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CONTENTS

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Tympanoplasty*

BY

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Defective hearing through blocking, interruption or destruction of the ossicular chain has always been an unavoidable sequelae of chronic suppurative otitis media. No method was available until quite recent years to pave the way for proper healing and preserving the integrity of the conducting apparatus.

The pioneer work of Morritz, Zollner and Wullstein in 1952 has led to the evolution of a surgical technique which they have named "tympanoplasty" aiming at the eradication of infection and restoration of function. This operation marks yet another contribution by the Otologists to the modern revolution in functional surgery.

It is incumbent that for normal hearing both the windows of the internal ear must be free. Otherwise the pressure changes in the perilymph of the cochlea and the resulting movements of the basilar membrane cannot take place. In the normal ear a greater proportion of the energy is transmitted through the chain of ossicles and the oval window than that which is carried across the tympanic cavity to the round window. Pressure on the perilymph in the scala vestibuli is therefore greater than that on the scala tympani causing movements of the basilar membrane and consequently the sensation of hearing (Fig. 1 and Fig. 2.)

*Paper read at the Xth Annual Conference of the Association of Otolaryngologists of India.

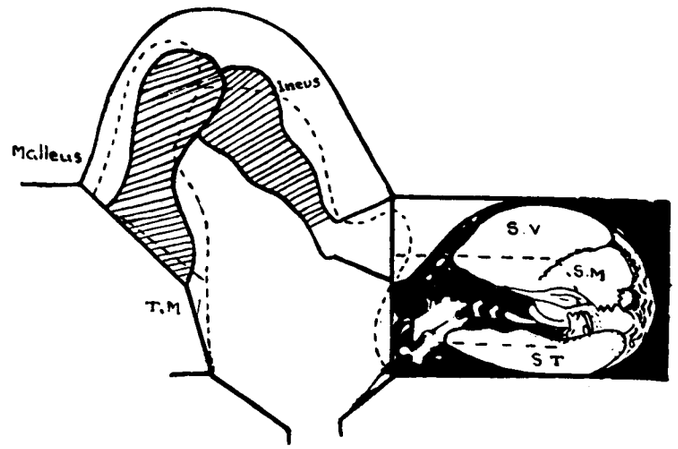

Fig. 1. Physiological or Ossicular route of Sound Waves.
T. Membrane - Malleus - Ineus - Stapes - Oval Window - S. Vestibuli - S. Media - Organ of corti and B. Membrane - S. Tympani - Round Window.

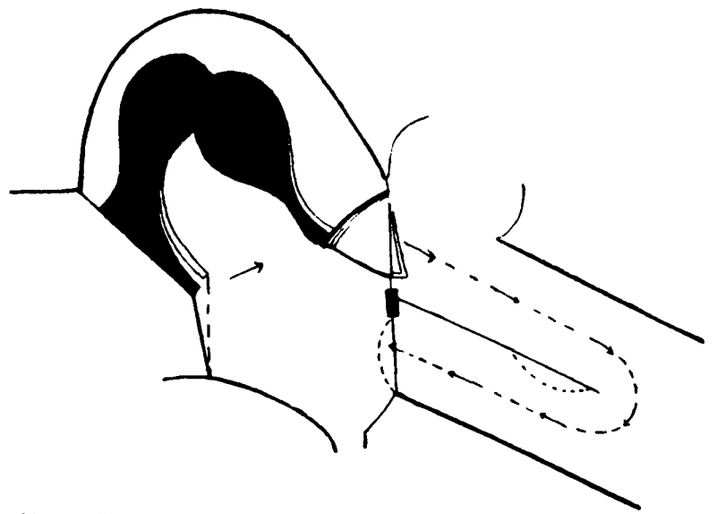

Fig. 2. Position of Ossicles and various membranes at rest Shadow lines— Inward displacement by a sound wave. Dotted Lines and Arrows— represent path of sound waves.

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In chronic suppurative otitis media there may be an alteration in the proportion of the energy which is transmitted to the stapes and the oval window leading to impairment of hearing. The extent of this impairment depends on the nature of the lesion of the drum head, impedance of movement of the ossicular chain due to immobilisation of the joints or by their destruction and interference with the function of the round window (Fig. 3).

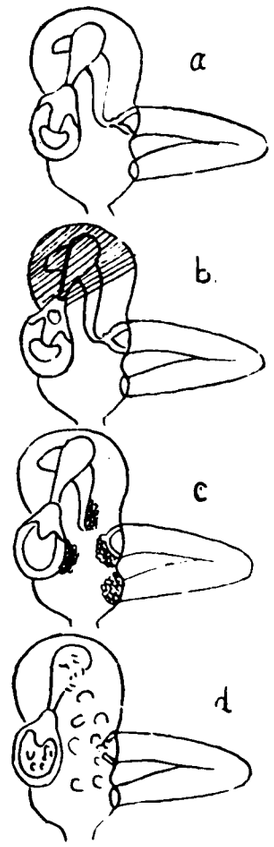

Fig. 3. (a, b, c, d) Showing various types of lesions of the M Ear in Chronic Suppurative Otitis Media.

Rupture of the tympanic membrane reduces the disproportion of the energy reaching the two windows leading to defective hearing. If there is an interruption or complete break in the ossicular chain, sound energy reaches the two windows on an

10 · 2 - 3

equal proportion, which of course cannot produce any pressure changes in the perilymph or of the movements of the basilar membrane. Interference with the round window which must normally bulge into the middle ear, to allow the movements of the basilar membrane either by disease or closure, also impairs hearing.

Methods of correction.—There are four main types of operation which can deal with the different lesions in the middle ear, though variations in the operative technique may be called for under certain conditions. These are Myringoplasty, Epitympano-mastoidectomy with skingrafting, Columella type tympanoplasty and Total tympanoplasty (Figs. 4, 5, 6 and 7.)

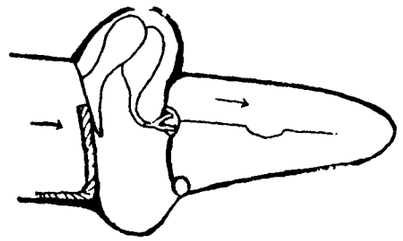

Fig. 4. Myringoplasty

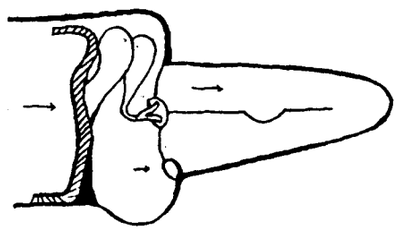

Fig. 5. Epitympano-mastoidectomy with Skin grafting.

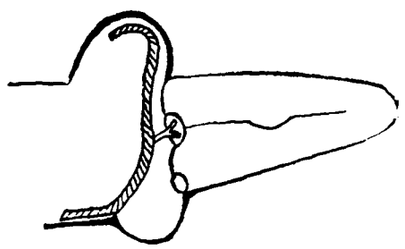

Fig. 6. Columella type Tympanoplasty.

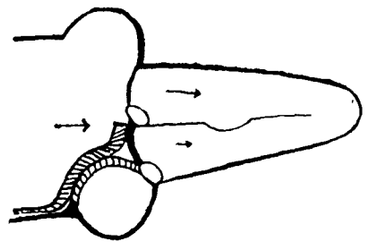

Fig. 7. Total Tympanoplasty.

Myringoplasty is useful in cases where there is rupture of the tympanic membrane with the ossicular chain intact and functioning, as determined by the acoustic probe or by the

operating microscope *i.e.*, where the defect in the conducting mechanism is confined to the tympanic membrane only (Figs. 8 and 9.)

Fig. 8. Rupture T. Membrane with the Ossicular Chain intact.

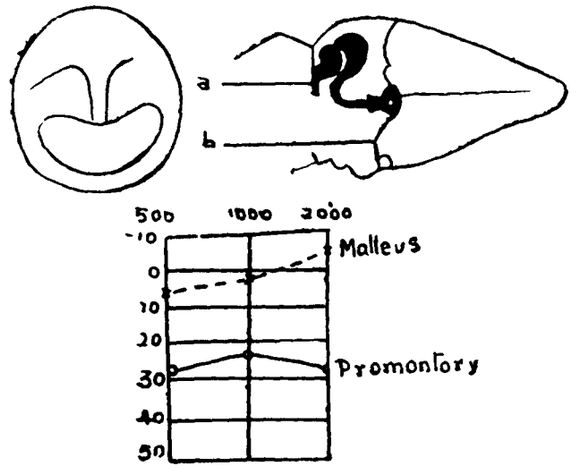

Fig. 9. Rupture T. M. Test with the Acoustic Probe and its results.
(a) Acoustic probe on the Malleus.
(b) Acoustic probe on the Promontary.

Epitympano-Mastoidectomy with skin-grafting.—This is done for cases where the presence of bone disease, infection or cholestertoma as shown by marginal or attic perforation with an intact ossicular chain (Figs. 10 and 11).

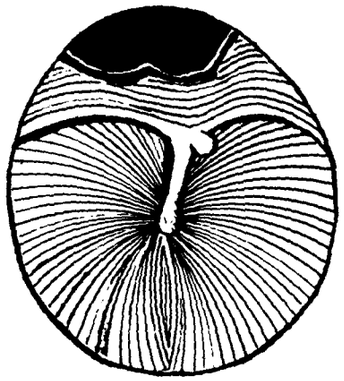

Fig. 10. T. M. Showing attic perforation.

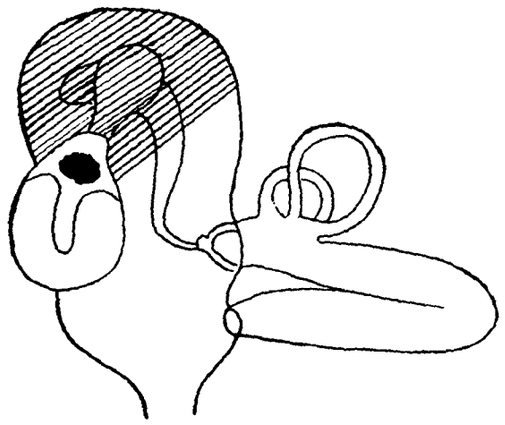

Fig. 11. Attic Perforation—Pathology in the epitympanum—Intact Ossicular Chain.

Columella type tympanoplasty is done where there is deficient tympanic membrane with disrupted ossicular chain and with the stapes intact (Figs. 12, 13 and 14).

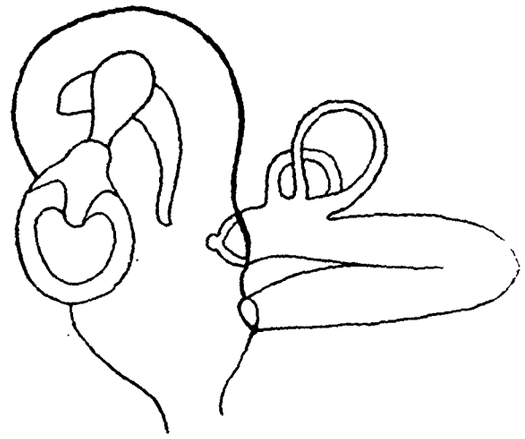

Fig. 12. Disrupted Ossicular Chain.

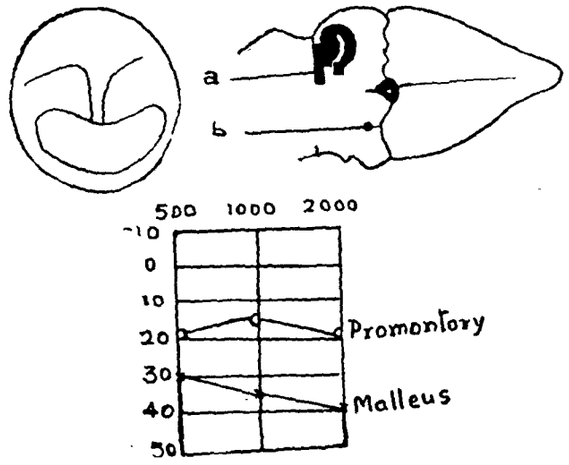

Fig. 13 Rupture T. M. Disrupted Ossicular Chain. Acoustic Probe test with results.

(a) A. Probe on Malleus.

(b) A. Probe on the Promontory.

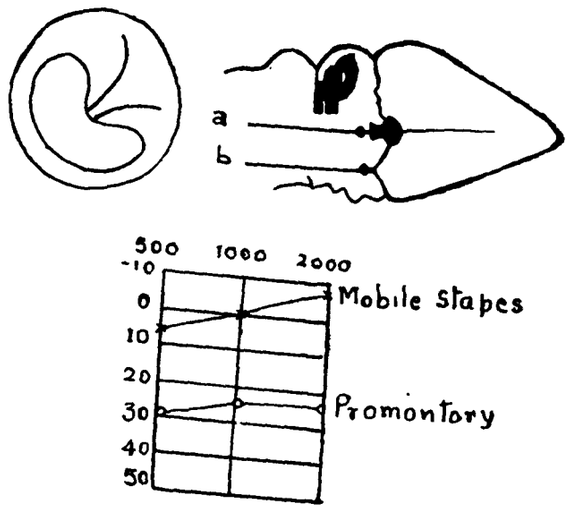

Fig. 14. Disrupted Ossicular Chain—with A. Probe.
(a) On the Stapes (Mobile).
(b) On the Promontory.

Total tympanoplasty is done in cases where even the stapes is absent (Fig. 15).

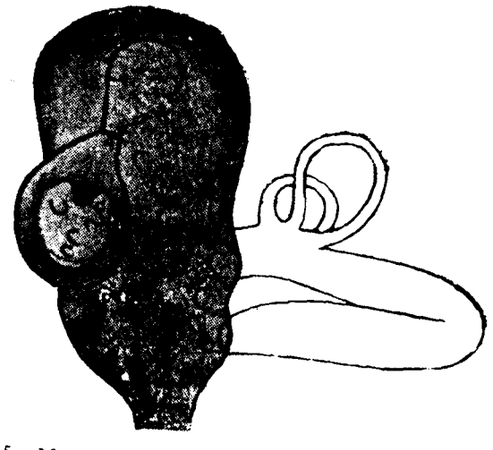

Fig. 15 Multiple Intratympanic pathology with stapes absent.

TECHNIQUE

Myringoplasty.—The advantage of closing the perforation in the tympanic membrane by a prosthesis was recognised as early as 1840 when Benzer used pig's bladder stretched over an ivory tube. Other materials used by different people were cotton wool pledget, India rubber, Guttapercha, Koragel inserts, Cellophane patches, gold foil and scarlet red ointment etc. With Rousa in 1876 came the principle of cautery for destroying limiting epithelia. In 1895 Politzer used silver nitrate and some others later, trichlor-acetic acid. In 1919 cautery combined with patching was employed by Joynt and many others. In 1953 Derlacki and others noted that repeated cautery was useful in closing perforations which have failed to close by other methods. Trial at grafting the perforated ear drums had its origin as early as 1878 when Berthold reported successful cases of skin-grafting.

The basic principles of this operation consists in removing the outer layer of the squamous epithelium on the drum. If the perforation is very large, the denuding process is extended on to the external auditory canal wall. Amniotic membrane or full thickness skin from the inside of the forearm or from the region of the tip of the mastoid process is taken and is trimmed to remove all the subcutaneous tissue from the under surface. The size of the graft should be fairly large to prevent it from slipping or being pushed through the perforation. A freshly cut graft seems to do better than a dry graft or one preserved in saline. The graft is backed with penicillin tulle, gently picked with fenestration forceps and correctly placed over the prepared drum. No pack is used except cotton wool to cover the external auditory meatus. The uncertain factor that affects the result is infection. The danger of infection is minimised if surgery is undertaken only after the middle ear remains dry for a period of at least three weeks. Once a graft is healed, it has great resistance to infection. The entire operation is done by end-aural route (Fig. 16).

The hearing loss recorded in the cases of which require only myringoplasty is not more than 30 to 35 db in the speech frequencies.

