muscle. Good amount of time should be devoted to this part of the surgery.

FAULTY MANAGEMENT OF SOFT TISSUES

After doing a considerable mastoid surgery one is convinced that soft tissue management and postoperative dressings are more important to achieve a dry ear. The important points to be noted are :

- (i) incision should not expose the cartilage,
- (ii) there should be minimum raw surface over the soft tissues and bone. This can be achieved by suturing the periosteum and temporal muscle to the endaural incision.
- (iii) postoperative narrowing of the meatal opening. This can be avoided by removal of a triangular piece of skin at the starting of the incision.
- (iv) The dressings should not be disturbed for the first seven days. Suitable antibiotics may be put in by uncovering the bandage. The skin around the area should be well protected by applying 70% alcohol and liberal application of sterile

vaseline. The ribbon gauze should be removed gradually completing the procedure in fourteen days. The packing should not be hurriedly removed; otherwise the raw surface may bleed and re-packing may be necessary. After fourteen days the cavity should be inspected every alternate day for a month. Care should be taken to remove the debris but while attempting it skin graft should not be roughly handled. If granulation tissue comes up it should be cauterised by 50% silver-nitrate. The adequate and frequent use of the anti-biotic drops is desirable in the first few days, as the cavity tends to become dry well, epithilised, they should be withdrawn.

(v) *Grafting the mastoid cavities.*—Opinion is divided whether the mastoid cavities should be lined by the skin graft or whether it should be allowed to granulate and heal up. There are sound arguments in favour that cavity should be grafted. The next controversy ranges about the time, when the skin grafting should be done, whether primary on the day of operation or after a week. I prefer to do primary skin grafting, unless the case is grossly infected or where mastoidectomy has been done as an emergency procedure. About the nature of skin graft three types are recommended :—

- (1) Split-thickness, Thiersch's skin graft.
- (2) Full thickness graft.
- (3) Pedical skin graft. Thiersch's skin graft has been extensively tried. It has been observed that the graft may break down with resulting granulation and discharge. Application of these grafts is difficult where one wants to cover entire raw area and therefore I have tried in good number of cases full thickness graft taken from the arm and the results are quite gratifying. Dying of the graft may be due to gross infection or dislodging of the graft by haematoma or faulty manipulations. I have no experience of the pedical graft but it is recommended on the grounds of supplying more nourishment to the grafted area.

**ORGANISMS NOT IDENTIFIED BEFORE SURGERY AND
SUITABLE ANTI-BIOTIC NOT INSTITUTED**

Wherever facilities are available a smear, culture and sensitivity tests should be carried out of all otic infections. These tests will put the clinician on a correct path in choosing antibiotic drug, which is most suited for the infection. Blindly instituting antibiotics may give rise to disappointment and prolongation of discharge, because the organism being resistant to the antibiotic concerned. Organism such as *B. Pyocyaneus* or *B. Proteus* may sometimes be resistant to known antibiotic and these cases become trying problems for the clinician. For *B. Proteus* infections, *B. Acidophile* treatment is suggested by Krana and Djordge.

Application of 25% Argerol or Gention violet 1% alcoholic or Burrow's solution may be useful. Hydrocortisone applied locally is very effective in checking the secondary infection of the operated cavity.

Cases of intractable otorrhoea where it is unilateral, Rambo has suggested a closer of radical mastoid wound by filling it with a temporal muscle graft. I tried this method and found that greatest advantage is "postoperative care of the cavity is negligible and the ear becomes completely dry in short time". The only handicap being significant sudden drop of hearing.

Though the prospects of making a dry ear are improving rapidly, there are yet some naughty problems to solve.

- (1) Problem of Eustachian Tube Catarrh.
- (2) Reinfection of the cavity by *B. Proteus* and *B. Pyocyaneus*.
- (3) The collection of wax and debris in the cavity which needed periodical check-up.
- (4) Sudden breaking down of a nicely healed cavity resulting into starting of leakage of the ear again.

We owe a great deal to Julius Lempert, Father of modern otology, who has stabilised mastoid surgery on firm footing. It is he who has stressed the fact that every case of otic infection is a problem by itself and no set or standard procedure will be suitable in all cases.

As Day states "Make the operation fit the patient, and do not make the patient fit the operation". This new concept of mastoid surgery aided by :

- (i) Good illumination,
- (ii) Magnification aid,
- (iii) Electrically driven Burr,
- (iv) Endaural approach,
- (v) Careful grafting of the cavity,
- (vi) Judicious use of antibiotics,
- (vii) Gentle handling and meticulous post operative care, will make the mastoid surgery effective.

Julius Lempert with his technique, in his masterly hand guarantees 100% dry ear. It is time that we should try and emulate that worthy example by following his technique to make the ear dry and safe. Once we achieve this objective we will be in a position to grasp and utilise the benefit that Tympanoplasty advocated by Zollner and Wullstein offers to make deceased ear after surgery "*Safe, Dry and Useful*".

Role of "Vitamin A" in the Treatment of Atrophic Rhinitis

BY

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Chronic Atrophic Rhinitis when associated with foetor is commonly known as Ozoena. The disease is characterised by progressive bilateral atrophy of the nasal mucosa and also to some extent the underlying bone of the conchae, with conversion of the ciliated columnar epithelium to stratified squamous variety. As a result the nasal chambers appear to be unusually roomy and dry crusts are formed as a result of rapid drying of a very thick viscid secretion, exuded by the changing nasal mucosa. These crusts are responsible for the characteristic and terrible offensive odour of Ozoena. Unless the disease is associated with other specific or nonspecific inflammations, ulceration is unusual. The most interesting feature of the disease is that fortunately the patients themselves do not get any foul smell because most of them develop complete anosmia, but the smell is so horrible that it is often impossible for the other members to stay in the same room with the patient. The peculiar foetor which the clinicians get as soon as the patient enters the room is pathognomonic.

The etiology of ozoena is not yet definitely known. There are numerous theories like hereditary, racial, sequelae of the diseases in paranasal sinuses, terminal stage of purulent rhinitis, vitamin deficiency, disturbance of the endocrine system etc., etc. Of all these the hereditary influence, deficiency factor and the endocrine factor are the more widely accepted and recent views. They get additional supports from the facts that the disease is often found in families and it is more common at the age of puberty and in females, moreover the symptoms especially the foetid odour increase during the menstrual periods. As the disease responds well to vitamin therapy the deficiency factor

Role of "Vitamin A" in the Treatment of Atrophic Rhinitis 99

is held by some clinicians to be responsible for causing it. In some cases hormonal therapy also does some good, when it seems that endocrinal disturbance might be a cause in producing the disease.

Atrophic Rhinitis cases can be readily diagnosed by their horrible and peculiar odour, change in the colour and appearance of the nasal mucous membrane and deposition of greenish crusts over it. The unusual size of the nasal cavities and very small size of the inferior and middle conchae are the striking features and help an observer to see the margins of the choanae, the openings of the Eustachian tubes, the posterior wall of the nasopharynx and movement of the soft palate by anterior rhinoscopic examination. The condition may be associated with paranasal sinus suppuration when liquid pus can be seen to an widely exposed middle meatus. Transillumination, skiagraphy of the sinuses and other necessary investigations and tests for sinus suppuration may be necessary in such cases. Ozoena may be confused with syphilitic lesions where ulcerations and perforation of the septum are the distinguishing features and those cases do not respond to ordinary line of treatment. In case of doubt blood examination for W. R. will clear the diagnosis.

As the etiology of the disease is obscure, very little is known about its specific treatment. Few years back, it was thought to be beyond one's power to cure ozoena. The physicians used to give symptomatic treatment and leave the cases to spontaneous recovery. The old treatment consisted mainly in cleanliness and keeping the nasal cavities free by removing the dried up secretions. This was done by keeping the nasal cavities plugged with 25% glucose in glycerine solution followed by nasal wash with normal saline. Oily solutions were sprayed inside the nasal cavities to keep the symptom of dryness in abeyance.

Recently different lines of treatment are being given trial and very encouraging results have been obtained with Vitamin A and Streptomycin therapy in selected cases of Ozoena. Of all

these, 'Vitamin A' therapy has been proved to be most useful. A long course of treatment is needed as the course and progress of the disease is prolonged.

During the years 1956 to 1957, one hundred and fifteen selected cases of Ozoena were treated on two different lines in the E. N. T. Department of the R. G. Kar Medical College and Hospitals. A few of those cases (40 cases) are given in the accompanying table with their comparative results. It will be revealed from the table that the result with 'Vitamin A' is better than with Streptomycin. 'Vitamin A' was used by three different routes, *e.g.*, local, oral and parenteral; in some cases parenteral streptomycin was combined with local and oral 'Vitamin A'. The course of treatment depended on the duration of the disease in each case and the line of treatment was changed in a few cases by noticing the degree of response. Altogether about 80% cases showed very good response and were ultimately cured by 'Vitamin A' therapy alone and about 50% cases responded nicely to streptomycin therapy. Considering the fact that streptomycin has got some toxic side effects, 'Vitamin A' was more safely used in a major portion of the total number of selected cases. Unfortunately, a few number of cases, owing to their poor financial condition, could not afford the prolonged full course of treatment and consequently had recurrence of symptoms after a preliminary improvement. Uptil now the long continued 'Vitamin A' therapy is much costly and it is difficult for the poorer class of the society amongst which the disease is more prevalent, to afford the expenditure of such a treatment.

In conclusion it can be mentioned that with these new lines of treatment especially with 'Vitamin A', the prognosis of a nasty disease like Ozoena is much improved and a cure can easily be expected if the same treatment can be continued to the exact requirement. The treatment will be more and more successful and it will be a pleasure for the specialists to treat those cases when all the hospitals of our country will be in a position to supply these drugs free to the poor patients attending the out-patients' department for treatment.

ACKNOWLEDGEMENTS

My grateful thanks and regards to my Professor Dr. S. K. Sen Gupta, M.B. (Cal.) D.L.O. (London), who guided me to collect these case records and finally encouraged by him I have been able to prepare this article. I shall be failing in my duty if I do not take this opportunity of thanking and congratulating M/s. Roche Products Private Ltd., who were very kind enough to supply us with free clinical samples of *Arovit* (Vitamin A) in different forms for giving trial in these cases under report. I owe my thanks to the Superintendent of the R. G. Kar, Medical College & Hospitals for kindly allowing me to utilise the Hospital facilities.

TABLE

Case No.	Name	Age	Sex	Main Symptoms	Treatment	Result after 6 weeks
1	S. N. G.	31	M	Solid lump like discharge, offensive odour, headache.	1. Dihydrostreptomycin 1 Gm. I.M. injections on alternate days. 2. Cod liver oil drops in the nose.	Appearance of the nasal mucous membrane much improved, but symptoms not relieved fully. The treatment continued.
2	C. R. D.	28	F	Yellow crusts coming out of the nose with occasional bleeding, offensive odour in the breath, Anosmia.	1. Arovit 2 c.c. I. M. injections on alternate days. 2. Arovit drops in the nose 3 times daily.	Marked improvement. Patient was almost free symptoms.
3	B. R. P.	19	F	Dryness of the nose. Scale like discharge, offensive breath, epistaxis.	do.	Much improved. Symptoms much relieved. Pt. was asked to repeat the course of treatment.
4	S. M.	14	F	Anosmia, offensive dry lumps coming from both nostrils, difficulty in breathing.	1. Dihydrostreptomycin 1 Gm. I.M. injections every other days. 2. Arovit drops in the nose thrice daily.	Condition improved. All other symptoms excepting Anosmia disappeared.
5	B. P. D.	32	M	Dryness of the nose, solid lump like discharge, offensive odour.	do.	Slight improvement. Patient was asked to continue treatment.
6	S. D.	23	F	Anosmia, offensive smelling dry discharge, occasional epistaxis.	1. Arovit 2 c.c. I.M. injections on alternate days. 2. Arovit tablets-1 tab. B.D.P.C. Olive oil to drop into nose T.D.	Much improved. Nasal mucosa was almost normal in appearance.

TABLE—(Contd.)

Case No.	Name	Age	Sex	Main Symptoms	Treatment	Result after 6 weeks
7	M. R. S.	41	M	Solid lump like discharge, foul smell in the breath, headache, epistaxis etc.	1. Dihydrostreptomycin 1 Gm. I. M. injections daily for 10 days then on every other day. 2. Cod Liver oil drops in the nose thrice daily.	The patient was about 50% better but not completely free from symptoms.
8	S. B.	21	F	Offensive odour in breath, anosmia, slight difficulty in breathing.	do.	No improvement (W.R. was found positive afterwards).
9	P. K. D.	38	M	Dry scales coming out from nostrils with occasional bleeding, foul smell in the breath.	1. Arovit 2 c.c. I. M. injections on alternate days. 2. Arovit liquid - Nasal drops thrice daily.	More than 50% improvement.
10	G. R. P.	16	F	Foul smell in the breath, anosmia, Headache.	do.	Marked improvement.
11	P. B. D.	36	F	Anosmia, offensive odour from nose, difficulty in breathing.	1. Arovit 2 c.c. I. M. injections on alternate days. 2. Arovit drops locally in the nose.	Much improvement. All symptoms excepting anosmia disappeared.
12	F. B.	46	F	Solid crust like nasal discharge with foul smell, occasional bleeding from nose and headache.	do.	Almost 75% improvement. Patient was advised to continue treatment.
13	R. K. M.	34	M	Offensive odour from the nose. Dried yellowish discharge with occasional bleeding.	1. Dihydrostreptomycin 1 Gm. I. M. injections on every other days. 2. Cod liver oil drops in the nose thrice daily.	Very little change in appearance of nasal mucous membrane. Symptoms slightly relieved. Patient was advised Vit. A therapy.
14	A. C. D.	26	M	Difficulty in breathing, headache, foul smell from the nose.	do.	Marked improvement. Symptoms almost disappeared.
15	G. R. B.	18	F	Crust like discharge epistaxis, offensive smell in the breath.	1. Arovit 2 c.c. I. M. injections on every alternate days. 2. Arovit liquid nasal drops thrice daily.	do.

TABLE—(Contd.)

Case No.	Name	Age	Sex	Main Symptoms	Treatment	Result after 6 weeks
16	B. N. P.	48	M	Offensive odour in the breath. Solid lump like discharge and difficulty in breathing.	1. Arovit 2 c.c. I. M. injections on alternate days. 2. Arovit tablets (50000 units) 1 tab. B.D. P.C. 3. Arovit liquid as nasal drops thrice daily.	Much improvement. Rhinoscopic appearance almost normal. Patient was asked to continue treatment.
17	M. R. S.	24	F	Foul smell from the nose, anosmia, headache, dryness of the nose.	1. Dihydrostreptomycin 1 Gm. I. M. injections on alternate days. 2. Arovit liquid nasal drops thrice daily.	Marked improvement. Symptoms practically absent. Patient was advised to continue Vit. A orally.
18	F. C. S.	44	M	Dry crust like discharge, offensive odour in the breath, anosmia.	do.	Almost 50% improvement. Patient was advised pure Vit. A therapy for another 4 weeks.
19	R. D.	19	F	Dryness of the nose yellowish crust like discharge with very foul smell.	1. Arovit 2 c.c. I. M. injections on every other days. 2. Arovit liquid drops in the nose thrice daily.	Much improvement. Symptoms relieved. (about 75%).
20	P. B. K.	25	F	Anosmia, headache, dry lumps coming out of the nose with foul smell.	1. Arovit 2 cc. I. M. injections on every other days. 2. Arovit liquid drops in the nose thrice daily.	Much improvement. Symptoms relieved.
21	P. R. K.	18	F	Offensive odour in the breath, difficulty in breathing and headache.	1. Arovit 2 cc. I. M. injections on every other days. 2. Arovit liquid as nasal drops thrice daily.	Very satisfactory. Patient was absolutely free from the symptoms.
22	R. M.	26	M	Solid lump like offensive discharge, epistaxis, headache and anosmia.	do.	No improvement. Blood W. R. + ve and referred for the specific treatment.
23	J. K. D.	33		Dryness of the nose with separation of crusts, foul smell in breath, occasional epistaxis.	1. Dihydrostreptomycin 1 Gm. I. M. injections on alternate days. 2. Arovit liquid 10 drops B.D.P.C. 3. Cod Liver Oil as nasal drops thrice daily.	Much improvement. Patient was advised to continue another course of treatment but streptomycin omitted.

TABLE—(Contd.)