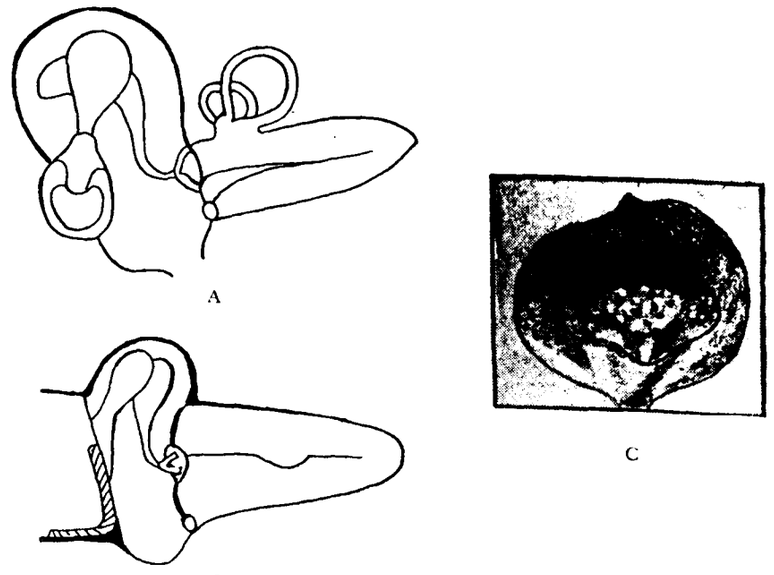

Fig. 16. A. Perforated T. M. with ossicular chain intact.
B. After Myringoplasty.
C. As seen through the ear speculum.

Tympanoplasty.—The temporal bone is exposed by the post-aural route as this permits the taking of a graft from the region of the tip of the mastoid process (Fig. 17). The antrum is opened and all the diseased bones and tissues removed. One of the following procedures may then be adopted.

Fig. 17. Post-aural Incision showing the site from where the graft is taken.

Epitympano-mastoidectomy with skin-grafting.—The disease in the bone is completely removed and if examination reveals an intact ossicular chain, a full thickness skin-graft prepared as described above for Myringoplasty, is applied to the bared drum and cavity after packing the cavity with gel foam, thus creating a membrane flaccida (Figs. 18 and 19). In this

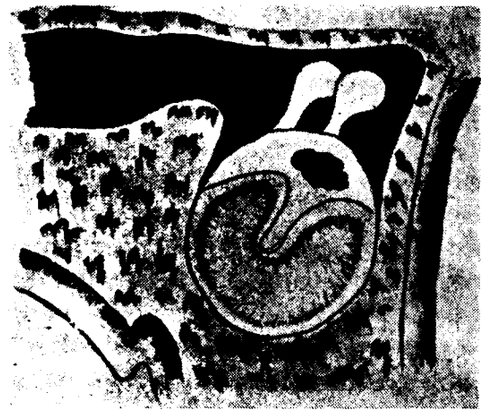

Fig. 18. Attic, Aditus and Perforation of Membrana Flaccida.

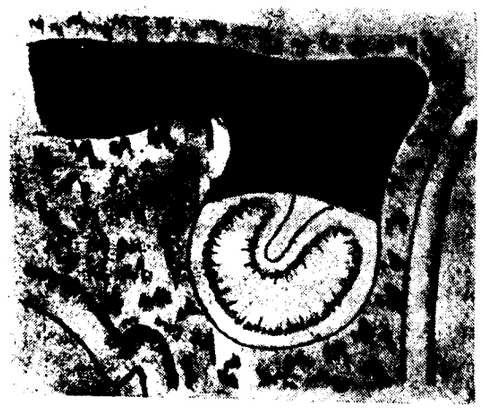

Fig. 19. Skin graft applied—thus creating a Membrana Flaccida.

operation there is the risk of the graft adhering to the exposed ossicles, the head of the malleus and the body of the incus, in the attic region, thus interfering with their movements. It has been suggested by some surgeons as a precautionary measure to leave the thinned out bridge intact to allow the flap to rest on it. We found this a difficult procedure. In our experience however the development of this complication is an exception.

Columella type tympanoplasty.—In the ear which requires this operation there usually is disease in the attic, aditus and mastoid process. The exenteration of the mastoid cells and removal of all the diseased tissue should be thorough. The facial ridge should be lowered as completely as possible. The ossicular chain is not usually intact except the stapes. The stapes is carefully examined and cleaned of all the granulation tissue and mobility tested. The tympanic cavity is packed with gel foam and the graft placed over the drum and the head of the stapes, thus producing columella mechanism of a bird's middle ear. Under favourable circumstances hearing improves (Fig. 6).

Total tympanoplasty.—This operation is done on cases where there is extensive destruction of the tympanic membrane and the ossicles, including the stapes. The very nature of the lesion demands a new approach. The Surgeon is not confronted with the problem of preserving structures to enhance the function, for there are not any. The functional defect is that both the oval and round windows are exposed to equal sound pressure which cannot produce any pressure changes in the perilymph of the cochlea or the movement of the basilar membrane. Hence a method is adopted to shut off sound waves reaching the round window. A flap of mucous membrane is turned down from the promontary just below the oval window to rest on the residual tympanic membrane or the annulus tympanicus and a tunnel lined by mucous membrane, is created in the hypo-tympanum between the round window at its posterior and the Eustachian tube at the anterior end. This is covered over by a skin-graft. Thus a lesser proportion of the sound pressure reaches the round

window and as the resistance of the two windows alters, hearing improves. The loss of hearing in the ear, with the amount of destruction described tends to be 70 to 80 db (Figs. 15, 20 and 7).

Fig. 20. M. Membrane turned down from the promontory—to create a tuunel in the hypotympanum.

While these operations are described to guide the surgeon it must be emphasised that the choice of the operation as well as the modification in technique is to be adopted, depends on the physiological derangement of the underlying mechanism and its rectification. In no field of surgery is the surgeon compelled to keep a more open mind than in the surgery of the middle ear. Until the middle ear is opened and a survey made of the derangements can he formulate the form of treatment to be adopted. There are however, certain guiding principles for the selection of cases.

These are :—

1. A good inner ear function.
2. A dry infection free ear.
3. A patent Eustachian tube.
4. A normal round window.

Pre-operative care:—The patient is admitted and the infecting organism in the ear identified. An attempt is made to eradicate the infection by ear toilet and the use of local antibiotics. In cases that do not respond to these measures, the foci of infection in the nasopharynx and sinuses are eliminated and in intractable cases a preliminary mastoidectomy may have to be done.

Testing the ossicular function:—In as much a the choice of the operation depends on the degree of impairment of the ossicular function, an assessment of this function is an important pre-requisite for the planning and success of the operation. The methods usually adopted are:

1. *Audiometric examination.* A loss over 35 db is indicative of a disruption in the ossicular chain.

2. *Acoustic probe test.* An electric acoustic probe is used in conjunction with an amplivox audiometer model 60* (Figs. 21, 22 and 23).

Fig. 21. *Acoustic Probe with its accessories and Amplivox Audiometer.*

* Electrical acoustic probe has been constructed and supplied by Electronic Servic Co., 17/35, Mount Road, Madras-2.

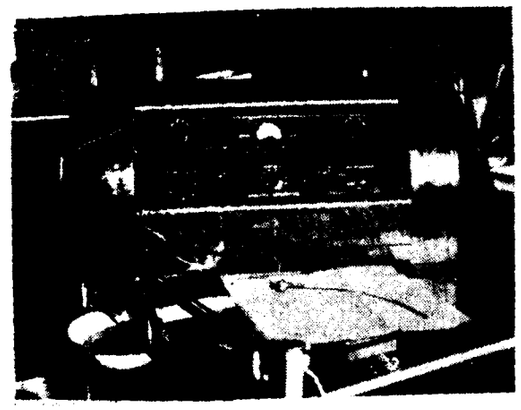

Fig. 22. Ac. Probe connected to Amplivox Audiometer.

Fig. 23. Testing with the Acoustic Probe.

The probe transmits an adjustable amount of sound energy to selected points in the sound conducting apparatus in order to assess its functional condition. The sound energy at the tip of the probe can be varied by using the attenuation control of the audiometer.

In large perforations of the tympanic membrane it may be difficult to confirm the integrity or otherwise of the ossicular chain by other means. In such cases, the acoustic probe provides information by comparing the intensity of the threshold stimulus with the probe applied to the handle of the malleus with the intensity of the threshold stimulus with the probe applied to the promontary. The intensity of the threshold stimulus is less if the ossicular chain is functioning when the probe is applied to the malleus, as compared with that, when it is applied to the promontary. If the ossicular chain is disrupted, the intensity of the threshold stimulus is greater when the probe is applied to the malleus than when it is applied to the promontary (Fig. 24).

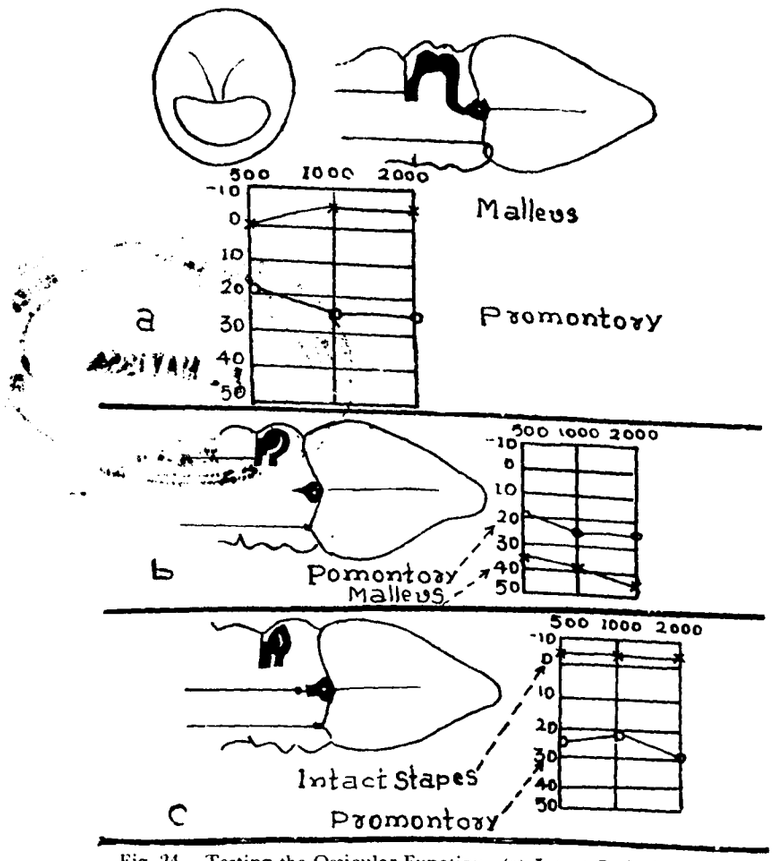

Fig. 24. Testing the Ossicular Function (a) Intact Ossicular Chain. (b) Disrupted Ossicular Chain. (c) Intact and Mobile Stapes.

This test is difficult to carry out as a routine on patients. With intelligent and co-operative patients the test gives a fairly accurate idea of the ossicular conduction.

3. *Inspection.* The only reliable method is by inspection at operation. Reflection of the posterior part of the tympanic membrane will reveal the ossicles and with magnification it is not impossible to clearly visualise their functional integrity.

Results.—During 1954–57 we have had occasion to perform one or the other type of operation on 45 patients. The results are summarised below. A case has been considered successful when the db gain in the speech range is shown above 30 db level.

Myringoplasty.—Total 20.

Using amniotic membrane...		10	Using skin	10
Successful	...	6	Successful	6
No change	...	4	No change	4
Worse	...	nil	Worse	nil

(Fig. 4 and 25—Audiogram: Pre and Post-operative).

(*a*) Successful.
(*b*) No change.

Comment.—It appears from the results that the amniotic membrane and skin are equally satisfactory in producing functional improvement. With amniotic membrane, improvement is noticeable in one week, whereas with skin-graft it takes as much as three weeks. This operation not only improves hearing but prevents recurrent otorrhoea and reinfection of the ear.

Epitympano-Mastoidectomy with skin-grafting.

Total	...	5
Successful	...	3
Improved	...	1
Worse	...	1

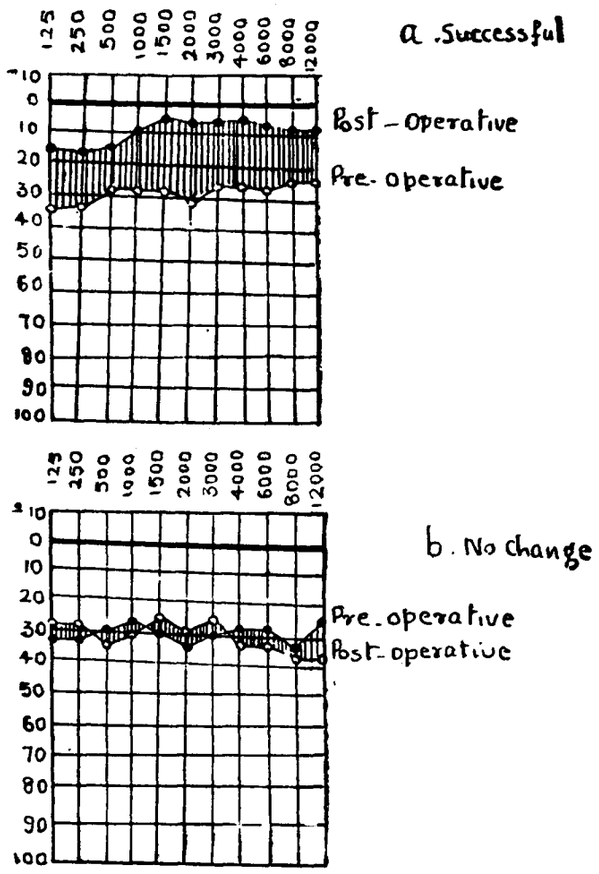

Fig. 25. Audiogram—Myringoplasty.

(Fig. 5 and 26—Audiogram: Pre and Post-operative).

(*a*) Successful.

(*b*) Improved.

(*c*) Worse.

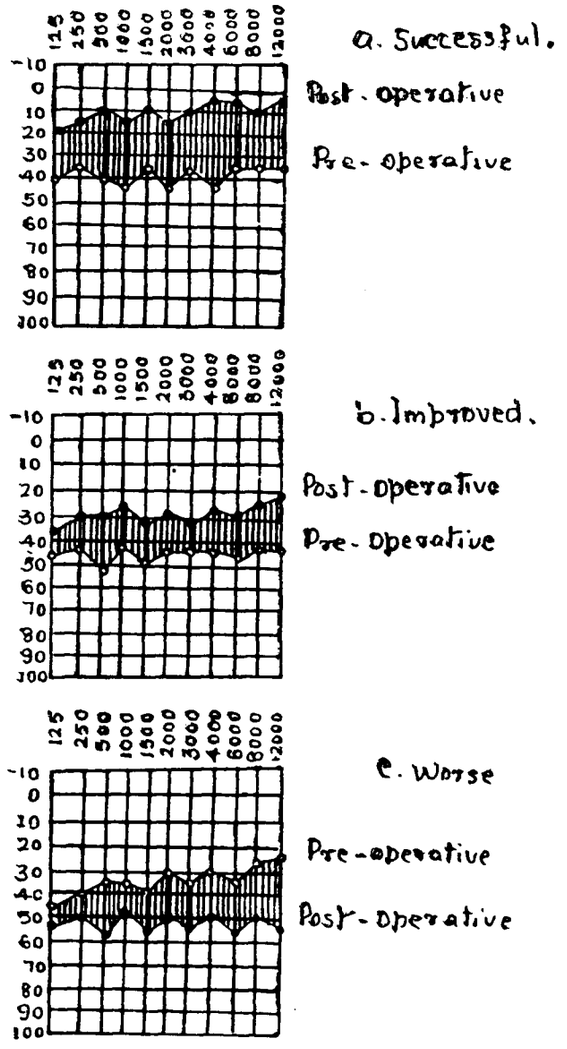

Fig. 26. Epitympano-Mastoidectomy with skin-grafting-Audiogram.

Comment.—The one patient whose hearing defect became worse after the operation has had post-operative infectien. It is difficult however to attribute the failure wholly to infection or to adherence of the flap to the ossicles.

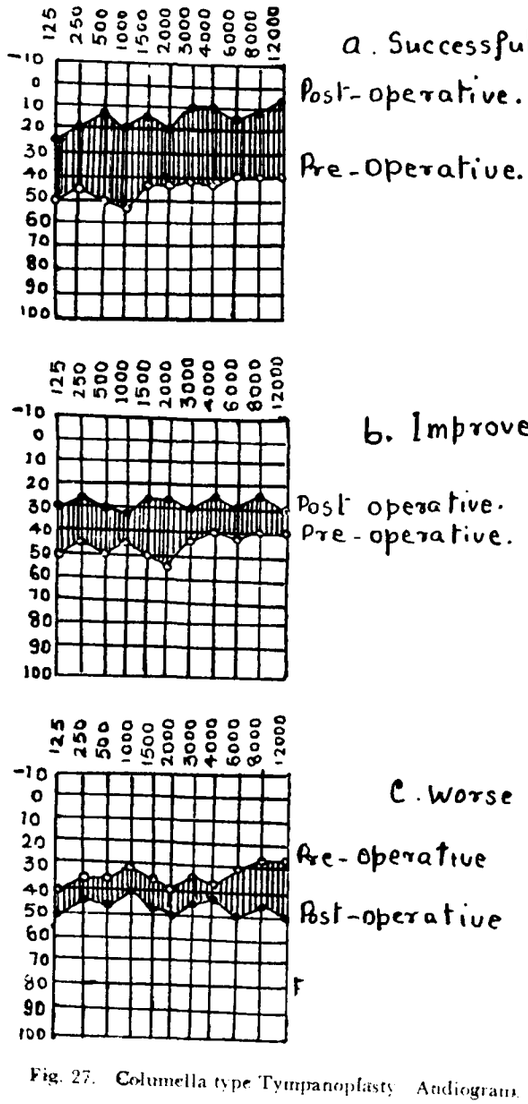

Fig. 27. Columella type Tympanoplasty Audiogram.