Case No.	Name	Age	Sex	Main Symptoms	Treatment	Result after 6 weeks
24	R. C. P.	29	M	Anosmia, difficulty in breathing, solid lump like discharge with foul smell.	1. Dihydrostreptomycin 1 Gm. I. M. injections on alternate days. 2. Arovit liquid 10 drops B.D.P.C. 3. Cod Liver Oil as nasal drops thrice daily.	Almost 60% improvement. Streptomycin was replaced by Arovit Injections for another 4 weeks.
25	S. B.	12	F	Very offensive odour in the breath, dry solid discharge, epistaxis.	1. Dihydrostreptomycin 1 Gm. I. M. injections on alternate days. 2. Arovit liquid nasal drops thrice daily.	Slight improvement. Blood W.R. was found + ve. Patient was referred to Venereology Department.
26	G. N. K.	40	M	Foul smelling lump like discharge from the nose, difficulty in breathing, Anosmia.	1. Arovit 2 cc. I. M. injections on alternate days. 2. Arovit 50,000 units tablets—1 tablet B.D.P.C.	Almost 75% improvement. The patient was advised to continue treatment for 3 weeks more.
27	B. R. P.	14	F	Dryness of the nose and separation of yellow crusts. Foul smell in the breath.	1. Arovit 2 cc. I. M. injections on alternate days. 2. Arovit liquid as nasal drops thrice daily.	Significant improvement. Patient was almost free from symptoms.
28	N. B.	21	F	Solid lump like nasal discharge with offensive odour, difficulty in breathing and headache.	do.	Much improvement. Appearance of nasal mucous membrane was almost normal and symptoms much relieved.
29	J. K. B.	32	M	Occasional bleeding from the nose, separation of dry crusts, foul smell in the breath.	1. Arovit 2 cc. I. M. injections on alternate days. 2. Arovit liquid as nasal drops thrice daily.	More than 60% improvement. Patient was asked to repeat the course of treatment.
30	A. G.	19	F	Difficulty in breathing, headache, anosmia, foul smell in the breath.	do.	Completely cured. Appearance of the nasal mucous membrane and turbinates were normal.
31	I. M. D.	35	F	Offensive smelling solid discharge, nasal obstruction, headache and anosmia.	1. Arovit 2 cc. I. M. injections on every other days. 2. Arovit liquid to be used as nasal drops thrice daily.	Much improvement. More than 50% of the symptoms were relieved. Advised to continue the treatment.
32	N. B.	27	F	Loss of sense of smell, very much foul smell in the breath complained by the relatives. Dry crust like nasal discharge.	1. Dihydrostreptomycin 1 Gm. I. M. injections on alternate days. 2. Cod Liver Oil as nasal drops thrice daily.	Marked improvement. The patient was free from the symptoms excepting anosmia. Advised a course of Vit. B ₁ therapy.

TABLE—(Contd.)

Case No.	Name	Age	Sex	Main Symptoms	Treatment	Result after 6 weeks
33	S. B. D.	41	F	Solid lump like nasal discharge with offensive odour, occasional epistaxis, headache etc.	1. Dihydrostreptomycin 1 Gm. I.M. injections on alternate days. 2. Cod Liver Oil as nasal drops thrice daily.	Slight improvement. Patient was advised to continue treatment with Vit. A (Arovit).
34	R. N. S.	30	M	Dryness of the nose with separation of foul smelling dry crusts accompanied by occasional bleeding.	1. Dihydrostreptomycin 1 Gm. I. M. injections on alternate days. 2. Arovit tablets 1 Tab. B.D.P.C. 3. Arovit liquid nasal drops thrice daily.	About 60% improvement. Patient was advised to continue oral and local treatment only for another 4 weeks.
35	B. R. P.	16	F	Offensive odour in the breath, headache, dryness of the nose and itching.	1. Arovit 2 cc. I. M. injections on alternate days. 2. Arovit liquid as nasal drops thrice daily.	Marked improvement. Patient's symptoms were relieved more than 80%.
36	S. L. C.	21	F	Loss of sense of smell, solid lump like discharge with offensive odour.	do.	Slight improvement. Treatment continued with Streptomycin 1 Gm. in place of Arovit 2 cc.
37	B. G.	24	F	Offensive odour in the breath, separation of yellow dry crusts, occasional bleeding and headache.	1. Arovit 2 cc. I. M. injections on alternate days. 2. Arovit liquid as nasal drops thrice daily.	Much improvement. Almost 75% of the symptoms were relieved.
38	J. B.	31	F	Solid lump like nasal discharge with offensive odour, nasal obstruction and dryness in the nose.	1. Dihydrostreptomycin 1 Gm. I. M. injections on every other days. 2. Arovit liquid as nasal drops thrice daily.	Almost 50% improvement. The patient is advised to continue treatment for 4 weeks more.
39	P. K. M.	28	M	Foul smelling dry crust like discharge from the nose with occasional epistaxis, difficulty in breathing and headache.	1. Arovit 2 cc. I. M. injections on alternate days. 2. Arovit 50,000 units tablets 1 Tab. B.D.P.C. 3. Arovit liquid as nasal drops thrice daily.	Marked improvement. Appearance of nasal mucous membrane was fairly healthy. Patient was asked to continue oral and local treatment for 3 weeks more.
40	M. R. P.	14	F	Dryness in the nose, separation of dry crusts with foul smell, Loss of sense of smell.	do.	Patient was completely cured.

Aural Myasis

(With Case Reports)

BY

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SYNONYMS

Maggots in the ears, myasis aurium, larvae in the ears, screw-worms in the ears; animate foreign bodies in the ears.

The invasion of the body cavities and tissues by fly maggots is called Myasis. This condition is much more frequent in warm countries like India, South America, China and in other tropical climates than elsewhere. The condition is very frequently seen in the nose, the ears, mouth, conjunctive, intestines and other places, but the invasion of the ears is rare; hence the following cases are reported. Flies thrive in the dead and decomposed matter. In those patients already suffering from an otorrhoea from any cause or any nature, the maggots not often occur as a complication in the external auditory canal. The maggots tend to penetrate deep into the tissues and is apt to be associated with extensive ulceration, destruction of bone, the production of pain, septicimea and sometimes meningitis, coma and death.

INCIDENCE

Prior to this, there are only a few examples on record of myasis of the human ears in comparison to the number of articles published on nasal myasis. There are a number of insects whose larvae may attack human beings, all belonging to the order Diptera and the family Muscidae. The following species have been identified:

- (a) *Oestrus ovis* (Botfly), *Chrysomya bezziana* "screw-worm"—India and China.
- (b) *Rhinoestrus purpureus*, in S. Europe, Asia Minor, Africa.
- (c) *Wohlfahrtia magnifica*, in Egypt and India.
- (d) *Sarcophaga carnaria*. "Flesh-fly" world-wide.
- (e) *Cordylobia anthropophaga*—"Tumbu-fly" Central Africa.
- (f) *Cochliomyia hominivorax*—American Continent from Canada to Patagonia.
- (g) *Pycnosoma faviceps* (blue bottle) South America.

These dipterous insects are predominantly found in tropical climates. Muscoid flies are partial parasites. The *chrysomya bazziana* variety is encountered in India. *Chrysomya bazziana* (Villeneuve, 1914) is metallic blue with a bright green thorax. The male has reddish brown eyes closely approximated and deep orange antennae. The larvae (12 mm.) is yellowish white with slightly pigmented extremities. Eggs are laid in diseased tissues. *C. Bezziana* is a true myasis-producing fly, never breeding in dead, but always in living tissues. It appears to have a predilection for human beings in India, the female as in *Ch. hominivorax* laying her numerous eggs in the cavities or in tissues from which offensive discharge emanate.

Sarcophagidae (Flesh-flies) "Blow flies" include blue bottles, green bottles, and the flesh flies. The larvae usually feed on dead animals. These flies are primarily scavengers. The screw-worm fly—*Cochliomyia hominivorax* is dirty grey with black thorax, and most active during the heat of the day. It attacks the people sleeping in the open air, specially those who have any offensive discharges.

The larvae of these various muscoid flies are identified by the shape of their posterior stigmata (Menson-Bahr) year. The adult larvae then pupate and the pupae fall to the ground where they hatch.

meninges are found to be of deep red colour and filled with blood. This state of affairs induces septicæmia and all its trail of symptoms - fever, rigors, sweats, and delirium. If not treated, the scene is closed by the convulsions and coma which ensue on the involvement of the meninges, ending in death.

DIAGNOSIS

The diagnosis may be difficult until the larvae appear after which a mistake is impossible. The typical otoscopic appearance referred to above is characteristic.

PROGNOSIS

The prognosis should be guarded in late cases when extensive destruction has taken place, and general septic infections has set in. With the advent of Penicillin, the fatalities are very rare. Necrosis of ossicles and morbidity may complicate the condition and may require adequate surgical intervention.

TREATMENT

The treatment of this disease has been complicated by ability of the maggots to survive in many anti-septic solutions. According to Popov (1947), it has been found experimentally that a fully matured maggot could live for 4 minutes in pure phenol and for 15 minutes, in strong turpentine. The maggots can crawl for several minutes over a surface strewn to a depth of 0.31 cm. with calomel according to the same author.

Chloroform, Ether, and Benzine are the remedies which are used most to asphyxiate the maggots. Chloroform is readily available, destroys the insects and is innocuous to human tissues, hence preferred. Chloroform was first recommended by Dauzats during the French expedition in 1862. A piece of gauze soaked in Chloroform is placed in the external canal and the aperture may be plugged in order to avoid quick evaporation. After about 5 mts., the maggots are removed by forceps or by syringing the ear with luke-warm Pot. permanganate or weak dettol solution. Then olive oil or liquid paraffin is filled into the external

canal upto the brim after the patient has been placed with the diseased ear uppermost. At times turpentine is very irritating as was observed in our cases. Popov has used a 10% solution of chloroform in milk. At times in a rowdy child it may become necessary to administer general anaesthesia to make the child more amenable to the therapeutic proceedings. Penicillin must be administered intramuscularly to combat secondary infection and prevent complications. Sedatives should be administered to assure night's rest. In more complicated cases operation according to the rules of aural surgery and treatment of an eventual meningitis may be indicated.

PROPHYLAXIS

Personal cleanliness and hygiene of the evident discharge from the external meatus should be strictly maintained. Prophylaxis consists in combating flies and by screening all room but more specially the rooms of individuals who suffer with discharging noses and ears. Such persons should sleep under bed nets. This may not be possible for all patients, but keeping the ear lightly plugged with cotton wool is easy and costs nothing. Treatment of all such suppurative type of disease as ozena, sinusitis, leishmaniasis etc. is imperative in order that the suppurations thus produced will not attract these flies.

REPORT OF CASES

Case No. 1.—Lata, 13 years of age, was admitted in Isolation ward on 13-8-'59. The patient according to her father's statement had suffered from chronic suppurative otitis media right ear - 6 years ago, but ear was completely dry of late. She complained of pain in right ear - since 3-8-'59, discharge from right ear since 6-8-'59. Discharge was purulent in nature and maggots were noticed on 10-8-'59. About 50 maggots were removed from right ear on admission. Discharge was now blood stained with fetid odour. Temperature on admission was 99.6°F, respiration 32 p.m. and pulse 100. Slight conductive deafness was noticed. Tympanic membrane was completely destroyed as seen on the 7th day after admission. Left ear, mouth and nose,

were normal. Chloroform turpentine drops were put after irrigating the external canal with luke-warm pot. permanganate solution. Penicillin sodium 4 lacs unit 8 hourly was given by I.M. route. Temperature came down the next day and child was relieved of pain on 16-8-'59. No maggots seen from 17-8-'59 and the patient was discharged on 20-8-'59, with an advice to come after one month for mastoid surgery.

Case No. 2. Leela, F, 10 years old, was admitted in Isolation on 13-8-'59, the patient has been suffering from otorrhoea - right ear since last 5 years. 3 years ago some operation (most probably Schwartz's) was done on the right side, but the wound did not heal and a $\frac{1}{2}$ " size sinus is persisting which is till discharging. On admission the patient complained of severe pain right ear - since 5 days, blood stained purulent discharge since 3 days and maggots in right ear - since 3 days. On examination, slight inflammatory swelling of the right ear in the region of the tragus and lobule. Part was very tender. External auditory canal was full of pus and maggots. Tympanic membrane was completely destroyed. Severe mastoid tenderness present on the right side and maggots were also seen coming out through the sinus. Hearing was slightly impaired (conductive). No abnormality could be detected in left ear, nose, and throat. The temperature was 100°F, pulse - 120, and respiration 34/p.m. Chloroform and Olive oil, treatment carried on. Patient progressed well and was discharged on 21-8-'59, with an advice to come back after a month for mastoid operation and closure of post-auricular sinus.

Case No. 3. Munni Lal, 9 years, was admitted on 21st August '59, with complaint of pain in the left ear; duration - 10 days. Discharge in the left ear - 8 days, and maggots in left ear - 6 days. Fever since - 20-8-'59. Past history of discharge from both ears off and on since - 6 months. History of continuous fever - one year ago which lasted for one month (Typhoid?) On examination maggots were noticed in the left auditory meatus. There was severe pain and tenderness around pinna and temperature was 101.8°F, pulse 120, and respiration 34/p.m.

Excoriation was present around the concha with inflammatory swelling in the pre-auricular region; left side. Patient was kept on penicillin and the local treatment as described above. No maggots seen on 25-8-'59. Patient was relieved of temperature and discharged on 28-8-'59 with advice to come after one month for mastoid surgery.

CONCLUSIONS

1. Myasis is common in tropical countries and specially in India and hence its own special problems.
2. The disease occurs mostly in nose and less frequently in ears as met with in E.N.T. practice.
3. It may occur at any age and is commonest in hot humid weather from July to September, when flies breed more frequently.
4. There is always pre-existing condition of suppurative otitis media over which myasis supervened.
5. The class of people affected are commonly poor, but two of our cases were middle class.
6. The disease is specially prevalent among children.
7. There are chances of successful diagnosis in early stage, if the discharge is examined microscopically for eggs but however it is not done so. Diagnosis is almost always missed until maggots appear, and no such symptom (warning) like epistaxis as in the case of nasal myasis where it could even be suspected of.
8. In aural myasis less chances of intracranial complications unless severe temporal bone necrosis and destruction has taken place. Also blood supply is not so rich in this region in comparison to the nasal chambers and face.
9. In aural myasis tympanic membrane is almost always completely destroyed and necrotic otitis media often results.

10. After myiasis is cured, the patient should be subjected to surgical treatment of C.S.O.M. without much loss of time and thus relapses avoided and suppuration stopped completely.

11. More emphasis should be laid on prophylaxis part of the treatment in all cases of otorrhoea and disease explained fully to the class of the people concerned.

12. Antibiotics must be given to check secondary infection in myiasis whether nasal or aural.

13. Every medical officers should be acquainted with disease associated with myiasis of nose and ears. Flies are found in many parts of the world and there are a number of flies with a wide geographical distribution whose larvae may attack the human tissues.

Our thanks are due to Dr. T. D. Shahani, M.B.B.S., F.R.C.S., (Edin.), Superintendent of our hospitals for permission to utilize records of the patients.

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Scleroma

BY

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Scleroma is defined as a chronic specific granuloma, characterized by an extremely indolent clinical course, a distinctive microscopic appearance and probable transmission by infection. It was first described by von Hebra¹ in 1870. Mikulicz² in 1876 described the characteristic foam cells and in 1882 von Frisch¹⁰ isolated *Klebsiella rhinoscleromatis* from the lesion. He thought the bacillus was the aetiological agent and, though Kock's postulates have never been fulfilled, this view is held by many to the present day. With Gerhardt's³ description of laryngeal scleroma in 1876 it was realized that the disease was not restricted to the nose and at the International Congress of Otolaryngology, Rhinology and Laryngology at Madrid, Spain in 1932 "Scleroma" was adopted as the designation for the disease in preference to "Rhinoscleroma".

The disease has a world wide distribution, being especially prevalent in Central Europe, Russia, South America and South East Asia. Except for the large series of 85 cases reported by Wahi, Misra and Gupta¹² (1958) there is a paucity of cases reported in India, there being only about 29 previous cases reported including a series of 6 by Rao and Menon⁶ (1941) and 10 by Rege⁷ (1951). This gives a completely erroneous idea regarding the frequency of Scleroma in India: the replies from Otolaryngologists in various parts of the country to the *questionnaire* circulated by Wahi et al¹² (1958) make it evident that the disease is much commoner than these few reported cases would indicate.

The present series of 18 cases collected from the records of the S. S. G. Hospital, Baroda, within a period of 5 years from 1954 to 1959 is presented to emphasize that the disease is not rare in India and that it should be considered in the differential diagnosis of all granulomatous and tumour-like conditions of the upper respiratory tract.

DISCUSSION

1. Age.—17 out of these 18 cases were within the age group of 17 to 35 years. This is in conformity with the usual age distribution of the disease which is within the most productive decades, viz. 16 to 35 years (Cunning and Guerry,² 1942). One of our cases No. 17, was outside this distribution, being 65 years old.