Columella type.

Total	...	8
Successful	...	4
No change	...	2
Worse	...	2

(Fig. 6 and 27—Audiogram: Pre and Post-operative).

(*a*) Successful.

(*b*) No change.

(*c*) Worse.

Comment.—In two patients classified as worse, one had post-operative suppuration and in the other the technique was obviously imperfect due to circumstances beyond our control.

Total tympanoplasty.

Total	...	12
Successful	...	6
Improved	...	2
No change	...	4

(Fig. 7 and 28 Audiogram: Pre and Post-operative).

(*a*) Successful.

(*b*) Improved.

(*c*) No change.

Comment. Of the four who did not benefit by the operation one had an obvious scarring and contraction of the flap. Three others had showed no improvement after the first test and these carried out even after three weeks. These did not report for subsequent tests inspite of repeated reminders. No explanation could be offered for the lack of improvement in them.

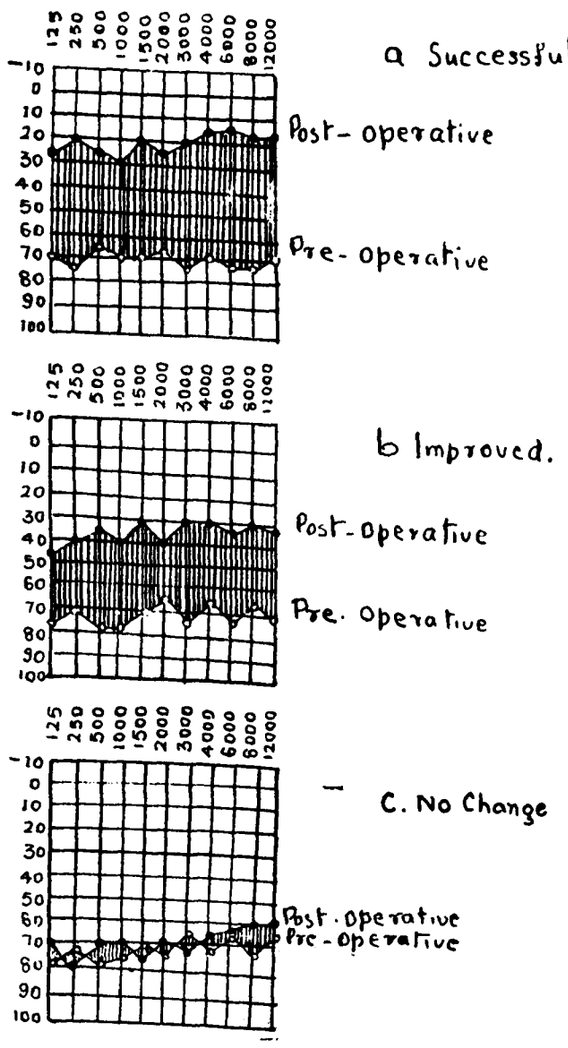

Fig. 28. Total Tympanoplasty Audiogram.

All these operations have been done with the aid of an operating microscope and an electric burr. If these are not available it could still be done with the aid of Storz or Lempert's loop and fine sharp mastoid scoop and gouges.

As a general rule no tissue or structure is removed before the middle ear is examined under magnification and the general plan of the operation is decided. Average time taken for the operation is 3 hours.

Post-operative treatment.—Systemic antibiotic therapy is continued for about two weeks. The ear is dressed for the first time after a week. No special treatment has been found necessary. Audiometry is done on the day the packing is removed and every week thereafter.

CONCLUSION

From the results of 45 cases of tympanoplasty presented before you, I have reason to believe that the operation is one of the major therapeutic advances of the present decade. The helplessness of the surgeon when confronted with a case of long-standing CSOM with severe functional derangement is too well-known to be mentioned here. Here at last is a technique which possesses the dual advantage of arresting the infection and improving the hearing. An opportunity is thus provided for the unfortunate victims of this disease for social advance. It is true that the operation is time-consuming and demands surgical skill of a high order from the surgeon. In my opinion this is within the reach of all the Otologists trained in micro-surgery and unless these methods are adopted, ear surgery in India may remain static for ever.

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Tympanoplasty *i.e.* Plastic Surgery of the Sound Conducting Apparatus of the Ear

JOINT PAPER BY

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INTRODUCTION

The work is based on rehabilitation of deaf by surgical procedures in dealing with two main and rather intricate problems of resistant types of chronic otorrhoea :—

i.e. (1) Eradication of Mastoid and Middle ear disease and (2) Preservation and Restoration of hearing.

The classical radical surgery of the mastoid has so far been undertaken not for the relief of deafness but for the cure of chronic suppurative otitis media and its complications which, if left alone to have their own course, are a constant menace not to hearing alone but to life as well.

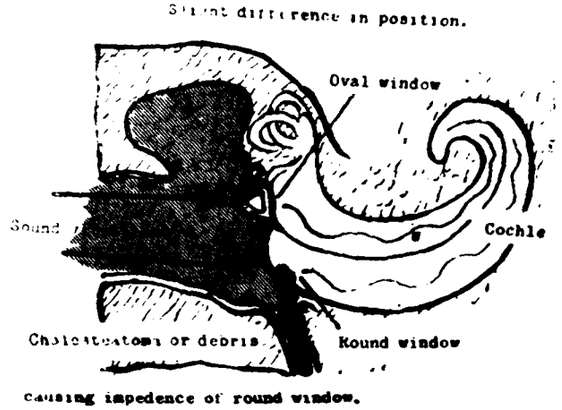
Upto the present time there has been a belief that chronic persistent otorrhoea with deeper lesions could be controlled only by a radical mastoid surgery consisting of exploration and exenteration of all diseased mastoid air cells which could be possible only at the sacrifice of the hearing of the patient.

Thus it was thought that deafness of chronic suppurative otitis media was unlikely to be benefitted by operations (Maxwell Ellis 1954). According to Lempert, Wever, Lawrence

and Maltrew (Archieves Oto-Laryng. 1949) the drop in hearing in cases of total loss of the tympanic memb. or after operation in radical mastoidectomy was due to the fact that both the oval and the round windows were equally exposed to the external sound vibrations and whatever small hearing was possible was due to the difference in anatomical situation and in elasticity of the two windows oval and round. They further reiterated that any gain in hearing, if noted, after radical mastoidectomy was possible through special hearing conditions by which the oval and the round windows may have different pressures and elasticity.

Middle ear After Classical Radical Mastoidectomy.

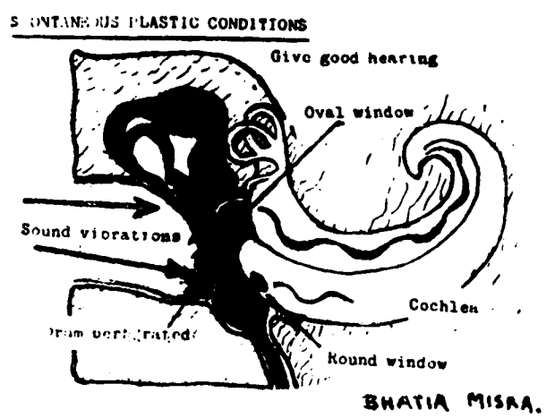
Tymp. memb. destroyed Malleus and Incus absent Both oval and round windows are equally expose to the external sound vibrations.



Hearing may remain good through special healing condition.

Slide 1.

It was Fritz Zollner—a German Otologist who took advantage of this interesting observation of spontaneous plastic results and reported in the Journal of Laryngology and Otology (London) 1955, an article on the principles of Plastic Surgery of the sound conducting apparatus. He named it as Tympanoplasty. It is a new surgical method which answers both the requirements and rests upon sound Physiological and Pathological grounds.



Slide 2.

The operation consists in performing the classical radical mastoidectomy with plastic reconstruction of the middle ear by creating a new air-containing Tympanic cavity by replacement of the tympanic memb. which has been destroyed by chronic suppurative otitis media.

The proposed work of "*Tympanoplasty*" under this special surgical techique was commenced by us in the Gandhi Memorial and Associated Hospitals, Lucknow in 1956, under a research by the University Lucknow and so far we have operated and followed 58 cases.

MATERIAL AND METHODS

According to our original plan all selected cases from O.P.D., E.N.T. of this hospital were admitted as indoor patients after a preliminary general and otoscopic examination.

Many such cases were given priority for admission on account of the clinical interest for including these cases in the present research investigation after their operation under Tympanoplasty.

Skiagrams of Mastoid were taken in almost every case and a complete study of the patients hearing before

and after operation was carried out on cases operated under this scheme. A complete record of their clinical histories, operative techniques, operative findings and other special tests of hearing were recorded. The patency of eustachian tube was ensured by Valsalva's Politzer's or Eustachian Catheterisation and inflation method in every case.

The results of the operation were also compared with a series of 22 control cases in which the old-styled classical mastoidectomies were performed without making any attempt to reconstruct the middle ear by plastic methods for the improvement of the lost hearing.

Indications of Tympanoplasty.—It is done in cases of advanced chronic suppurative otitis media where tympanic pathology is severe consisting in loss of ear-drums and of 1 or 2 lateral ossicles, Malleus, and Incus, the hearing loss in addition to otorrhoea is severe enough to call for radical or even in some cases of modified radical mastoidectomy.

TECHNIQUE

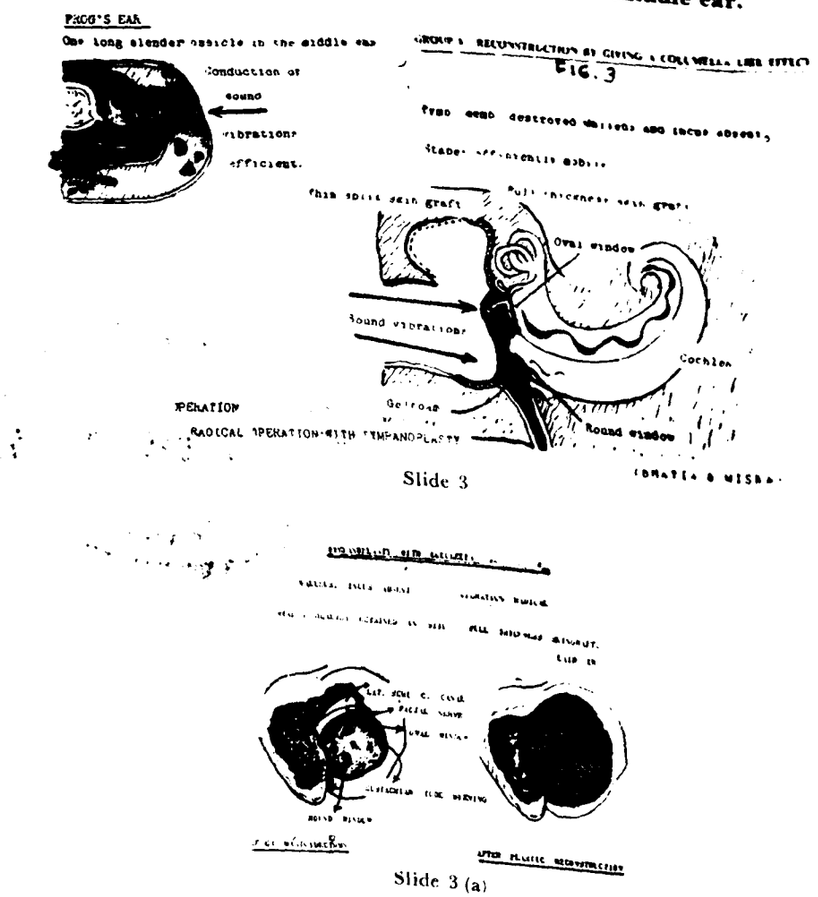
All operations were done under general anaesthesia. In almost all the cases endaural approach was used except in cases where there was a previously existing mastoid sinus or the ext. aud. canal was stenosed, inflamed or filled with a big aural polyp, where a post aural route was considered as suitable.

In cases, where radical mastoidectomy was done, the posterior bony canal wall was lowered to the utmost, particularly the spur on its medial aspect to ensure the wide exposure of the regions round the oval window.

The plastic reconstruction of the middle ear, done after operation, was not based on some universal set rules but our procedure and technique depended upon the Pathology met with at the time of operation although, broadly speaking it was on the principles set forth by Prof. Zollner and Wullstein.

The following are the various types of operative techniques used by us on various cases :--

I. Giving a columella like effect to the ear with only one ossicle *i.e.* stapes left *in situ* in the new middle ear.



Slide 3

Slide 3 (a)

This has been followed from a frog's ear which contains only one long slender ossicle known as "Columella" in its middle ear. This ossicle extends from the tympanic memb. to the oval window and it conducts the sound vibrations to the internal ear quite efficiently.

In cases operated under this heading Malleus and Incus if present and found eroded or dislocated and dislodged were removed. All the structures on the medial wall of the middle ear *i.e.* lateral semi-circular-canal, facial ridge (Tympanic part) visualised and cleaned of all granulations, cholesteatomatous mass or degenerated epithelium. Stapes was also visualised fitted in oval window, by cleaning all granulations surrounding it.

As pointed out by Prof. F. C. Ormerod in J. L. C. 1956, continuity of the ossicular chain and activity of the labyrinth with its contents were taken to be the basic essentials for the proper transmission of the sound vibrations and for the achievement of good hearing provided the nervous connections of the internal ear with the healthy cortical centre are intact.

Mobility of stapes and activation of the labyrinth were studied by noticing the disturbance of a light reflex of a drop of saline solution dropped on round window area while light jerky motions were given to stapes lying *in situ* with a fine delicate metallic probe. Then a full thickness skin graft about $2\frac{1}{2}$ cms. $\times$ $1\frac{1}{2}$ cms. taken from behind the ear was spread over the medial wall of the middle ear to act as a new tympanic memb. thus creating a new middle ear containing only one ossicle stapes and enclosing round window and eustachian tube under it. This flap extended from the medial wall of the attic above to the hypotympanum below to cover the oval window with stapes *in situ*, promontory round window and eustachian orifice.

Before the skin flap was laid in, it was thinned out by shaving off all subcutaneous adipose tissue from its raw surface and while laying in like a carpet it was made to touch the head of stapes lying underneath it.

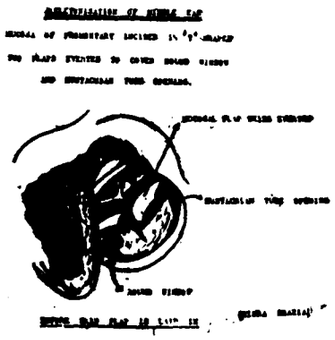
Impedence of round window, being an important part of plastic reconstruction of the middle ear, was facilitated by preventing adhesions between the skin flap and the round window niche. This was done by using one of the following three methods in different cases :-

(*a*) In one group of cases a small coil of five chromacised catgut was placed near the round window area under the skin

flap and one end of catgut was drawn out from the posterior edge of the flap. After the flap had started taking up, the catgut was gradually pulled out in the second week.

(*b*) In another group of cases a small piece of spongiostan was placed instead of catgut coil and this avoided adhesions in that area.

(*c*) **Skeletonisation of middle ear.**—In the third and later group of cases the mucosa covering the promontory was given a T shaped incision and the two lateral flaps of the mucosa were everted in such a manner that the raw surface of each flap of the mucosa was in apposition to the raw surface of the skin



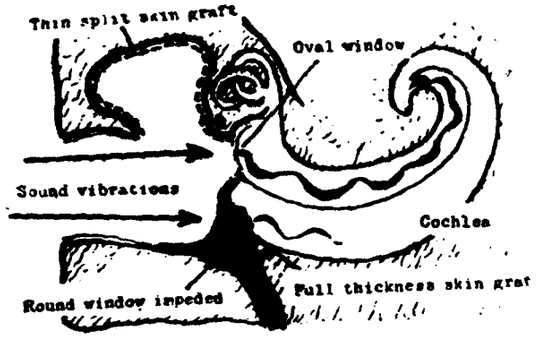
Slide 4

flap lying over it. It thus avoided the possiblity of taking up adhesions with the round window nichae and as such there was no necessity of either a coil of catgut or a piece of spongiostan to be used for the purpose. These procedures created a small air space over the round window which caused its greater impedence.

Conduction of sound waves through the newly constructed middle ear by columella like effect

The sound vibrations now striking directly from the ext. aud. canal on the skin flap are conducted with facility through only one ossicle "Stapes" thus setting up vibration in the peri and endolymph resulting in improved threshold of hearing.

II. All the three ossicles removed and the round window shut of (Baffled)



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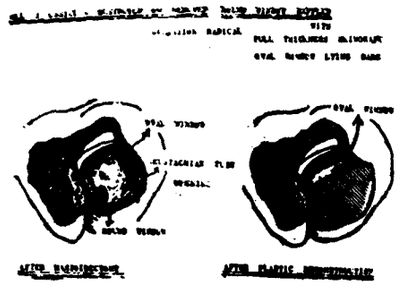
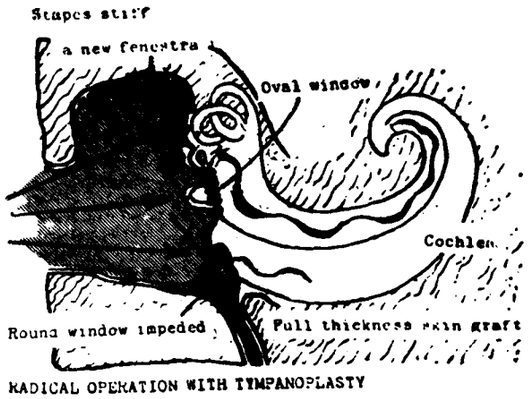


Slide 5-a

In cases where after removing Incus and Malleus, stapes was found to be embedded in surrounding dense granulations or it was necrosed or broken, it was removed and the oval window thus laid bare was in some cases covered with a (Thiersch's) thin split graft.

The main part of plastic reconstruction under this group consisted in the baffling or increasing the impedence of the round window by covering it with a small piece of full thickness skin graft.

III. Fenestration *cum* round Window baffling.



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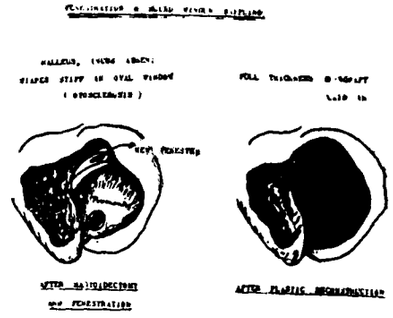


Slide 6-a

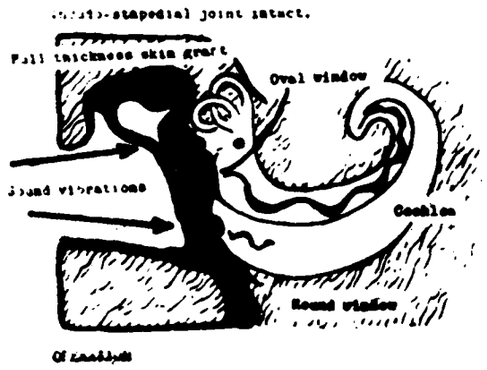
Whenever after removing Incus and Malleus, stapes was found to be fixed, ankylosed or stiffened as a result of chronic inflammatory changes in the middle ear or due to new bone formation round its foot-plate as in otosclerosis, a new fenestra was made in the surgical dome of the lateral semi circular canal. Then a full thickness skin graft was laid to cover this fenestra and also to cause baffling of the round window.

In such cases the improvement in hearing was possible due to shutting off of the round window by creating an air space there. The sound vibrations striking on this new memb. by-pass the closed oval window and are transmitted through the new fenestra into the labyrinth as shown in figure above.

This fenestration was also carried out in cases where oval window was completely closed by fibrous tissues which was purposely not curetted away in order to avoid specific infection.

IV. Middle ear reconstructed with 2 ossicles Incus and Stapes

In cases where Incudo-stapedial joint was intact and the vibrating continuity present for transmission to the labyrinth, as discovered while doing mastoidectomy, the operation was limited to attico-antrotomy only. There was no apparent gross pathology found in the middle ear except granulations in the attic and round the 2 ossicles. The malleus seemed to be absent, probably destroyed. In this group of cases the ossicles Incus and Stapes were retained after removing all granulations and a new skin flap was laid directly on Incus lying over its body and short process and extending above to the raw surface of attic and below to the hypotympanum as shown in figure.



Attico-Antrotomy

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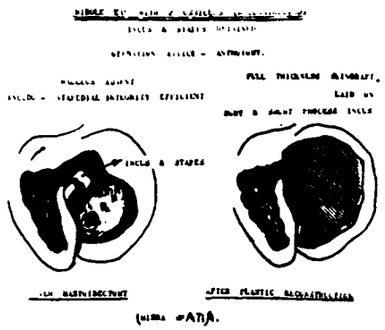


Slide 7-a

V. Myringoplasty

In one case where there was a small perforation in the drum-head (posterior-central) and on opening the ossicular chain integrity was found to be perfect, the perforation was closed by implanting a small piece of temporal fascia to cover this perforation, with its raw surface (muscular) facing the mucous surface of the tympanic membrane.

It was tried on experimental purposes but to our pleasant surprise the healing was perfect and perforation was thus permanently closed, with improvement in both audiometric and conversational hearing.

COMPLICATIONS

All cases went through uneventfully except a slight feeling of vertigo in cases of fenestration or where stapes had to be removed but this passed off with 3-5 days during which period the patient was administered Pheno-barbitone in addition to the routine antibiotic treatment.

In cases where the skin flap showed some signs of delayed healing it was further kept in position by repeated packings and topical medication of chloromycetin, Neba-sulph or Boric Spirit drops and its healing was thus facilitated.

Tinnitus has not been infrequently complained of by such patients about 4–6 weeks after operation. These patients were administered Vit. B_1 orally or by injections. Proper attention to the Nasopharynx and pharyngotympanic tube showed signs of improvement.

POST-OPERATIVE

The packings of the wound was commenced to be released from 8th to 12th day.

The average period of hospitalisation was about a fortnight after operation.

In some cases of post operative ear discharge 4 or 5 intratympanic medication with nebasulph or chloromycetin in Glycil inserted in the new middle ear *via* eustachian tube managed to improve the condition of the flap and to make the ear dry.

OBSERVATIONS

The paper includes the study of observations made on 58 cases operated under the new technique of Mastoidectomy with Tympanoplasty.

Details of techniques grouped together.

Total No. of operations done	...	58.
Age of the patients	...	1-45 yrs.
Duration of Ear discharge	...	1-24 yrs.
Endaural route	...	39
Post aural route	...	19
Post aural flap	...	50
Post meatal flap	...	8

Cavity lined with skin	... 9
Columella like effect	... 31
Baffling of round window	... 18
Fenestration + Tymp.	... 4
Middle ear with 2 ossicles	... 4
Myringoplasty	... 1
Post operative eustachian medication	... 9

Slide 8

FOLLOW UP OF OPERATED CASES

TABLE

Group of Cases	Period of follow up	No.	Cases number
A.	More than one year ...	13	4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 29,
B.	6 months to one year ...	16	1, 2, 3, 9, 10, 18, 19, 20, 21, 23, 25, 26, 28, 30, 57, 58.
C.	3 months to 6 months ...	17	22, 24, 27, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 49, 50, 56.
D.	Less than 3 months ...	12	41, 43, 44, 45, 46, 47, 48, 51, 52, 53, 54, 55.
	Total No. of Cases ...	58	

Slide 9

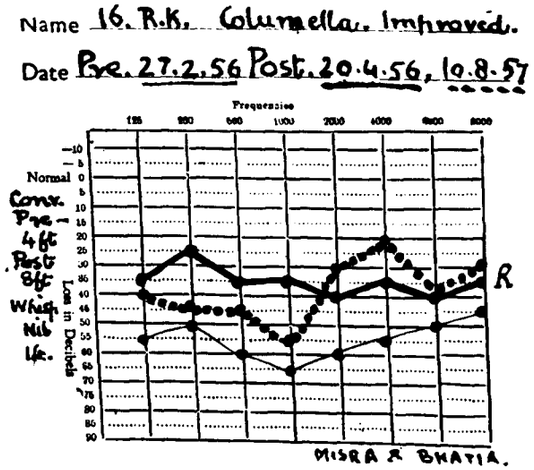
Comparison of results on HEARING & EAR DISCHARGE of 58 ears operated by Tympanoplasty against 22 ears operated by old-styled Mastoidectomy.

TYMPANOPLASTY							Old styled Mastoidectomy		
			Improved in					Improved in	
Type of operation	Type of Tympanoplasty	No. operated	Hearing		Ear Discharge		No operated	Hearing	Ear Discharge
...	I Columella Like Effect	31	23	74·2%	25	88·6%	...	...	...
Radical	II Baffling of Round Window	18	8	44·4%	8	44·4%	...	...	...
...	III Fenestration with Baffling of Round Window	4	2	50%	3	75%	17	8	6
Modified Radical	IV Middle Ear with 2 Ossicles	4	3	75%	3	75%	4	3	3
...	V Myringoplasty	1	1	100%	1	100%	...	...	...
Simple	...	...	...	...	...	...	1	1	1
...	Total	58	37	...	40	...	22	12	10
...	Percentage	...	...	63·6%	...	68·9%	...	54·5%	45·4%

Slide 10

The above table shows an improvement in Hearing after Tympanoplasty to be 63·6% and in ear discharge as 68·9%.

The hearing records like Audiogram and conversational test taken before and after operation are given herewith to indicate the progress of hearing in different types of cases.



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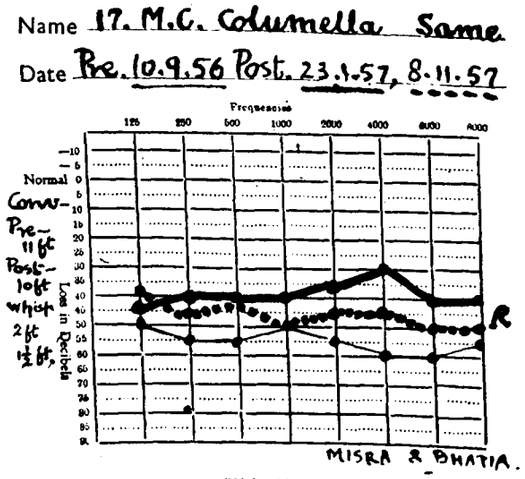

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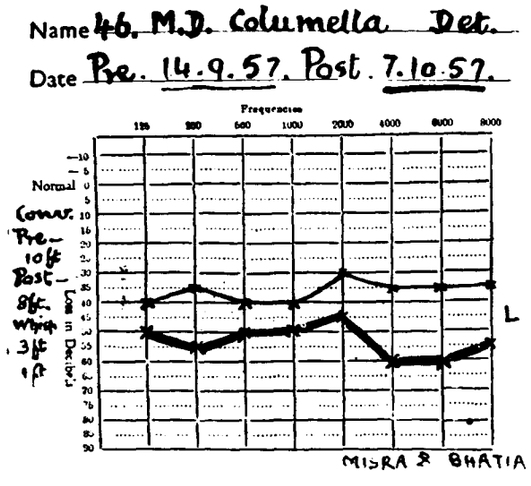

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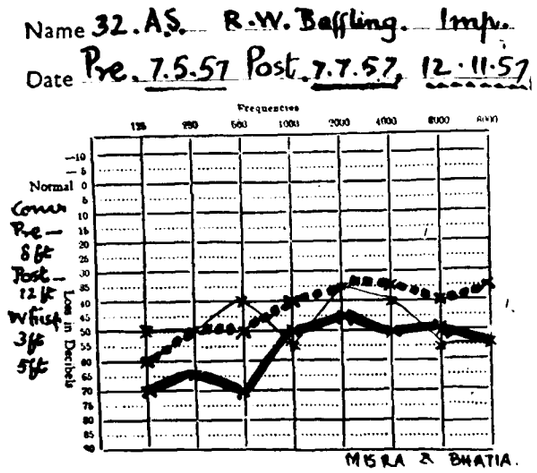

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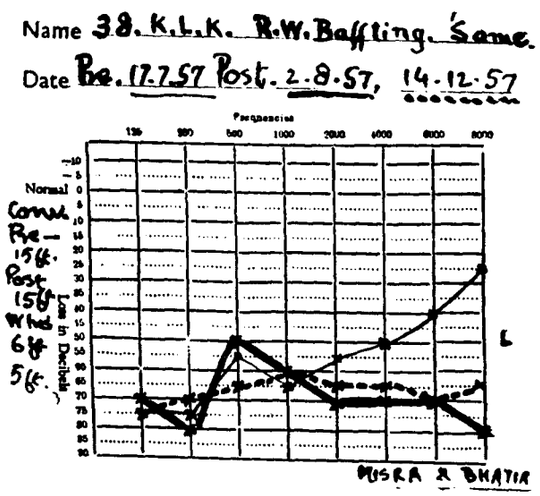

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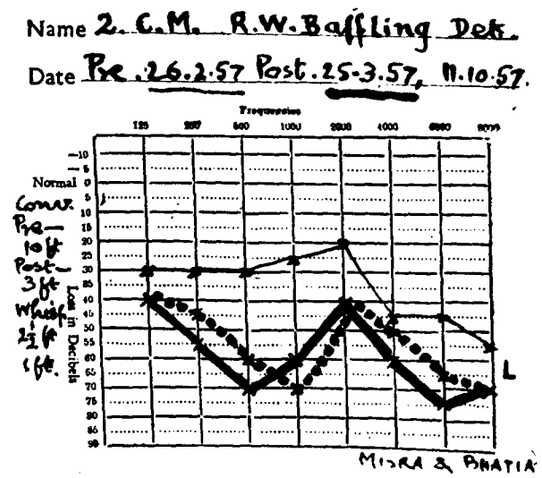

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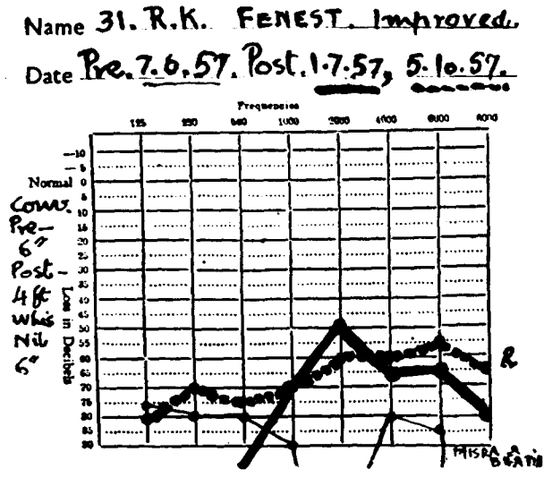

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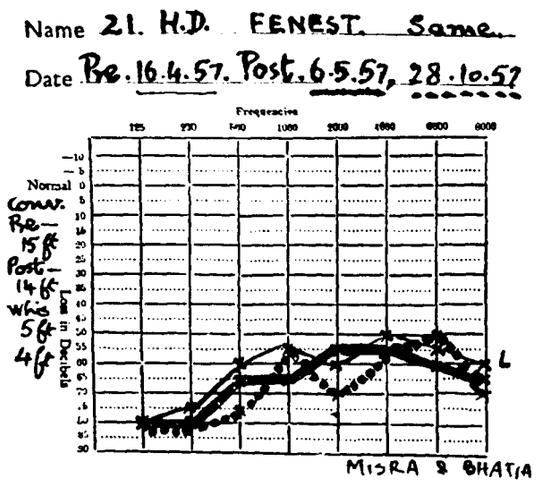

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CONCLUSIONS

(1) Tympanoplasty is the operation of choice in all cases of chronic suppurative otitis media where mastoidectomy is indicated.

(2) In the series under investigation, this type of operation has given hearing improvement in 63·6% cases and in ear discharge in 68·9% of cases as compared to 54·5% and 45·4% respectively in old styled mastoidectomies.

(3) The continuity and integrity of the ossicular chain with the normal active labyrinth are the essential requirements to achieve successful results for improving the hearing threshold of the patient.

(4) Patients with longer follow up period have shown comparatively better results both in hearing as well as in the ear discharge.