2. Sex.—The series includes 5 females (27·8 per cent) and 13 males (72·2 per cent). This sex distribution is at variance with that reported from the rest of the world (Weiss,¹³ 1939; Cunning and Guerry² 1942), but is in agreement with the preponderance of males in the cases reported in India (Rao and Menon⁶, 1941; Rege⁷ 1951; Wahi et al¹⁴ 1958). We feel that this may be due to the difference in readiness with which males, as compared to females, come to hospitals rather than to a difference in sex distribution of the disease in our country.

3. Caste.—16 of our cases were Hindu and 2 were Muslim. This is not at variance with the community distribution of the local population. All cases came from the poorer sections of the population. This is in agreement with the findings throughout the world: "Scleroma is a disease of the great unwashed".

4. Site and extent of lesion.—In 17 of our cases the lesion was present in the nose and in the majority of these there was bilateral involvement of the nostrils. In one case the granuloma was restricted to the tonsil. Amongst the cases with the main lesion in the nostrils there were three cases with involvement of the nose, one of the upper lip, one of the lacrymal gland and one of the palate.

CASE REPORTS
SCLEROMA: TABLE 1.
The following table gives the salient features of the 18 cases including age, sex, caste, extent of lesion, duration of disease and clinical diagnosis

Case No.	Age (yrs.)	Sex	Caste	Lesion	Duration	Clinical Diagnosis	Remarks
1. S. D.	25	F	H	Growth left nostril	6 months	Malignancy	
2. N. J.	30	F	H	Polyp nostril, swelling of nose, abscess, lacrymal sac.	2 years	Rhinosporidiosis & cellulitis face.	
3. B. B.	20	M	H	Growth both nostrils; swelling of nose and upper lip.	1 month	"Growth"	
4. G. T.	30	M	H	Growth both nostrils	2 years	"Growth"	Biopsied again after one year: histology essentially unchanged.
5. S. A.	20	F	M	Growth both nostrils	1½ years	Lupus	
6. P. L.	19	F	H	Growth both nostrils	1 year	Lupus	
7. N. K.	20	M	H	Atrophy and ulcerations both nostrils.	6 months	Ulcerative Rhinitis	
8. C. B.	35	M	H	Growth both nostrils	2 years	"Growth"	
9. K. D.	28	M	H	Growth left nostrils	2 years	"Growth"	
10. N. P.	27	M	H	Growth both nostrils	3 years	Lupus	
11. R. L.	17	M	H	Growth both nostrils	1½ years	Scleroma	
12. K. L.	31	F	H	Growth both nostrils	1 year	Lupus	Biopsied again after 3 months: histology essentially unchanged.
13. D. M.	30	M	H	Growth both nostrils	1½ year	Lupus	
14. G. D.	19	M	H	Growth right nostrils	1 year	Lupus	
15. D. R.	30	M	H	Growth both nostrils and palate, swelling of nose.	6 months	Lupus	
16. R. P.	65	M	H	Growth right tonsil	1 year	"Growth"	
17. R. S.	26	M	H	Hypertrophic rhinitis & adhesions between septum & wall of nostril left side.	2 months	Lupus or Rhinosporidiosis	
18. R. D.	18	M	H	Adhesions left nostril	6 months	Lupus or Scleroma	

SCLEROMA: TABLE II

The various sites of involvement were distributed as follows:—

Nostrils (one or both)	...	17
Nose	...	3
Upper lip	...	1
Lacrymal gland	...	1
Palate	...	1
Tonsil	...	1

Most of the cases presented as a diffuse nodular growth at the nostril, palate or tonsils respectively. In two cases the growths in the nostrils were polypoidal. This is an unusual manifestation but is occasionally seen (Rege¹, 1951). Two cases of nasal scleroma presented with adhesions in the nostrils. Adhesions are common in the later stages of the disease. One case showed ulcerations and a diffuse involvement of both nostrils. This appearance is somewhat unusual as the disease is commonly described as being free of ulcerations.

Symptoms included blocking of the nose, difficulty in breathing, crusting and a serous or a foul smelling discharge. The two cases with adhesions complained of pain in the nose, a rather uncommon symptom as the disease is usually painless.

5. *Duration.*—The duration of the disease varied from 1 month to 3 years. The unreliability of the histories given by this class of patients is well known. Some of these histories giving a duration of only a few months appear patently erroneous. It can generally be inferred that all these were chronic long standing lesions.

6. *Clinical diagnosis.*—The following table lists the provisional clinical diagnosis made in this series.

Scleroma

Fig. 1
A typical appearance of nasal scleroma.

Fig. 2
Sheets of plasma cells and occasional Mikulicz cells. The overlying epithelium shows no acanthosis. Haematoxylin and eosin (Low power).

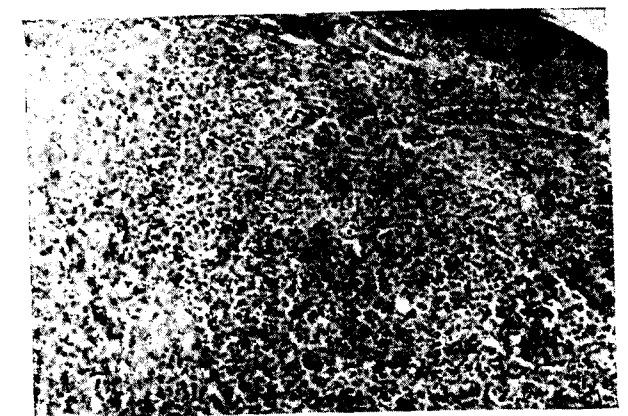


Fig. 3
Abundant Mikulicz cells and few plasma cells. Haematoxylin and eosin (Low power).

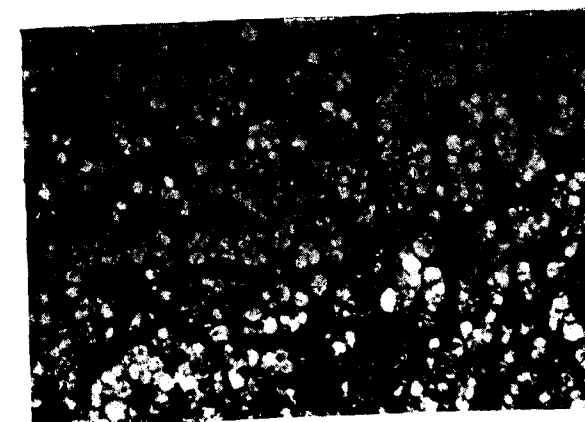


Fig. 4

Young Mikulicz cells showing characteristic foamy cytoplasm. Haematoxylin and eosin (High power).

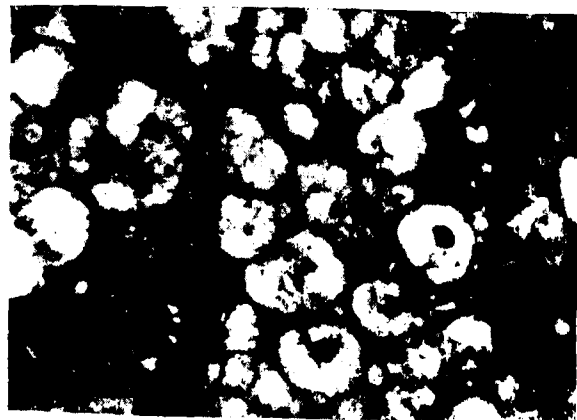
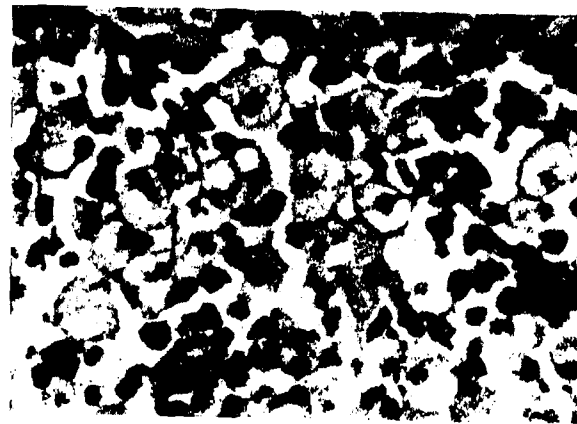


Fig. 5

Mikulicz cells showing large vacuoles almost completely replacing the cytoplasm. Haematoxylin and eosin (High power).

Fig. 6

Well marked acanthosis not sufficient, however, to be termed "pseudoepitheliomatous". Haematoxylin and eosin (Low power).