(5) Within the first month after operation hearing shows a slight drop which is soon restored and the improvement is noticed after 3-4 months.

(6) Some of the patients who do not show apparent improvement on the audiograms definitely show better intelligibility for conversational hearing.

(7) Pure tone audiometer is not a suitable apparatus to watch the hearing progress of such patients.

(8) Packing the operated cavity with small plastic sponges in place of gauze pieces is most suitable for holding the skin grafts in position.

(9) Living the operated cavity with split skin grafts gives a better healing and favours in giving a dry condition of the ear.

(10) The post meatal flap is neither too healthy nor does it surface to cover all the structures on the medial wall of the middle ear.

(11) Post aural full thickness skin graft is most suitable for plastic reconstruction of the middle ear.

(12) The skin flap should be fairly big and it should be devoid of any subcutaneous adipose tissue.

(13) The operation should be attempted only under magnification and that too after repeated cadoveric dissections of the temporal bones.

(14) Thorough exenteration and complete eradication of all diseased cells and parts is the basic principles for achieving successful results of tympanoplasty.

(15) For plastic reconstruction with 2 ossicles retained, Incus even after losing one of its supports while doing attico antrotomy does get supported by a skin flap which is laid on it, and thus it maintains its normal integrity with the stapes.

(16) Stapes was found to be absent in many cases when Incus was still present though in a necrotic condition lying loose in the middle ear cavity. Therefore stapes is also equally vulnerable to destruction by middle ear inflammatory processes to the same extent as Incus is.

(17) Intra-tympanic medication *via* eustachian tube with Neba-Sulph solution or chloromycetin in Glycol is very helpful in drying up a mild post operative ear disch.

(18) Eustachian inflation or intratympanic medication should be attempted within 4 weeks of the operation.

(19) The packing should be released gradually from within the wound and the last pack should not be removed before 10th day.

(20) That a usually expected frightful complication of post operative labyrinthitis does not occur either by removing the stapes and laying bare the fenestra ovalis or by making a new fenestra within the infected operative field. This is probably due to some effective barrier already formed as a result of chronic inflammation.

(21) All diseased mucosa of the middle ear was removed in order to skelatonise the cavity.

CASE REPORT

Fibroma Neck (Neuro-Fibroma ?)

POST-OPERATIVE CARDIAC ARREST AND RESUSCITATION

BY

Dr. D. DAYAL, M.B., B.S. (LUCK.)

AND

Prof. R. N. MISRA, M.S., D.L.O. (LOND.)

Patient Ram Asray, aged 30 years, admitted to G. M. and Associated Hospitals, E. N. & T. Wards on 13—12—'57.

He complained of:—(1) Swelling on the right side of neck—5 years. (2) Difficulty in swallowing—2 months. (3) Intermittent fever—2 months.

Past History:—Of no significance.

History of present illness.—5 years back patient noticed a swelling on the right side of neck nearly at the level of Adam's apple. It went on gradually increasing. 2 months back, he started having fever with cough and some difficulty in taking solid food. He felt as if something was obstructing the passage of food.

General Examination.—Young adult of average built. Pulse—78 p.m., Temp. 98° F., B. P. 110/72.

Systemic Examination.—Normal.

Local Examination.—Diffuse swelling on the right side of neck extending from the angle of jaw to the clavicle below :—

Anteriorly it has crossed the mid-line pushing the larynx to the left side of thyroid prominence touching the anterior border of left sterno-mastoid muscle.

Posteriorly upto vertical line drawn from the tip of mastoid process to the clavicle at the junction of lateral and middle 1/3. Firm on palpation; smooth; fixed to deeper structures; not tender. Local temp. not raised. Skin freely mobile over it. No cervical glands palpable. Transmitted carotid pulsation palpable.

Ear.—Normal.

Nose.—Septum deviated to left.

Throat and Pharynx.—Swelling on the lateral wall of oropharynx. It seemed as if the lateral pharyngeal wall has been pushed inwards. Mucous memb. mobile over the swelling.

On palpation swelling is smooth; firm; upper border can be reached separated by a groove from base of skull, but lower border can't be defined, no bleeding; no prominent vessels; no pulsation.

Indirect Laryngoscopy.—View of larynx obstructed by growth; only epiglottis could be seen which was tilted. Growth was buldging in the right pyriform fossa.

Blood Examination.—Haemoglobin—15 gm. %; Total W.B.C. 7600/c.mm.; Diff. W.B.C. count—Polys—70%; Lymphocytes—28%; Eosinophils—2%.

Screening and X-Ray chest.—(Fig. 3) Right dome of diaphragm raised and in fluoroscopic examination the movements of this dome were restricted.

X-Ray Neck.—(Fig. 4) Cervical spine clear; soft tissue swelling in the neck. The larynx and trachea pushed to the left side. W. R. and Khan—Negative.

Biopsy under Local Anaesthesia from neck.—(Fig. 5) The section shows bundles of fibrocytes with plenty of intercellular collagen running in various directions. A number of fine blood vessels, are intersperesed in the tissue.

Diagnosis.—Fibroma.

OPERATION NOTES

Anaesthesia.—Induction—Pentothol 500 mg; Scoline 100 mg; Oral intubation with No. 7 cuff tubes.

Maintenance.—Gas: O_2; intermittent pethidine I. V. (Total 100 mg.) Minimal ether.

An inverted L shaped incision was made on the right side of the neck, the vertical limb of incision extending from the angle of mandible to the mid-clavicle, and horizontal limb extending from the upper end of vertical limb to symphysis menti along the lower border of mandible.

Sterno-mastoid found very much thinned out and was retracted laterally. As soon as the muscle was retracted the carotid pulsations were visible. The carotid sheath was found stretched over the swelling and blended with the capsule of the growth. Right and left borders of the growth were defined. Superiorly the growth reached upto the 2nd cervical vertebra. An attempt was made to free the growth from its posterior aspect but it was found firmly attached to the body and right transverse processes of all the cervical vertebrae from 2nd downwards, and probably first two thoracic also its lower extent being undefined, and could not be separated. Then the dissection was started from below upwards. Carotid sheath was incised and carotid artery separated from the growth but the jugular vein and vagus nerve were firmly adherent to the growth as if embedded in its substance. It was decided to sacrifice the jugular vein but ligation of jugular bulb was not possible. More over the growth at is lower end was adherent to the Sibson's fascia on the right side. Thus it was not possible to remove the growth and the wound was closed.

The patient came round and endotracheal tube was removed. Cough reflex present. Pulse 130/mt; B. P. 100/60. Tongue stitch given.

After about 10 minutes of extubation bluish tinge was noted over the lips and tongue. Oxygen by mask was started.

Fig. 1.
Before Operation

Fig 2.
After Operation

Fig. 3.
X-Ray neck—Tracheotomy showing position of Trachea

X-Ray chest in inspiration, Rt. diaph. raised

Fig. 4.

Microphotograph of Biopsy Specimen

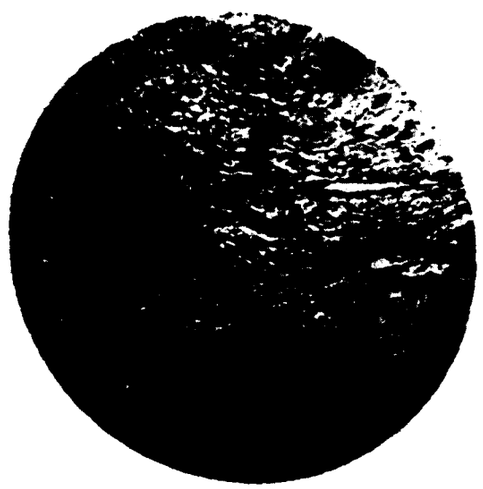

Fig. 5.

Pulse was found weak and when the blood pressure was being recorded by palpatory method, the pulse disappeared. Heart had stopped beating.

Resuscitation.—(Cardiac massage D. D.) Patient was immediately put in Trendelenberg position. Adrenaline 0·2 cc. of 1 : 1000, was given by intra-cardiac route but no time was wasted in waiting for its result and cardiac massage done by transdiaphragmatic route as advocated by Nicholson (1942). An incision was made in the mid-line from tip of xiphoid process downwards, to about 3" long, peritoneum being opened in the same incision. It exposed the front of liver. An opening was made with knife behind the xiphoid process between the attachment of two sides of diaphragm. The thumb was thrust in the pericardium anterior to the heart, compressed between thumb and rest of the fingers (which were kept below the diaphragm) with 5-6 rhythmical compressions weak cardiac contractions restarted and the pulse became perceptible which was feeble. Respiration restarted. Massage was continued for about 5 minutes more till the heart regained its tone. Now the pulse was bounding and regular but fast.

Simultaneously the R. S. O. (R. K. S.) tried to re-intubate the patient to maintain pulmonary ventilation but due to manipulations during the operation the growth had come in front of the laryngeal aperture and intubation could not be done. He immediately performed laryngostomy. Now Calcium Chloride 10% 10 cc. was given I. V. and 1 cc. (2 mg.) of Nor-adrenaline was added in the Glucose saline drip which was already running. In about 1/2 hour respiration became regular and was 30/mt.; Pulse—120/mt. regular; B. P. 90/60. Now tracheotomy was done and abdomen closed. In the evening the patient was transferred to the ward. He was fully conscious.

Post-Operative.—Next day patient developed pulmonary oedema which was controlled by Atropine, intra-tracheal suction and oxygen inhalation. Rest of the post-operative phase was uneventful.

Screening chest—(after one month) same as before operation. E. C. G.—Normal.

Comment.—The case presented two features :

(1) Origin of the tumour.

(2) Post-Operative cardiac arrest at its resuscitation.

Origin of growth.—The patient presented with a huge, hard, slowly increasing swelling on the right side of neck. Clinically it was thought that it may either be a mixed salivary tumour or a neuro-fibroma. Histology proved it to be a fibroma.

On the operation it was found that vagus nerve was embedded in the growth which was firmly adherent to the transverse processes of cervical vertebrae. Now the question to be decided was whether the growth was a paeriosteal fibroma, a neuro-fibroma or a simple fibroma of hard variety.

Paeriosteal Fibroma.—These growths hardly ever arise from a vertebra. Their common site of origin is usually periosteum of long bone and they are in reality fibro-sarcoma. More over a fibroma from periosteum of vertebra, before presenting as a huge swelling in neck is more likely to cause symptoms of pressure on the nerve roots and may involve the cervical spine. This patient had no such pressure symptoms and X-ray of cervical spine was clear.

Fibroma and Neuro-Fibroma.—This tumour may be a fibroma from the loose connective tissue of neck or a neuro-fibroma.

According to Stewart and Copeland (1956) Fibroblastic tumour of nerve sheath may consist wholly or pre-dominantly of fibroblastic tissue and many fibroblastic tumours not demonstrably related to nerves, are nevertheless of nerve sheath origin. Thorough examination of the tumour may reveal its close association with a nerve or presence of medullated or non-medullated nerve fibres in the tumour.

In this case vagus was firmly adherent with tumour. Except carotid sheath contents other structures on the right side could not be defined ; may be, that the sympathetic trunk was also involved in the mass. Moreover the right dome of diaphragm was paralysed indicating infiltration of right phrenia nerve. Thus, though reported fibroma histologically, the probability of its being a neuro-fibroma is more likely. Moreover it was benign histologically but due to its fixity to deeper to structures especially periosteum and involvement of phrenic nerve, early malignant changes in the deeper part of growth cannot be excluded. The biopsy did not reveal any malignancy, might be due to its being done superficially.

Cardiac arrest.—Another feature of the case is the post-operative cardiac arrest. Cardiac arrest occuring during or after an operation is an acute surgical emergency where waste of a single minute may cost the life of the patient. It may be primary or secondary. According to Bergner (1955) primary cardiac arrest is one where the heart stops beating but the patient is still alive and will remain so for several minutes while in secondary, heart had stopped because patient had died.

The causes that may lead to this catastrophe are :

(1) Anoxia due to respiratory obstruction ; haemorrhage.

(2) Anaesthesia.

(3) Surgical manipulations causing stimulation of branches of vagus.

(4) Patient's disease for which he is operated or pre-existing cardiopulmonary disease.

Among the various causes of cardiac arrest the probable causes in this patient might be vagal stimulation and/or anoxia, other possibilities being ruled out as the patient had come out of anaesthesia, the disease itself was not killing and clinically heart and lungs were normal.

During operation an attempt was made to separate the contents of carotid sheath from tumour leading to abnormal stimulation of vagus. But vagal reflexes lead to immediate cardiac arrest, while in this case the arrest took place when the operation had finished and patient had come round. Thus it was not due to vagal stimulation only.

Before arrest the patient had cyanotic pallor suggesting anoxaemia, which resulted due to laryngeal obstruction caused by the growth. In pre-operative examination interior of the larynx was not visible due to growth but there being no dyspnoea it was decided that tracheotomy, if necessary, will be done at the time of operation. But the anaesthetist passed the endotracheal tube easily and thus the question of tracheotomy did not arise. In attempts at removal the growth bulged more in hypopharynx and when the tube was removed, it obstructed that laryngeal inlet leading to anoxaemic cardiac failure. Having detected the cardiac arrest immediate measures for resuscitation were taken.

The problem in cardiac arrest is to maintain blood supply to brain and coronary arteries. The nervous tissue and cardiac muscle can not withstand prolonged anoxaemia. Weinberger (1940) had demonstrated experimentally that interruption of circulation to brain for 3 mts. 20 sec. resulted in permanent changes in psychic behaviour of animal and interruption for 8 mts. and 20 sec. was incompatible with life for more than few hours. Nicholson reported that the period of 3-6 mts. After cardiac arrest was most vital. After 6 mts. the heart may regain its beat but the higher centres die and man survives like a thalamic animal. Cardiac muscle is more resistant to anoxaemia than nervous tissue. Sudden, occlusion of coronary circulation for 20 mts. did not cause irreversible damage to cardiac muscle (Friedberg 1956) after which permanent damage started.

Having realised how short is the time during which heart must be revived, one should not waste any time in establishing the diagnosis of cardiac arrest by E. C. G. or cardioscope before

taking resuscitative measures. Clinical diagnosis of cardiac arrest, based on the findings of absent peripheral pulse on palpation and heart beat on auscultation, is an immediate indication of cardiac massage (Rao et al 1954, Wylie 1956). Waxy colour of patient and dilated pupils are of additional help in diagnosis. Moreover the diagnosis may be missed if too much reliance is placed on E. C. G. Bergner (1955) reported a case of cardiac arrest in which massage was not attempted because E. C. G. was normal and the patient died. But according to Johnstone (1955) diagnosis of cardiac arrest was virtually impossible in absence of electrocardiographic records. According to him it may provide the only evidence of life and save the patient from unnecessary massage. He reported the case of a girl in which anoxaemic cardiac arrest occurred after 10 mts. of operation. Electro-cardiograph was attached immediately and patient intubated and lungs inflated. After 30 sec. first tracing was obtained and in 2 mts. carotid pulse come back, patient was fully conscious after 2 hrs. Series of electro-cardiograph according to the author, may show the changes leading to arrest. But it is neither possible nor practicable to take E. C. G. in all cases during operation. It is also not possible to have the services of a cardiologist to detect the arrest by E. C. G. in the short period available for successful resuscitation.

Thus having clinically detected the arrest massage must be immediately instituted. There are two approaches for cardiac massage:

(1) Transthoracic.

(2) Abdominal Subdiaphragmatic
Transdiaphragmatic.

The heart in this case was exposed by transdiaphragmatic route. Though it has been proved beyond doubt that transthoracic is the best approch but it takes more time as one has to cut the cartilages and apply rib retractors to expose the heart. In the theatres where the emergency set for caradiac exposure is

always at hand, transthoracic is the route of choice and exposure might not take any time but transdiaphragmatic gives the quickest exposure and needs only a knife which is always available as also reported by Nicholson (1942).

Regarding the value of drugs in resuscitation, these may be considered as an aid to massage and not a substitute. When massage is delayed in opening abdomen or chest, it is advisable to administer drugs. Intracardiac adrenaline was used in the case. Propensity of adrenaline to cause arrhythmia and ventricular fibrillation has been pointed. Adrenaline alone never revives the heart but it definitely increases the force of contractions of enfeebled heart (Bailey 1941).

There is no agreement regarding the length of time during which resuscitative measures might conceivably become successful. Ament & Popper believe that there can be little hope of successful resuscitation if heart shows no response to massage and medication after 10–20 mts. Haight and Solan (1955) reported successful resuscitation after 3 hrs. and 15 mts. of massage but regular cardiac contractions in this case had started after 3–5 mts. of massage. Important to realize is the fact that earlier the massage is started lesser the time taken by heart to regain its normal beat. Prolonged massage leads to petechial haemorrhages in epicardium. Even rupture of ventricle had been reported (Haight and Solan 1955).

Thus in short, measures to be taken are :

(1) Adequate pulmonary ventilation by intubation.

(2) Cardiac massage.

(3) Re-establishment of myocardial tone by massage and calcium chloride.

(4) Maintain adequate cerebral and coronary circulation.

---Nor adrenaline transfusion.

---Trendelenberg position.

Summary.—A case of fibroma neck probably neurofibroma in reported its special features being the huge size and disputed origin. Importance of early detection of cardiac arrest and immediate resuscitative measures to revive the heart has been stressed.

We are thankful to Dr. M. L. Bhatia, Lecturer E. N. T. for his valuable suggestions and to Dr. R. M. L. Mahrotra, Pathology Deptt. for providing the histological material and section for micro-photography.

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Association Notes

The 10th Annual Conference of the Association of Otolaryngologist of India at New Delhi

The 10th Annual Conference of our Association was held in Delhi during January this year. The inauguration and the scientific meetings were held at the premises of Sir Ganga Ram Hospital in New Delhi.

On Thursday, the 30th January, the members of the Governing Body met at the residence of Dr. S. N. Kaul, the Superintendent of the Hospital, and we had a lovely dinner in his house after the Governing Body meeting. Dr. Kaul, his daughter and his son-in-law played the hosts and made the evening a really pleasant one. Our very popular senior member and past President Dr. Dukhan Ram and our present President Dr. Sinha came very late just in time for dinner, because the train was four hours late. I am sure all of you will be interested to know that Dr. Dukhan Ram came not in a taxi or a private car but in the car of the President of India. Dr. Dukhan Ram and Dr. Sinha stayed at Rashtrapathi Bhavan during the Conference. That night after dinner I was about to take a taxi back to the Hotel but Dr. Ram insisted on dropping me at the Hotel, and need I say that I was more than thrilled to have a drive in the President's Car.

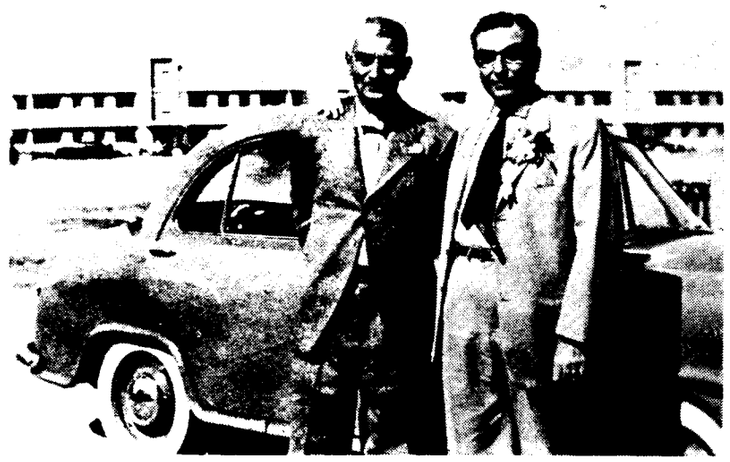
On Friday, the January 31st morning, all the delegates from the different parts of India started coming in to register themselves, pay their fees and take the delegate's badges. This is the time when we meet all our friends from different parts of the country after a long time and exchange our greetings. Following this, we had our group photo with the Hon. Shri Jagjivan Ram who afterwards inaugurated the Conference.

We thought we had the maximum attendance during our Conference at Jamshedpur last year. But the number that attended here broke all previous records. The arrangements done at the Ganga Ram Hospital by Dr. Kaul, by Dr. Sohan Singh and other members of the Reception Committee were not only very good but what is more "very homely". In a small Association like ours the homely atmosphere which we found at the Delhi Conference made it much more cordial and intimate. The Association owes its deep gratitude to Dr. Kaul and the other members of the Hospital for having done so much to make our Conference a success.

The Scientific session was inaugurated by Col. Amir Chand that afternoon and the scientific papers were very interesting and quite academic. We all felt that the standard this year was much better than what it was in the last. The discussion following each paper were very interesting. Thanks to the some of the new Junior members who are well trained in the States and fresh with the latest advantages in our field.

10th Annual Conference of the Association of Oto-Laryngologists of India Delhi, 1958

Dr. P. N. SINHA
M.B.B.S., D.L.O. (Lond.), D.O.M.S. (Lond.) of Patna
New President



Our Retiring President Dr. R. A. F. Cooper, with Dr. S. N. Kaul
Chairman Reception Committee

Col. AMIRCHAND, I.M.S.
Inaugurating the Scientific Session

Hon'ble Minister Shri Jagjivan Ram delivering the Inaugural Address

Delegates listening to the Presidential Address

The President Dr. Cooper & Mrs. Cooper gave a dinner on Friday, the 31st night at the Delhi Gymkhana Club which was indeed a very great success. It was well attended and the food was excellent, served in buffet style. It was a very good opportunity for every member to meet and know every other member. But the Association Dinner on the following night at Asoka Hotel was comparatively tame and lifeless. The dining room was too big and there were many other hotel residents dining in the same room. So, we did not have much fun nor did we have any interesting speeches, and the food too was not extraordinary. The following morning, *i.e.* on Sunday, the 2nd February, the General Body meeting was held at 8-30 a.m. instead of 9-30 and we elected Dr. Sinha unanimously as our next President.

The Conference broke with a lunch given by the Reception Committee members at the Chelmsford Club. We really had an enjoyable lunch. Before concluding, on behalf of the members of the Association I wish to express our heartfelt thanks to all the members of the Reception Committee for arranging such a successful Conference.

V. S. SUBRAMANIAN,

Editor.

GOVERNING BODY MEETING

A meeting of the Governing Body was held at New Delhi at 7 p.m. on 30th, January 1958 under the Presidentship of Dr. R. A. F. Cooper. The following members were present, and the following business was conducted :

Dr. R. A. F. Cooper.	Dr. Tulsi Das.
,, J. V. De Sa.	,, I. Chatterjee.
,, M. M. Nath.	,, N. Apte.

Dr. V. S. Subramanian.

Resolution I.—Moved by Dr. Tulsidas. Seconded by Dr. Subramanian. That the minutes of the meeting held on 30th, December, 1957 having been read be confirmed. Carried unanimously.

Resolution II.—Moved from the Chair and carried unanimously. All members standing and observing silence for one minute. That this meeting of the General Body places on record its deep sense of sorrow at the sad and early demise of two of the very popular members of The Association of of Otolaryngologists of India. Dr. R. N. Kacker of Lucknow and Dr. T. S. Shetty of Madras, and conveys its heartfelt sympathy to the members of the bereaved families.

Resolution III.—Moved by Capt. Chatterji. Seconded by Dr. Tulsidas. That the following applicants be elected in the following categories from

Membership	No. 59	Dr. R. P. Gupta	...	Ordinary Member.
,,	,, 57	Dr. C. B. Patel	...	,, ,,
,,	,, 58	Dr. N. T. Matani	...	,, ,,
,,	,, 39	Dr. J. S. Joshi	...	,, ,,
,,	,, 63	Dr. K. Balakrishna	...	,, ,,
,,	,, 62	Dr. P. Balagopalan	...	,, ,,
,,	,, 65	Dr. M. V. R. Acharyulu	...	,, ,,
,,	,, 56	Dr. K. U. Maheshwar Rao	...	,, ,,
,,	,, 67	Dr. Harbans Singh	...	,, ,,
,,	,,	Dr. Dau Lal Chhangani	...	,, ,,
,,	,, 22	Dr. Albert J. Patt	...	,, ,,
,,	,, 48	Dr. Jittoo Mehta	...	,, ,,
,,	,, 216	Dr. A. L. Wahi	...	,, ,,
,,	,, 218	Dr. G. P. Keshari	...	,, ,,
,,	,, 219	Dr. Kundan Lal	...	,, ,,
Membership	No. 31	Dr. Manibhai Patel	...	Associate Member.
,,	,, 33	Dr. Manubhai Patel	...	,, ,,
,,	,, 45	Dr. A. B. Kothari	...	,, ,,
,,	,, 54	Dr. N. Kogata	...	,, ,,
,,	,, 217	Dr. M. C. Guptarya	...	,, ,,
,,	,, 222	Dr. M. Durairaj	...	,, ,,
,,	,, 223	Dr. C. Chowdhary	...	,, ,
,,	,, 224	Dr. D. B. Kapadia	...	,, ,,
,,	,, 225	Dr. A. K. Sahiar	...	,, ,,

Resolution IV.—The Honorary Treasurer pointed out that inspite of several reminders including one by Registered Post with acknowledgement by the Honorary Secretary, the following members have failed to pay their subscription and requested that they be suspended under Article 9-B.

Membership	No. 14	Major M. B. Thakore	...	Ordinary Member.
,,	,, 203	Dr. V. O. Zachariah	...	,, ,,
,,	,, 194	Dr. V. Shri Krishnamurti	...	,, ,,
Membership	No. 191	Dr. C. Madhav Rao	...	Associate Member.

Proposed by Dr. Acharyulu. Seconded by Dr. Anand. That the above members be suspended under rule 9-B and if they fail to pay during next 3 weeks, rule 9-C will be enforced. Carried unanimously.

Resolution V.—Secretary's Report. (Enclosed) Moved by the Chair. "That the Honorary Secretary's Report be accepted". Carried unanimously.

Resolution VI.—Honorary Treasurer's Report. Proposed by Dr. Anand. Seconded by Dr. Subramanian. "That the Honorary Treasurer's Report be Accepted". Carried unanimously.

Resolution. VII.—Moved from the Chair. Resolved that the conference is highly grateful to the Reception Committee in general, and its Chairman Dr. S. N. Kaul in particular, fort the fruitful and entertaining programme arranged for the delegates, and the Superintendent of Sir Gangaram Hospital, for the use of the premises for the Conference.

Resolution VIII.—Moved by Dr. Apte. Seconded by Dr. Misra. "Resolved that Messrs. Bhansali and Mehta be thanked for the kind services rendered for the year 1957-58 and they be re-elected as Head Office Auditors at Bombay on an Honorarium of Rs. 100/- for the year 1958-59". Carried unanimously.

Resolution IX.—Proposed by Tulsidas. Seconded by Dr. R. V. Rao. "Resolved that Messrs. K. John & Co., Honorary Auditors at Madras be thanked for the kind services rendered for the year 1957-58 and they be re-elected as auditors for I. J. O. at Madras on an honorarium of Rs. 50/- for 1958-59". Carried unanimously.

Resolution X.—Moved from the Chair. "Resolved that the Association of Otolaryngologists of India thanks the Railway Board for granting the fare concession to its delegates attending the Tenth Annual Conference at Delhi in January 1958. The Conference further requests the Board to place the name of this Scientific Association on the permanent approved list, and to extend the same fare concession to the wives of the attending delegates. Carried unanimously.

Resolution XI.—Proposed by Dr. Apte. Seconded by Dr. Narayan. That the report of the sub-committee as compiled by the convenor regarding the changes of rules and regulations be circulated to the members of the Governing Body and the finalised report to be put to the General Body.

Resolution XII—Proposed by Dukanram. Second by Dr. Tulsidas. That the report of the sub-committee for the deaf and the mute as presented by Dr. Cooper be accepted and forwarded to the Central and State Ministry of Education and Social Welfare Dept., Further that the suggestion be made that a member of the Association of Otolaryngologists of India be represented in the endeavours of the Central and State Government, made in this

matter and that Dr. R. A. F. Cooper be authorised to pursue this matter with the Central and State Government, and any other person in this country and outside, interested in this problem.

Owing to the fact that some members had to leave Delhi, the nomination of the President was invited and Dr. P. N. Sinha unanimously elected.

Resolution XIII.—Proposed by Dr. Subramanian. Seconded by Dr. Apte. Resolved that any outstanding foreign Otolaryngologist be invited to this country, to encourage the advancement of Otolaryngology.

Resolution XIV.—Proposed by Dr. Tulsidas. Seconded by Dr. R. V. Rao. Resolved that the Government of India, Ministry of Health be requested to intimate this Association of Otolaryngologists of India, in time the arrival and departure of any eminent specialist in Oto-Rhino-Laryngology. (E. N. T.).

Resolution XV.—Moved from the Chair. This Association of Otolaryngologists of India regrets to find that its name does not appear on the approved list of the Army Medical Services and requests that D. G. A. F. M. S. to put the name of the Association on the appendix A to M. A. I. No. 51/56.

Resolution XVI.—Moved from the Chair. That the Association of Otolaryngologists of India at the 10th Annual Conference expressed its gratitude to Dr. and Mrs. S. Rosen for their unstinted sacrifices and services to the cause of relieving the deaf in this country and inspiring its members in the technique of Stapes Mobilization. (Copy to U. S. I. S. Ministry, of Health, and Central and Bombay Government). (A copy to be sent to the Otoslcerosis study group C/o American Academy of Ophthalmology and Oto-Rhino-Laryngology).

Resolution XVII.—Proposed by Dr. Apte. Seconded by Dr. Chatterjee. That it is resolved that in case that the Hon. Treasurer of the various branches of this Association fail to claim their yearly quota by the end of the second year they forfeit this claim.

Resolution XVIII.—Proposed by Dr. Apte. Seconded by Dr. Nath. It is resolved that the Secretary and Hon. Treasurer be authorised to reinvest the present securities according to Bombay Trust Act and as advised by the Lloyds Bank in the interest of the Association.

Resolution XIX.—Moved from the Chair. That the accounts of the Indian Journal as published be accepted.

Resolution XX.—Proposed by Dr. R. V. Rao, Seconded by Dr. Nath. Vote of thanks to the organising committee, Dr. Sohan Singh, Dr. H. Anand and Dr. Trehan as also the Superintendent and Staff of Sir Gangaram Hospital.

Resolution XXI.—Proposed by Dr. Tulsidas. Seconded by Dr. Apte. Vote of thanks to the outgoing President with a prayer that the new Executive Committee will carry on the same good work.

Resolution XXII.—Proposed by Dr. R. A. F. Cooper. Seconded by Dr. Trehan. Dr. A. K. Sinha was unanimously elected as Associate Secretary.

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 1957

PARTICULARS	Rs. nP.
Income during the year	3,317 74
As per annexed Income and Expenditure Account	
To Contribution :	
Cost of collection of receipts from Stock etc. at 1% of such receipts	4 25
Income liable for contribution ...	3,513 48

R. A. F. COOPER,
President

J. V. DeSa,
Hon. Secretary.

N. K. APTE,
Hon. Treasurer.

22nd January 1958.

BHANSALI & MEHTA,
Chartered Accountants.

23rd January 1958.

Statement about ownership and other particulars about newspaper, INDIAN JOURNAL OF OTOLARYNGOLOGY to be published in the first issue every year after the last day of February.

Form IV—(See Rule 8)

1.	Place of Publication	...	MADRAS.
2.	Periodicity of its publication	...	Quarterly : March, June, September and December.
3.	Printer's Name	...	Mr. R. Ravai Manickam.
	Nationality	...	Indian (Madras State).
	Address	...	148, Big Street, Triplicane, Madras.
4.	Publisher's Name	...	Dr. V. S. Subramanian.
	Nationality	...	Indian (Madras State)
	Address	...	"Lempert Hospital", 1-A, Marshall's Road, Egmore, Madras-8.
5.	Editor's Name	...	Dr. V. S. Subramanian.
	Nationality	...	Indian (Madras State).
	Address	...	"Lempert Hospital", 1-A, Marshall's Road, Egmore, Madras-8.
6.	Name and addresses of individuals who own the newspaper and partners or shareholders holding more than one per cent of the total capital.		Association of Otolaryngologists of India, Bombay. Chairman : Dr. Tuki Das, 9, Cantonment, Amritsar. President : Dr. P. N. Sinha, Hasan Imam Road, Patna.

I, V. S. Subramanian, hereby declare that the particulars given above are true to the best of my knowledge and belief.

V. S. SUBRAMANIAN,

31—3—1958. *Signature of Publisher.*

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CONTENTS

Indian Journal
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Vol. X, No. 3
JUNE 1958

OFFICIAL SCIENTIFIC JOURNAL OF THE ASSOCIATION OF OTOLARYNGOLOGISTS OF INDIA

A Rhinoplastic Approach to the Correction of the Deviated Nasal Septum

BY

Dr. J. V. DeSa, M.S., D.L.O. (Lond.)