SCLEROMA: TABLE III

No.	DIAGNOSIS	No. of cases.
1.	Lupus	... 7
2.	Scleroma	... 1
3.	Rhinosporidiosis with cellulitis face	... 1
4.	Lupus or scleroma	... 1
5.	Lupus or rhinosporidiosis	... 1
6.	Malignancy	... 1
7.	Ulcerative rhinitis	... 1
8.	"Growth"	... 5

The list is revealing in that it indicates how rarely the diagnosis of scleroma was suspected clinically. With greater awareness of the frequency of this disease the percentage of correct clinical diagnoses will undoubtedly increase. Tulsidas and Chaddah⁹ (1954) tabulated signs helpful in the clinical diagnosis of scleroma. Our experience, however, supports the opinion expressed by Cuning and Guerry², (1942) that clinical diagnosis is difficult and the diagnosis should rest on biopsy examination. A subsidiary and unrelated conclusion from this study is that lupus nose is an extremely rare condition, all cases clinically diagnosed as lupus being proved to be of scleroma on histological examination.

Szmurlo⁸ (1933) described three stages of the disease.

First, the diffuse stage, in which it resembles atrophic rhinitis and is marked by crusting, a thin foul nasal discharge and redness and infiltration of the mucosa.

Second, the circumscribed stage in which numerous bluish red oedematous nodules are present, slowly coalescing into firm granular cartilagenous masses.

Third, the cicatricial stage, in which dense grey atrophic scars occur with resultant deforming adhesions of the soft structures and concentric progressive stenosis of the involved portion of the air passages.

Our cases include examples of all three stages.

7. *Histopathology*.— All the elements constituting the microscopic picture of scleroma, viz. sheets of plasma cells, Russell - Fuchs bodies and Mikulicz foam cells with contained Klebsiella rhinoscleromatis were present though the proportions varied from case to case.

The sheets of plasma cells are, in our opinion, highly characteristic of this disease and suggest the diagnosis even before other features are recognised (Fig. 2). The Russell - Fuchs bodies are eosinophilic intra cytoplasmic plasma cell degeneration products and have no special diagnostic significance as they are found in all plasma cell exudates.

The Mikulicz cells taken in conjunction with the other features are diagnostic. Their number varied from abundant in some cases (Fig. 3) to scanty in others (Fig. 2) in this series. The morphology also varied, in some cases the cytoplasm was granular (Fig. 4) while in others the vacuoles had enlarged to such an extent that no cytoplasm was evident (Fig. 5). The bacilli, Klebsiella rhinoscleromatis could easily be identified within the Mikulicz cells and also sometimes lying in the surrounding tissues. Silver impregnation is most satisfactory as it stains the capsules and thus makes the bacilli appear larger. The Warthin - Starry silver impregnation method was used and gave consistently good results. Romanowsky stains are also useful and the Geimsa stain demonstrated the bacilli adequately. In some sections the bacilli could be identified in the haematoxylin eosin stained sections alone where they appeared as pale eosinophilic rods.

Acanthosis, sometimes to the extent of pseudoepitheliomatous hyperplasia has been mentioned as one of the rather constant features (Cunning and Guerry² 1942). Acanthosis was seen in

9 of our cases but in none could it be called pseudoepitheliomatous. In some of our cases, the epithelium was atrophic and occasionally even ulcerated (Fig. 2 and 6).

Increased amounts of fibrous connective tissue was present in a few cases. This naturally becomes more evident with the later stages of the disease.

SUMMARY AND CONCLUSIONS

1. 18 cases of Scleroma, collected from the records of the S. S. G. Hospital, Baroda, over a 5 year period are presented to show that the disease is not rare in this part of India.

2. The age and sex distribution and sites, extent and types of lesions are described.

3. It is suggested that because of the bewildering variety of presenting pictures, unequivocal diagnosis is seldom possible clinically; if the disease is more often considered in the differential diagnosis of granulomatous and tumour like conditions and biopsy examinations done, many more cases would come to light.

ACKNOWLEDGEMENT

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E. N. T. Centre in a District Hospital*

BY

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MR. PRESIDENT, LADIES & GENTLEMEN,

My paper concerns the organization of an E. N. T. Centre in a non-teaching hospital. I belong to one and I thought I might share what I think of the problem that faces those of us who are in similar situation. My observations may be of interest to the E. N. T. Surgeons attached to the teaching hospitals also for they have the responsibility of training the future E. N. T. practitioners who would man the centres in the district hospitals.

A word about the problem itself. Our problem everywhere is that of numbers—a large number of patients. This we must clearly and definitely recognize before we copy what we saw during our training at the teaching hospitals. We do not have their advantage of having so many hands the teaching staff with post-graduate and under-graduate students who share the patients that are waiting to be seen and soon sort out the unusual from the routine cases. Nor can we just copy what we are taught by the text books where the whole emphasis is laid on the quality work of the speciality. The bulk of patients just has to be dealt with in a planned manner.

The basic unit in terms of accommodation is a set of 3 rooms in the O.P.D. A longish consultation room which would at least have two consultation set ups—an office for the specialist which will also have a small Audiology Unit and a multipurpose room to hold (1) a couch for the patient who needs dressings after the operation (2) a table for the clerk who would register new and old cases and (3) an almirah to store the records. The E. N. T. Unit has, like all other sections, an easy approach from the main waiting hall. There is a standing arrangement for inpatients in the male, female and children surgical wards and for operative work in the general theatre on a part time basis.

*Read at the Twelfth Annual Conference of the Association of Otolaryngologists of India at Baroda, January 1960.

In terms of staff the basic E. N. T. unit must at least have 5 individuals—a specialist and an assistant, perhaps a house surgeon who has done six months in medicine and six months in Surgery and has already decided to take up E. N. T. as the speciality of his career. It is better ofcourse if the assistant has already passed his post-graduate diploma M.S. and/or D.L.O. This assistant must have a stake in the department and look forward to be the specialist one day. The specialist in turn must train him conscientiously as his successor with the same pride as one takes in training ones own children. The third is a trained dresser or preferably a trained nurse. The fourth man is the clerk who understands the importance of writing up, maintaining and keeping records. The fifth fellow is the sweeper who is now known by the dignified designation of Hospital Attendant at our hospital. His job is to keep the place clean; to stop patients from rushing in all together and to call them by their turns when directed.

The effort begins with the patient who brings his prescription paper from the main entrance and hands in at the E. N. T. Clinic door. He is then called in for registration by the clerk who makes out the E. N. T. Card for him. For old patients the date is stamped and the card taken out. To save time, one patient waits on a waiting chair in the consultation room as the other one is being examined by the doctor. This is not ideal but I am only talking of the basic unit where the routines have to be managed in set ways so that the patient's waiting time is reduced to the minimum. As we all know by far the largest number of our patients in the hospital belong to the "Chronic Discharge ear" group. Such cases after the diagnosis is made, only need to be dry mopped and the ear dressed with argyrol 5% wick with perhaps Ephedrine Argyrol nose drops which form part of the treatment for this ear condition. The second group of patients need throat applications. The third group nasal suction drops and sprays. The fourth—a miscellaneous group—is made up of furuncles, tongue and mouth conditions, Eustachian blocks needing politerisation etc. All these and writing of X-ray

and pathological test forms can be quite efficiently managed by trained dresser or nurse if pains are taken to show them the right way and to see that they have learnt the minor techniques. A great load of the routine effort is thus taken off the two doctors and they can now handle the unusual cases needing thoughtful going into, to decide about the operative interference etc. Then there is a lot needing other technical engagements like Audiometric and Caloric Tests and minor operative work under local anaesthesia which demand a chunk of the Clinic's time.

Consultation jobs referred by the Physicians, General Surgeons, Gynaecologists, Ophthalmology Clinic and General Practitioners must be specially dealt with in a responsible way, not only from the E. N. T. aspect but in the spirit of helping a colleague who is stuck, because that alone is going to earn the respect for our department by other sections of the hospital. There should indeed never be an attitude of passing the baby back. The patient above all must feel and know that responsible people are dealing with him.

Now I come to the plan of expanding the basic E. N. T. unit.

1. An exclusive waiting hall for our section where all patients after they have been registered at the Clinic can go and sit and wait for their turn to be called in to see the doctor. An Office Boy to call these patients in and a trained Social Welfare Worker would be an addition to the staff at this stage. The Welfare Worker would talk to the waiting patients and their relations about the prevention of E. N. T. diseases, dealing with minor ailments and explaining to them the conditions where it is a must to see the specialist—the correct attitude towards tonsils, etc. Urgent from non-urgent cases will be sorted out and special attention drawn and lastly the grumblers pacified.

2. Addition of a third and more consultation set ups in the consultation hall. This would mean addition of as many members of the medical staff.

3. An operation theatre for the clinic to do minor operative work. This would entitle the clinic to the services of a theatre technician.

4. An Audiology Clinic with an Audiometer Technician.

5. A Speech Therapy Clinic with a qualified lady technician.

6. A separate E. N. T. ward with male, female and children sections.

7. A separate E. N. T. operation theatre. With march of time and with the persistent enthusiasm of the specialist branching of the speciality will be undertaken. Qualified people holding charge of sub-sections dealing with Temporal bone surgery, Rhinology, Laryngo-pharyngeal Surgery and Broncho-Oesophagology. On the prevention side a special liaison will be established with the Health Department through their School Medical Officers to organize E. N. T. check ups of the children once a year to find the mouth breathers and deal with blocked noses and discharging ears. It is indeed one of the functions of the E. N. T. Clinic to make the public E. N. T. conscious by exhibiting slogans against chewing of pans and smoking giving prevention of disease tips and warning about deafness in children in the waiting room and the consultation hall. The patients and their relations could take home little pamphlets to teach them about their Ears, Nose and Throat in the layman's language: We must take full advantage of acquainting our public when they are in the receptive mood in the waiting halls of the out patient departments.

In the end here is a word of advice to my junior colleagues. We must all approach the problem in a matter of fact way but with humility for wherever we are it is the patients' needs both organic and psychological which must be attended to in preference to our own. By our own needs I mean the needs which concern our relationship with the authorities on the one hand and

behaviour of the patients and their relations on the other. One must never allow the frustration concerning the former influence the dealings with the latter. This indeed is easily understandable but I have seen many a young specialist not being able to avoid the pitfall. To wait till the maturity of age and experience brings in the wisdom finally, if one is lucky, is to suffer an unnecessary handicap. Since one has to deal with the authorities so one must be in a philosophical way in the spirit of dealing with children who have come to possess power. The correct way of dealing with children, as we all know, is to satisfy their hunger for appreciation and sympathy and then to get them to do what is right when they are in the correct mood. This attitude of course presupposes that we are grown up ourselves. Let us then not mix up our need of the correct behaviour from the authorities with how we would get on with our patients and their relations. In the latter situation since the patient is our customer and the customer is always right, there must never be an occasion when a doctor should feel irritated and annoyed with the patient.

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PROPOSED INDIAN ACADEMY OF MEDICAL SCIENCES

Proceedings of the Meeting held in New Delhi on January 29th, 1960.

A meeting of the representatives of the various associations of medical sciences was held at the All India Institute of Medical Sciences on January 29, 1960 in response to a request made by Col. Sangham Lal to the various Associations.

Col. Sangham Lal welcomed the delegates and proposed Dr. Coelho to take the chair for the meeting and being unanimously adopted, he took the chair. The Chairman briefly outlined the aims and objectives of the proposed Academy and elaborated on the previous communication submitted by Col. Sangham Lal to the various Associations. He pointed out that the Academy will be on the pattern of the Royal Society of England or National Institute of Sciences of India rather than on the pattern of Royal Colleges in the U. K. Since it will not be possible for the Academy to be an examining or diploma awarding body at least in the initial stages of its existence, the Indian Academy of Medical Sciences he felt should be created for recognition and encouragement of merit in all branches of medical sciences. He stressed that the standards laid down for election as a fellow of the Indian Academy of Medical Sciences should be really high so that holders of this distinction command respect both in national and international spheres. It was also imperative, he felt that all disciplines and branches of medical science should be represented equally. Free and frank discussions followed in which representatives of various associations took part about the creation of the Indian Academy of Medical Sciences. The following decisions were unanimously taken.

1. The Indian Academy of Medical Sciences should be formed and located in Delhi.
2. The Academy should have representatives from all specialities and disciplines of medical sciences, who should have an equivalent status. There should be no sub-specialities or sub-sections and all disciplines must have sections within the academy.

3. Initially the Academy should have 300 founder fellows who should be elected on the proportionate basis of the strength of various associations representing medical disciplines based on the strength of their paid membership as on 31st December 1959.

4. There should be rigid criteria laid down to entitle a person to offer for election as a founder fellow.

5. All Associations of medical sciences in existence on January 1, 1960 should be requested to submit list of their paid members in alphabetic order along with their addresses held on their rolls on December 31, 1959, to be sent to the secretariat of the proposed Indian Academy of Medical Sciences, New Delhi.

6. Rules for working of the Indian Academy of Medical Sciences and its ultimate constitution, qualifications and method of elections of ordinary fellows, honorary fellows and members of the Academy should be left to be decided by the initially created body of founder fellows of the Academy.

7. A sub-committee was formed with a request to lay down criteria for election of founder fellows and the report of this Committee should be completed immediately for incorporation in the proposed rules.

8. After the initial election of founder fellows based on certain criteria and on proportionate relative strength of various associations further, future election of fellows should have no reservations from any speciality. Depending upon the number of vacancies, scientists of eminence from all disciplines should be eligible for election by electoral body as laid down in the rules.

9. Membership of the Academy should be open to younger group of scientists with postgraduate qualification and an Academic work to their credit.

10. Government of India should be requested to associate with the establishment of the Academy and recognise it by a statute, by an act of parliament, and to give the requisite financial aid to the Academy.

11. The day-to-day working and scientific status of the Academy should be exclusively decided by the Indian Academy of Medical Sciences.

12. It was decided that not more than 300 founder fellows should be elected initially and ultimately total number of fellows in Academy should not exceed 500. The number of members however, should not be limited to any figure.

13. It was suggested that in order to establish a Secretariate at Delhi various participating associations may be requested to make a donation of Rs. 200/- only to meet the preliminary expenses.

The governing bodies of the associations may be requested to donate the amount in anticipation of its sanction subsequently by their general bodies.

14. Participating associations while submitting the list of their members as on 31st December 1959 may also nominate two eminent members of their associations who may be considered by the associations as most suitable scientists to help in the election of the initial founder fellows from the list of people who are eligible for such election.

15. Participating associations may be requested to submit names, of eminent and distinguished members of the association who fulfil the criteria laid in para 16 below and who in their opinion should be considered for election as founder fellows of the Academy.

16. The sub-committee after discussions laid down the following criteria for founder fellows of the associations.

(1) The person eligible must be outstanding in his specialty or/and has contributed to advancement of medical science. He must be in possession of high postgraduate qualification.

(2) He must not be below 40 years of age at the time of election.

(3) Should have been in possession of a medical degree for not less than 15 years and should have been engaged in practice as a specialist for not less than 10 years.

(4) No person should be considered for election to the fellowship from more than one association and for this purpose the organising secretary will take the following action on receipt of the membership lists from various associations. After careful scrutiny of the lists, scientists whose name appears in more than one list will be requested through a registered letter to intimate to the Indian Academy of Medical Sciences as to which association he wishes to be considered as primary member. No person will be considered eligible for election as fellows as in associate member of any association.

17. The rules of the proposed Indian Academy of Medical Sciences are shown in appendix.

18. With a view to assist Col. Sangham Lal a sub-Committee of the following members was formed.

Col. Amir Chand.

Dr. R. Vishwanathan.

Dr. S. K. Sen.

Dr. B. K. Anand.

Col. Sangham Lal -*Convener*.

APPENDIX

1. Name :

The name of the Academy is "Indian Academy of Medical Sciences".

2. Objects :

The objects of the Indian Academy of Medical Sciences are :

(a) The recognition and encouragement of work of merit in all branches of medical Science,

(b) The promotion of knowledge of Medical Sciences in India and its practical application to problems of national welfare.

(c) To effect co-ordination between medical and other scientific academies, societies, associations, institutions and Government medical and scientific departments and services.

(d) To act through properly constituted national committees for medical and scientific subjects for undertaking such medical and scientific works of national and international importance as the Academy may be called upon to perform by the public and Government.

(e) To publish such proceedings, Journals, memoirs and transactions, and other publications as may be found desirable.

(f) To promote and maintain a liaison between medicine and other sciences and letters.

(g) To secure and manage funds and endowments for the promotion of medical sciences.

(h) To do and perform all other acts, matters and things that may assist in, conduct to, or be necessary for the fulfilment of the above mentioned aims and objects of the academy.

3. Constitution :

(a) The Academy will consist of founder fellows, honorary fellows, ordinary fellows and members.