Deflection of the nasal septum, which causes the disfunction of nasal respiration together with physiopathological changes in the paranasal sinuses and the nasopharynx, requires surgical correction. The development of this septal surgery has passed through many phases. Ingals[1] was the first to suggest the accomplishment of a submucous operation by removal of a part of the triangular cartilage. Krieg[2] improved the technique by resecting the entire deflected cartilage. Boenninghaus[3] completed the procedure by removing the osseous septum, perpendicular plate of the ethmoid and vomer, as well as the cartilage. Further surgical refinements on this technique were added by Freer[4], Killian,[5] Hajek,[6] Ballenger,[7] Yankauer,[8] and St. Clair Thomson.[9] Submucous resection of the septum then became the standard procedure for rhinologists in cases of deviated septum, in the early part of the 19th, century.

There were many inadequacies in the technique which was then used, for a satisfactory buttress had to be left superiorly and anteriorly, to prevent saddling of the nose and retraction of the columella. Such inadequacies or limitations of the operation, led to different steps, suggested by various rhinologists, for improvement. These ranged from simple shifting of the septum,

lightly packed with strips of gauze moistened in 10% cocain
the cleansing of the area exposed is then carried out, firs
cetavlon and then with saline, and lastly with aq
Merthiolate. The gauze strips are removed from each
cavity and three cotton tampons moistened with 10% coc
introduced far superiorly into the middle meatus, to ana
tise the sphenoid palatine ganglion, and high up in the
of the nose for the naso cillary branches; Novocaine 1% wi
drops of 1 in 1000 adrenalinae is then used to infiltrat
following areas. The base of the columella and the membra
septum in front of the cartilagenous septum. (Fig. 1).
junction of the lateral and medical crura of the alar cartil
on each side.

With special sharp pointed retractors, the columell
pulled to the right and an incision is made with a No. 15
Parker blade in the floor of the anterior nare, close to
membranous septum, and anterior to the margin of the car
genous septum (Fig. 2). This little incision is opened
small scissors, deepening it infront of the septal border, so
the redendent tissue in the base of the columella, may
picked up by a forceps and excised, (Fig. 3) renderin
possible by a stitch, to narrow the very broadened colum
at the same time widen the labeal angle. This stitch
serves an important purpose in the stage of transfixtio
the septum.

To achieve this second stage of transfixtion it is necessa
find the plane above and in front of the lowermost par
the cartilagenous septum, and for this purpose an incisi
made with a No. 11 Bard Parker knife at the angle of
lateral and medial crus of the two alar, as seen. (Fig. 4a &
A curved pointed scissors is passed widening this incision
it emerges into the incision of the opposite side, making a
tunnel between the crura and between the membranous
the cartilagenous septum. A button hole knife is then care
passed in this space (Fig. 5) and with gentle moven
drawn down in front of the septal margin, at the same

Fig. 1

Injection of 1% Novocaine in the base of columella.

Incision.

Fig. 2

Fig. 3

Excision of excessive tissue in base of columella.

Fig. 4 a & b
Incision in the angle of the lateral and medial crura of the alar cartilage.

Transfixion.

Fig. 5

Fig. 6

Separation of the membranous septum exposing anterior border of septal cartilage.

Fig. 7

Excision of the anterior border of cartilagenous septum.

Elevation of mucoperichondrial flaps.

Fig. 8

Fig. 9

Two sections of anterior end of cartilagenous septum.

Suturing of cartilagenous section with the mucoperichondrium.

Fig. 10

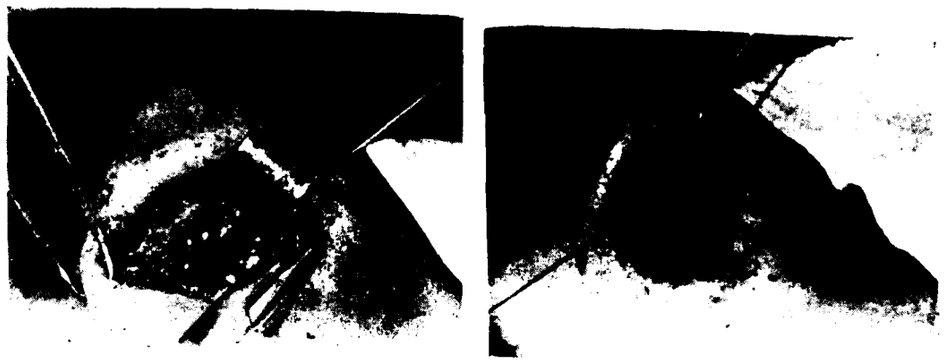

Fig. 11 a & b
Suturing of the original incision.

End Result.

Fig. 12

pulling on the suture, passed at the columella base, so that the membranous septum is divided from the cartilagenous septum. (Fig. 6).

The third stage consists in removing some of the fibrous tissue in front of the cut border of the septal cartilage. This may be done with a curette; I personally prefer a knife. (Fig. 7). Once the septal cartilage is seen at this stage it is also decided whether the nose requires shortening or not. If we decide to shorten the nose a small portion of the cartilage may be excised at this stage; this also helps to find the plane of cleavage, between the mucoperichondrium and the cartilage. The mucoperichondrium is then elevated on both the sides from the septal cartilage (Fig. 8) and backwards separating it from the posterior superior bony part of the septum, down to the attachment of the cartilage to the nasal spur of the vomer. If the cartilage is severely bent, removal of the cartilage from vomer spine will help in releasing the spring of the cartilage and helping to straighten it. It will be necessary in those cases where the cartilage is severely bent to remove a small strip of the lowermost part. To make the cartilage further straight it is found that if two small sections are cut through the entire height of the cartilage as shown in (Fig. 9) right to the dorsum, it is easily seen how a bent cartilagenous piece can be made straight. However, in very severe cases it may be required to shave a little of the cartilage, on the convex side, so that when allowed to hang from its dorsal attachment, it is practically in a straight line. The posterior bony deformity is then tackled by passing Dr. Goldman's Displacer between the mucoperichondrium elevated from the bony septum, and refracturing this part with gentle pressure so that, it is brought back in midline. In some cases where bony spurs are seen posteriorly it is necessary to remove just the bony projection, under the perichondrium and the septum posteriorly will fall into the midline.

The maxillary spine which in some cases is awfully angulated may have to be sliced with a chisel so that the

projections on the lower part of septum is removed. When these small minimal amounts of the septum are removed you will find on reposition of the muco-periostal flaps on both sides that the septum is absolutely in the midline and straight. In order to keep the two septal sections that have been cut in proper position and also to relieve whatever spring may still remain in them, as alsc to prevent subsequent retraction of the columella, it is necessary to pass sutures through the mucoperichondrium and these cartilagenous septal section, so that they are strutted as it were, or sandwiched between the two mucoperichondrial flaps and thus the cartilagenous portions is permanently straightened. (Fig. 10).

What remains now, is to suture the original incision *i.e.* the mucoperichondrium of the septal cartilage, to the membranous septum. Here again if the nose has been slightly shortened, if may be necessary to excise a small portion of the mucoperichondrium on each side with scissors, so that the mucoperichondrial margin may be sutured in line, with the membranous septum. (Fig. 11a & b). Having sutured this incision all tha t is required is a light packing, vaseline gauze or penicillin tulle gauze placed on the septal surface of the vestibule, and light gauze packing in each nostril, completes the dressing.

This packing however, is to be kept for 4-5 days, as the displaced fragments have to be held in the midline for at least this period to allow firm union. On removal of this pack on the 5th, day, we find that the septum is absolutely in a midline, is firm, and the nasal obstruction is completely removed. (Fig. 12).

Ever since my return last year, I have been using this technique in correcting deviated septums, and I find it very gratifying, to be able to remove the nasal obstruction, by correcting the deviation of the septum without sacrificing or if at all sacrificing very little and giving the patient a perfect, shapely and strong nasal frame.

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Surgery of Otogenic Brain Abscess

BY

Dr. N. R MERCHANT, M.S., D.O.R.L.

Mister President, Ladies & Gentlemen,

The purpose of this paper is to bring forth certain points i the treatment of brain abscess with a particular emphasis on i surgical management. I might add here that surgical approac to brain abscess is the only recognised means of treatment toda and has varied all the way from simple evacuation of p without drainage to complete extirpation of the absce en masse.

It has long been evident that a brain abscess proved fa either because rupture (usually into a ventrical led to a wi spread infection or because the enlarging abscess and surroundi edema produced a space-occupying lesion that ultimat induced a fatal pressure cone, tentorial or cerebellar, as poin out by Woods[1]. Clearly then, the treatment aims at :

1. Control of intracranial infection by a properly cho antibiotic therapy.

2. Control of intracranial pressure.

A number of methods have been described in the litera for this control of intracranial pressure. To go over them b they are :

1. Simple aspiration of the abscess through uni dura with or without instillation of antibiotics has been cl as a cure. However, the method carries risk, specially of m gitis and recurrence of the abscess. Pennybacker woul abandon further surgery on an abscess so treated unless ski taken with diodone shows obliteration of the abscess cavity

2. Drainage of the abscess with a narrow rubber tube. This so called closed method has had many advocates. But the method is unsuitable for thickwalled abscesses, multilocular abscesseses or those with irregular shapes. Pus often permeates along the tube or wells out of the abscess only when the tube is changed. Harpman has abandoned the method because of bad results notwithstanding repeated instillation of penicilline locally in cases where the bacteria cultured were penicilline sensitive.

3. Excision of the abscess with systematic and local chemotherapy is widely advocated specially for chr. thickwalled abscesses. But as Harpman points out, otogenic cerebellar abscesses are usually adherent to the posterior aspect of the petrous bone. And therefore should Dentate nucleus or the region medial to it be damaged while excising the abscess, severe permanent signs and symptoms of a cerebellar lesion are likely. Perhaps the only advantage of excising a brain abscess is that primary healing is then possible.

4. Many operations with chemical, suture and diathermy methods of sealing the meningeal spaces round the area through which the abscess will be evacuated have been recommended to prevent post operative lepto meningitis. The modern chemotherapy however, renders them all superfluous.

5. King practised excessive herniation of the brain to facilitate cure by extruding the abscess (but later refuted it).

6. Ashersion preferred to obliterate a patent's lateral sinus to explore and expose cerebellum. This however is thought inadvisable by Brunner and Harpman, as it may precipitate "Otitic hydrocephalus".

Now coming to the present series the abscess was operated upon as soon as diagnosed. Delay frequently results in meningitis ventriculitis, encephalitis, increase in the size of the abscess, toxemia, cerebral edema and respiratory failure.

SLIDE 1.

No.	Site.	Age in days of abs. from 1st sym.	Recovery on days after evacuation.	Other lesion.
1.	Temp	4	3	Meningitis.
2.	Cere	8	7	Menin., S. Throm.
3.	Cere	10	2	Subdural. M., S. Throm.
4.	Temp	2	Died	STh., Peri Ab., Men., Exdu. Ab.
5.	Temp	1	2	Mening.
6.	Cere	4	5	Menin., S. Throm.
7.	Temp	14	3	Menin., Exdu. Ab.
8.	Temp	12	Died	Menin.
9.	Temp	3	21	Menin.

In case 1 with tempo-sphenoidal abscess, recovery followed the evacuation of the abscess on 3rd day. Case 2 of cerebellar abscess with lat. sinus thrombosis and meningitis showed a steady improvement in clinical condition from the 7th day of evacuation.

Case 3 of cerebellar and subdural abscess in post. fossa with meningitis and a thrombosed lat. sinus responded normally to surroundings on the very next morning of evacuation. While case 5 of tempo-sphenoidal abscess showed considerable clinical improvements within 24 hours of opening the abscess. And so on—By the way case 9 has something interesting. This lady was admitted with headache and convulsive fits. Postoperatively however, aggressive antibiotic therapy with Inj. Penstrep and later with oral Achromycin failed to relieve her headache though her fits were less frequent. On 21st post operative day sulfanomide parenteral was substituted for the antibiotic and the clinical condition showed a steady improvement since then. Headache totally disappeared by 25th day and only once a fit was encountered after administration of sulfa. which may be noted. Another interesting point is in case 4. This man, even though his temporal abscess was drained on the very 2nd day of the appearance of the 1st symptom, he never responded satisfactorily and eventually died.

As regards surgery proper the post auricular route was preferred in the present series for readiness of exposure. A Radical mastoidectomy was performed in all the cases in the first instance. The dural surface was next exposed by removing the tegman and/or Trautman's triangle. In no case pus was seen oozing from the dura though areas of pachymeningitis were seen in all the cases studied. Pus was revealed on exploring through such an area with a seeker (after necessary dural disinfection with merthiolate). No sharp instrument was used for exploration for its liability to damage blood vessels. In addition they do not transmit the tactile sensation as adequately as a blunt instrument.

Now once the abscess was localised by means of a seeker, further exploration with a blunt-pointed aural dressing forceps was found very satisfactory. Dura was incised avoiding the pia-arachnoid or brain, lest their blood vessels be injured. The presence or abscence of pus in the subdural space was ascertained. Cairns states that finding pus in subdural space excludes the presence of an intracerebral abscess. This was contrary to finding in case 3.

Some necrosis on the surface of brain may indicate the position of the underlying abscess. The forceps was introduced slowly into the brain avoiding superficial blood vessels. Identification of an abscess capsule before the forceps entered the abscess cavity was rather difficult in all the cases studied; though the sensation of having entered the abscess cavity was relatively easy to recognise. In all the cases pus and necrotic tissue flew out alongside the forceps.

Brunner Cairns etc. have stated that if on incising the dura and arachnoid, there be an abundant flow of c.s.f. it is highly unlikely that a cerebral abscess is present. In none of our cases we came across such a flow of c.s.f. and at the same time, in general, found no c.s.f. on incising the meninges just where the abscess was nearest.

In exploring the cerebellum the search was directed primarily to its antero-sup. part to avoid damage to den-tate nucleus or region medial to it which is liable to produce symptoms and signs of cerebellar disease.

Once the abscess is localised whether temporo-sphenoidal or cerebellar its evacuation is simple. The dural incision is made cruciate to expose the pia-arachnoid and brain further over the abscess. Ashersion said that the brain may herniate through this incision, somtimes to extrude the whole abscess. This did not happen in any of the present cases. The opening into the abscess is then enlarged by separating the blades of the forceps and the abscess is thus evacuated. No suction was used in any of the cases but its use has been advocated by Harpman to clean the abscess cavity and to ascertain its size etc. (Jefferson recommends that the opened abscess capsule be sutured to temporal muscle. We have had no experience about it).

Regarding : drainage though thorough initial evacuation would reduce the need for continuous drainage, such a drainage, should deem ideal ; and packing the cavity loosely with ribbion gause changed at intervals of from 5-14 days was found more satisfactory than using a corrugated rubber. The essential factor is to provide free drainage and maintain it. The drain was retained for too long rather than removed too quickly though each case was dealt with on its own merits. In the present series 3-8 weeks was the minimum and maximum. The wound in all the cases was packed open till the recovery was definite.

Post-operatively the surgical attack was supplemented by aggressive antibiotic therapy. Case 1 responded well to penicilline and Strepto but the recovery was much speedier and uneventful with oral Terramycin (Oxy Tetracyclin). With Case 2 the board-like neck rigidity, drowsiness and pulse rate did not improve inspite of aggressive therapy with penicilline and Strepto changing over to Terramycin and repeated Lumbar Punctures also failed. But the clinical condition showed a

steady improvement on switching over to parenteral Achromycin. While with cases 3, 5, 6 and 7 the recovery was uneventful with oral and Parenteral Terramycin case 9 failed to respond to any of this drugs but reacted favourably to parenteral sulfonamide.

A word about Dehydration Hydration and cerebral ventricular puncture. The exact place of all these in pre and postoperative period is debatable. Harpman reported great improvement in his patients with cerebral edema by retention enemas of Mag Sulf 3 ozs. in 6 ozs. of water 1-3 times daily. King etc. described how a puncture of homolateral lateral ventrical relieves headache in patients with cerebellar abscesses and cause a comatose patient regain consciousness. While Wolff etc. state that headaches are more likely from a diminished than an increased intracranial tension. In none of the present series of cases this therapy was found necessary.

As regards post-operative complications.

1. C. S. F. leakage occurred in cases 1, 3, 4, 5 and 7 lasting from 2-8 days but none required any special treatment.

2. Meningitis did not develop post-operatively in any case in spite of C. S. F. leakage.

3. Post-operative epileptic convulsion occurred in case 7. Its occurrence is said to be frequent with the use of of gauze pack and subsequent scarring and it may be first seen even months after the operation.

4. Post-operative Euphoria: Although no case in the present series exhibited this symptom, its occurrence is reported by Harpman Heine Beek etc.