Founder Fellows.—The number of founder fellows will be limited to 300. Actual number will depend upon the number of eligible persons who are considered suitable for election and are finally elected.

(b) In the first year of the Academy, ordinary fellows will be elected to fill such vacancies as exist between the number of initial founder fellows actually elected and the limit of 300 founder fellows. In addition to such ordinary fellows, 15 more ordinary fellows will be elected during the first year. During the following subsequent years not more than 10 fellows will be elected each year in addition to such vacancies as may arise amongst initial founder fellows.

Honorary Fellows.—The number of such fellows will not be more than 30 at any time and honorary fellowship will be conferred on eminent scientists (who are not residents of India) for their knowledge or contributions to medical science or the welfare thereof.

Members of the Academy.—There will be no limit to the number of the Academy. (Persons of Indian nationality only will be eligible for founder and ordinary fellowships and membership of the Academy).

4. Administration and Officers :

The administration and establishment of the affairs of the Academy shall be entrusted to a council, composed of a president, two vice-presidents, a treasurer, a secretary, one representative from each section, 10 representatives of fellows, 4 representatives of members, subject to a maximum number of 50. In case the number exceeds 50 the elected representatives of fellows and members will be proportionately reduced. The inclusion of the officers, and fellows to the council shall be by election, held by fellows. The election of the representatives of sections to the council will be by fellows of the respective sections. Representatives of the members to the council will be elected by the members of the Academy.

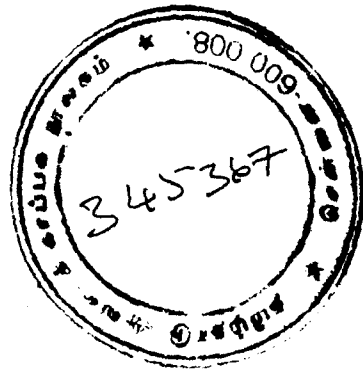
5. Election and Admission of Founder Fellows :

After receipt of the initial lists from participating associations and ensuring that each member is represented primarily by one association, the number of 300 initial founder will be proportionately and provisionally allocated to various participating associations. After scrutiny of the lists of those considered eligible by their participating associations according to the laid down criteria, eligible names will be considered for election.

6. Election of Founder Fellows :

The selection board will comprise of the representatives of various participating associations, who would nominate two of their eminent scientists for the specific purpose of such selection of founder fellows.

This board will go through the list of eligible persons and elect those who obtain not less than 2/3 of the votes from those present. The election of founder fellows will be determined by all the representatives from various associations and not by representative of a particular association, against the number of founder fellows allotted to each participating association. After the election of the founder fellows a sub-committee from those elected will be formed to frame rules for ordinary fellows, honorary fellows and members and to lay down detailed constitution of the Indian Academy of Medical Sciences.



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Registered No. F-417 (Bombay)

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

The Association of Otolaryngologists of India—Balance Sheet as at 31st December 1959

LIABILITIES	Rs.	nP.	ASSETS	Rs.	nP.	Rs.	nP.
Income and Expenditure Account:			Investments (at cost)			11,205	93
Balance Brought Forward	13,645	47	As per Schedule attached				
Add: Excess of Income over expenditure during the year as per annexed Income and Expenditure account	2,517	54	Furniture and Office Equipments			669	15
			(At Cost)				
The Journal of the Association of Otolaryngologists of India Account:			The Journal of the Association of Otolaryngologists of India Investment Account (at cost):			3,007	50
Being the amount received from them for Investment as per Contra			4% 1954-54 Bombay Municipal Debentures of the full value of Rs. 3,000/-			2,462	50
			3 3/4% Loan 1974 of the Government of India of the face value of Rs. 2,500/-				
Dr. S. G. Joshi Memorial Fund:			Advance:			5,470	00
Balance Brought Forward			To Dr. A. Patel			250	00
			Cash in Bank:				
			In Current Account with the Lloyds Bank Ltd., Standing in the name of the Hon. Secretary and Hon. Treasurer				
Total			Total			7,097	46
						24,692	54

As per my Report of even date attached.

The above Balance Sheet to the best of my belief contains a true account of the Funds and Liabilities and of the Assets of the Trust.

R. N. BHANSALI,
Chartered Accountant.

22nd March, 1960.

R. N. MISRA,
President.J. V. DeSa,
Hon. Secretary.N. K. APTE,
Hon. Treasurer.

The Association of Otolaryngologists of India--Income and Expenditure Account for the year ended 31-12-1959

EXPENDITURE		Rs.	nP.	Rs.	nP.	INCOME		Rs.	nP.	Rs.	nP.
To Establishment Expenses :						By Members' Subscriptions :					
Printing and Stationery	Rs. 63	91				Ordinary	...	4,248	00		
Bank Charges			51			Associated	...	288	00		
Less: Collections from members	" 26	71				Interest:				4,536	00
General Charges			37	20							
(Including salaries postages etc.)			662	39							
					781	10					
Audit Fee											
Share of Subscription to Branches :											
Hyderabad Branch			66	00		On Securities (after adjustments of Income-tax and Bank Charges deducted at source)	...			143	79
Bihar			87	00							
Bombay			75	00		Dividend	...			45	00
Delhi			72	00							
			300	00							
Less: Amount shown as paid and taken as Expenditure during the year 1957 not paid, as cheques not cashed:											
Madras Branch	Rs. 69	00									
West Bengal Branch	" 93	00									
			162	00							
					138	00					
Expenses on Objects of the Trust:											
Contribution towards Journal a/c....			738	15							
Conference Expenses			250	00							
Dr. Joshi Memorial Lecture Expenses											
(Gold Medal)			150	00							
					1,138	15					
Excess of Income over Expenditure											
(Subject to provision of Depreciation) during the year transferred to Balance Sheet											
					2,517	54					
Total					4,724	79				4,724	79

As per my Report of even date attached.

The above Income and Expenditure Account to the best of my knowledge and belief contains a true and fair account of the Income and Expenditure of the Trust.

R. N. BHANSALI,
Chartered Accountant.

22nd March 1960.

R. N. MISRA,
President.

J. V. DeSa,
Hon. Secretary.

N. K. APTE,
Hon. Treasurer.

Registered No. F-417 (Bombay)

The Bombay Public Trust Act 1950, Schedule IX-C *Vide* Rule 32

**The Association of Otolaryngologists of India—Statement of Income
liable for contribution for the year ended 31st December 1959**

PARTICULARS	Rs.	nP.
Gross Receipts being Income during the year as per annexed Income and Expenditure Account ...	4,724	79
Cost of collection of Income or receipts from Securities, stocks etc. at 1% of such Income ...	1	89
Net Income Liable to Contribution ...	4,722	90

22nd March 1968.

R. N. MISRA,
President.

J. V. DeSa,
Hon. Secretary.

R. N. BHANSALI,
Chartered Accountant.
N. K. APTE,
Hon. Treasurer.

The Association of Otolaryngologists of India—Schedule of Investments (At cost) for the year ended 31st December, 1959

PARTICULARS	Rs.	nP.
(i) 3½% 1966-68 Government of India Funding Loan of the Face Value of Rs. 2,000/-	1,816	25
(ii) 3¼% Indian Loan 1974 pronotes of the Face Value of Rs. 4,000/-	1,477	50
(iii) 3½% National Plan Bonds 1965 pronotes of the Face Value of Rs. 1,400/-	1,379	00
(iv) 12 years National Plan Savings Certificates due on 18.9.1970	3,570	00
(v) 4% Indian Loan 1973 pronotes of the Face Value of Rs. 2,900/-	2,963	18
Total	11,205	93

As per my Report of even date attached.

22nd March 1960.

R. N. MISRA,
President.

J. V. DeSa,
Hon. Secretary.

R. N. BHANSALI,
Chartered Accountant.
N. K. APTE,
Hon. Treasurer.

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Thiamine Hydrochloride: B.P.	... 10 mg.
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Riboflavin	... 1.2 mg.
Nicotinic Acid	... 20 mg.
Ascorbic Acid	... 50 mg.
Pyridoxin Hydrochloride U. S. P.	... 0.2 mg.
Choline Dihydrogen Citrate N.F.	... 60 mg.
Panthenol	... 1 mg.
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எழும்தூர், சென்னை-600 008.

தவணைத்தாள்.

சே. எண் :

ப. எண் :

வழங்கிய நாள். (1)	திரும்பிய நாள். (2)	வழங்கிய நாள். (1)	திரும்பிய நாள். (2)