5. Post-operative giddiness persisted in case 7 for 2 years. Labyrinthine tests showed no function on the affected side.

6. *After a normal course of 2-3 days patient shows a return of stupor and vomiting and paralysis might increase.* This means either a blockage of drainage, a spread of abscess or a secondary abscess. In case 1 a blockage was revealed on re-exploration.

7. Spreading Encephalitis; Same symptoms as above but without the formation of pus. These were seen in two of our cases 2 and 4.

8. Herniation of brain (Fungus Cerebri) did not occur in any of the cases studied and as long as the pressure is normal even large incisions will not encourage herniation. And lastly.

9. Ataxia persisted in case 2 of cerebellar abscess for 5 weeks.

In conclusion, it may be said that despite the change wrought by technical advances and antibiotic control of infection none of the brain lesion needs more judgement and experience than an abscess. When its presence is unquestioned frequently a precise localisation cannot be made. And when the diagnosis of abscess in a definite area is reached the decision as to the proper time and method taxes all the surgeon's skill.

Factors in successful treatment are:

1. Use of antibiotics.
2. Operating as soon as diagnosed.
3. Thorough initial evacuation.
4. Ensuring its healing without pocketing
5. and adequate treatment of the underlying and accompanying lesion.

In the end, I thank The Dean, T. N. Medical College, Bombay for allowing me to use the hospital records and Dr. Hiranandani and Dr. R. A. F. Cooper for their valuable guidance.

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Anesthesia in Endoscopy

BY

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This is a review of 100 cases in which for per-oral Endoscopies, intravenous Meperdine (Pethidine) in doses from 100-200 mgm. was used as analgetic agent along with Topical Local Anesthesia with 1% Percaine solution.

Per-oral Endoscopy has become a every day problem and its regular use to make early diagnosis of various conditions in the Larynx, Bronchi or Esophagus is only possible if the procedure of Anesthesia is made simpler and convenient.

Intravenous Sodium Pentothal in conjunction with one of the muscle relaxing agent is ideal, but it requires help of competent Anesthetic, well equipped theatre and Hospitalisation of the patient is compulsory. Hence though a good method it cannot become popular because of some hazard accompanied with it. The good old procedure of premedication with Barbiturates with local Anesthesia though a safe and simple procedure due to nervous disposition of the patient or due to somewhat painful procedure of Endoscopy the co-operation given by the patient is many a times lacking and after effects on the patient are not very happy with the result that Physicians do not recommend Per-oral Endoscopy as a routine investigation. Ideally the successful performance of Endoscopy requires a general analgesic drug which has a good margin of safety and whose action is of short duration and accompanied by muscle relaxation without having any unpleasent memories of the Endoscopy.

With this view in mind, we have given trial to I. V. Pethidine for Per-oral Endoscopy of 100 cases. Altman and Flalkov from Isrel have given trial to this drug in 250 cases and our results concur with their findings.

Meperdine known popularly as Pethidine or Demoral is a Synthetic product. It is chemically known as 1 Methyl-4 Phenyl-Piperidine-4 Carboxylic acid Hydrochloride. It was Synthesized by Eisleb and studied Pharmacologically by Schaumann in 1939.

During routine testing of Drug it was found to produce erection of the tail in mice similar to Morphine. This led to further search whether this drug has any analgetic action. The 4-Carboxylate and 4-Phenyl groups are apparently responsible for the analgesia produced. Goodman and Gilman suppose that the analgetic effect is due to action on the cortical and Sub-cortical regions of the brain as well as on the Diencephalon. It is less analgetic than Morphia, but it has less depressing effect on the Respiratory centre. It has relaxation effect on the smooth muscles and it dilates the Bronchioles. Because of this muscle relaxing effects it is very useful in Endoscopy. Meperdine causes dizziness and vertical nystagmus, which is of vestibular nucleus origin. It gets rapidly disintegrated in the body hence toxic effects in the usual dosage are rarely observed, recovery from its effects usually takes 2-3 hours.

Because of possession of these special qualities it was decided to choose Meperdine for trial.

PROCEDURE

1. Techniqne :—

a Nil by mouth. *b*) Inj. Atropine 1 100 gr. or suitable dose as per age, one hour before. (*c*) Neupercaine 1% solution applied or sprayed as the case may be at interval of every five minutes, for half an hour. Total solution for spray ranging from 3 c.c. to 7 c.c.

Intravenous Pethidine Hydrochloride was used, dosage varying from 100 mgm. to 200 mgm. quantity decided by observing the following factors:

i Age, *ii* Sex, *iii* General condition (*iv*) Disease. Older, debilated patients required smaller amount. Patient who

developed addiction because of repeated I. V. Injections, required larger amount.

Pethidine was diluted with Saline 15 c.c. and given 3 c. c. per minute taking .5 minutes to inject the drug. It is very necessary to inject it slowly otherwise toxic effects may be observed. It is desirable to wait for 5 minutes after the injection. Best results are obtained when Endoscopy is done 5-10 minutes afterwards. In some cases vertical Nystagmus appears and patient complains of dizziness. In some cases they rapidly go to sleep. Respiration becomes slower and shallower.

TABLE No. 1

No. of Endoscopies	...	100
Duration	...	8 months
Classification :		
(*i*) Laryngoscopies	...	49
(*ii*) Esophaguscopies	...	44
(*iii*) Bronchoscopies	...	7
Total	...	100

TABLE No. 2

(a) *Sex group :*

Males	...	60
Females	...	40
Total	...	100

(b) *Age group :*

From 1 to 10	...	Nil
,, 11 to 20	...	3
,, 21 to 30	...	34
,, 31 to 40	...	21
,, 41 to 50	...	19
,, 51 to 60	...	11
,, 61 to 80	...	12
Total	...	100

TABLE No. 3 (Effects on body)

1.	Temperature	... Normal in all cases	
2.	Pulse	... Slowing of pulse	70
	,,	... Increase in rate	7
	,,	... Normal	23
3.	Respiration	... Slowing of respiration (rate 10-15 per minute)	80
	,,	... Increase in respiration	Nil
	,,	... Normal	20
4.	Nystagmus	...	12
5.	Giddiness	...	15
6.	Vomiting	...	6

TABLE No. 4 (Complications)

(1)	Respiratory failure	...	2
(2)	Convulsion	...	1
(3)	Severe giddiness	...	3

TABLE No. 5 (Indications for Endoscopies)

1.	*Laryngoscopies :*		
	(*a*) Diagnostic	...	26
	(*b*) Biopsy	...	10
	(*c*) Therapeutic :		
	(*i*) Removal of Papillomas	...	6
	(*ii*) Laryngeal stenosis	...	4
	(*iii*) Removal of singers Nodes (Dilatation)	...	3
2.	*Esophagoscopies :*		
	(*a*) Diagnostic	...	27
	(*b*) Biopsy	...	8
	(*c*) Therapeutic :		
	(*i*) Stricture dilatation	...	6
	(*ii*) Ryle's Tube passing	...	2
	(*iii*) Cardiospasm (Dilatation)	...	1

3. *Bronchoscopies :*

(*a*) Diagnostic	...	4
(*b*) Biopsy	...	2
(*c*) Therapeutic:		
(*i*) Aspiration	...	1

Two cases developed complete paralysis of respiration, five minutes after giving I. V. Injection of Pethidine. Patients were quite conscious and pulse rate was near Normal.

Treatment instituted was :

(*i*) Endo-Tracheal tube passed (for giving artificial respiration).

(*ii*) O_2 Continuous.

(*iii*) I. V. Coramine 4 c.c.

Both recovered quite well.

One case had convulsion while doing Esophagoscopy. They disappeared of their own accorded.

Severe giddiness was noted after Endoscopy for 3 cases.

CONCLUSIONS

1. Intravenous Pethidine is quite safe and good for Endoscopies.

2. It gives very good relaxation of the Crico Pharyngeal Spincter and Laryngel Spincter. Neck Muscles are also much relaxed.

3. Patients are in a stage of mild Euphoria. Co-operation is very good, even if one takes little longer time, for completing the procedure.

We used to ask the patients after one or two hours, whether they experienced any pain or discomfort. In majority of the cases they had total amnesia of what had happened. Some

stated that they had no pain whatsovever. Only two patients complained of pain and two became very roudy for which general Anesthesia was used.

4. We had two cases, one Esophageal Stricture. A medical student of III year of our College and another of Laryngeal stricture due to unsuccessful attempt of suicide, by cut throat wound. In both cases we had to do Endoscopies repeatedly both had developed Tolerance to the Drug, so that eventually we had to increase the dose upto 200 mgm.

5. Women come under the spell of Pethidine quicker than men.

6. Patients addicted to alcohol or sedatives required more dosage of Pethidine.

7. Post operative vomiting or uneasiness in nil, with few exceptions. Patient either sleep for 2 to 3 hours, or they are in a stage of well being.

8. Though this procedure is comparatively safe one must have by the side the + V C Pressure breathing apparatus in the operating room, and help of qualified Anesthetist is desirable, but not absolutely essential.

9. For respiratory failure—Nalorphine—(N-Allyl-Nor-Morphine) is an antitode for Meperdine, it is a biological antitode and is able to accelerate respiration.

COMMENTS

We have taken this work in hand eight months back with an idea of getting personal experience with this drug over 100 cases. We in this country are now in a position to assess the results of the various recommended drugs by using on our patients whose climatic conditions, body built, resistance and mental frame are much different from patients of Western countries and it is always desirable to give fair trial before passing judgement, for or against.

We are quite aware that there are many in this audience who are more experienced and must have done Endoscopies far greater in number than what we have done in last 12 years. It is our earnest hope that they would come forward and narrate their experiences. We all have come over here to learn and exchange views. This paper is a humble attempt to put forward our results.

SUMMARY

I. V. Meperdine was used as an analgetic in dosage from 100-200 mgm., I. V. for per-oral Endoscopies 100 in number in conjunction with local anesthesia. The advantages noted were muscular relaxation, state of mild Euphoria with perfect co-operation and total anesia of the procedure. It is suitable to be used as an office procedure, as patient can leave the office after 2-3 hours. No particular disadvantage was noticed except stopping of breathing in two cases, which was promptly treated.

It is our duty to thank our Colleague Anesthetist Dr. A. V. Gokhale for his help and co-operation and supervision of the whole procedure. Equally our two House Surgeons, Dr. Tepan and Dr. Lunawat have shared the burden of keeping detailed records of 100 cases. We, in the end, thank Superintendent of the Sassoon Hospitals, Poona for use of record.

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Allergic Rhinitis and the Scope and Utility of Nasal Autohaemo Therapy in its Treatment

(A Study of 150 cases)

BY

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**K. L. Shah, M.S.

INTRODUCTION

The treatment of Allergic Rhinitis is far from satisfactory. In this paper it is our endeavour to present a line of treatment which we have followed and found most satisfactory. We would welcome suggestions from our colleagues on this subject. As early as 1948, late Dr. Homi Gandhi was working on this problem, and one of us (S. R. R.) had the privilege to conduct the experiments under him. However, because of his untimely demise, the work was left unfinished. The present paper is our humble contribution to the same work.

Autohaemo injections into the submucous tissues of the inferior turbinates have been known for a long time. So far no authentic reports have been published regarding its usefulness. No standard text books ever make a mention of this therapy although it is so commonly advised by the specialists.

The ideal treatment of allergic rhinitis should be directed towards the correction of the etiological factor in any given case *viz.* avoidance of allergens and desensitization. However, accurate determination of the cause is not always a simple matter. The complex nature of allergy, endocrine dysfunction and psychological stress, makes it difficult in many cases to apply adequate treatment even when only one of the factors is present.

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Moreover the non-availability of specific or appropriate vaccines in every day practice, makes this line of therapy practically difficult.

Various empirical local measures which have been and are in common use today, include the use of local vasoconstrictors, zinc ionization, galvanocautery, chemical cautery, amputation of turbinate bones, submucous injection of various sclerosing agents and so on. Autohaemo therapy has been mentioned but without evaluation. Considering the simplicity of the therapy for outdoor routine we have tried it in the 150 patients.

MATERIAL

One hundred and fifty cases of clinically proved allergic rhinitis were studied. The case history of each was taken in full details.

ANALYSIS OF THE ETIOLOGICAL FACTORS

Age.—The incidence of age in the present series of patients was as follows:

TABLE I—AGE INCIDENCE

Age in years		No. of patients
11—20	...	39
21—30	...	73
31—40	...	26
41—50	...	11
51—60	...	1

The highest incidence (48·6%) was between the ages of 21—30 years showing that this disease is more common in the earlier part of the life.

The oldest patient was fifty-six while the youngest was fourteen.

Sex.—There were 92 males (61·4%) and 58 females (38·6%), showing that males are affected more often than females. But

this observation is likely to be erroneous, since a vast number of female patients cannot attend the out-patient departments of a general hospital due to social customs.

Occupation.—Majority of the patients were either students or Junior Clerks and constituted 54·5% of the cases.

The History.—In most cases the onset had been gradual, in some few it was sudden, while in the rest it was not noted. The figures are shown below:

TABLE II—ONSET OF SYMPTOMS

		No. of Cases
Sudden	...	24
Gradual	...	113
Not noted	...	13

The attacks were almost continuous in 72 patients and they were in bouts of periodicity in 78 patients.

SYMPTOMS

Discharge.—The discharge was watery and profuse in maximum number of patients. It was watery and scanty in a small number of patients, while thick mucoid or yellowish purulent discharge was noticed only in a negligible percentage of cases as will be seen in the following table:

TABLE III—NATURE OF DISCHARGE

Character of discharge		No. of Cases
Watery profuse	...	123
Watery scanty	...	10
Thick mucoid	...	6
Yellowish	...	1

Sneezing. Most patients complained of sneezing at the beginning of the malady, *i.e.* 124 out of 150; the frequency of which is shown in Table IV.

TABLE IV—FREQUENCY OF SNEEZING

No. of Sneezes		No. of Cases
Less than 10	...	47
10—50	...	58
50—100	...	13
More than 100	...	6
No Sneezing	...	26

17% of the cases did not complain of sneezing.

Nasal Obstruction.—It has been found to be the symptom next to sneezing in frequency of occurrence. Degree of obstruction is noted in Table V.

TABLE V—DEGREE OF OBSTRUCTION

Degree of obstruction		No. of Cases
Mild	...	69
Moderate	...	10
Severe	...	6
No obstruction	...	52
Unilateral obstruction	...	13

Headache.—Ten patients complained of headache of severe degree during the attack.

Other symptoms. Various other symptoms present during an attack of coryza are stated in Table VI.

TABLE VI—ASSOCIATED SYMPTOMS

		No. of Cases
Burning of eyes	...	57
Itching of eyes	...	42
Itching of ears	...	20
Urticaria + itching of skin	...	6
Itching in the nose	...	3
Burning of soles and palms	...	1

Asthma.— Definite history of asthma, associated with the symptoms of allergic rhinitis, was recorded in 32 patients. Two other patients had it since their childhood, while the history was doubtful in 6 other cases.

Thus the trio of symptoms, *e.g.* watery discharge, sneezing and nasal obstruction was the most common finding. This enabled us to make a clinical diagnosis which has been the basis in selection of our cases for auto blood therapy.

Exciting or precipitating factors as stated by the patients are shown in Table VII.

TABLE VII—EXCITING FACTORS

Exciting factors		No. of Cases
Change of weather	...	25
House dust	...	24
Cold draught	...	18
Food	...	9
Cold water	...	5
Odorous	...	2
Miscellaneous	...	16

Some interesting statements included that the attacks came on 'Amas' (last day of the month in Hindu calendar), at night only, on coming to Bombay, on keeping late hours, with anger or with head baths. There were two female patients who had attacks during menstrual periods, while one had attacks during pregnancy. Four male patients had attacks of coryza periodically, *viz.* for 3 days during every month.

Precipitation of symptoms occurred in 3 cases after tonsillectomy and in 2 cases after submucous resection of the septum.

Family History.—A history of similar attacks in one or more other family members was noted in 39 patients.

Local examination. Deviated septum of a mild degree was noted in 30 cases.

The mucous membrane over the inferior turbinate bones was characteristically pale blue and boggy in all the cases.

INVESTIGATIONS

Leucocyte count.—A total and differential count was done in 88 cases only. Forty cases (45·4%) cases showed a slightly high eosinophilic count as shown in Table VIII.

TABLE VIII—EOSINOPHILIC COUNT

Eosinophils percentage		No. of Cases	Percentage
0— 4	...	48	54·6
5—10	...	27	29·5
11—20	...	11	12·5
More than 20	...	2	3·4

Nasal discharge for Eosinophils.—Due to lack of facilities this was studied but in only 13 cases. The results are shown in Table IX.

TABLE IX—EOSINOPHILS IN NASAL SMEAR

No. of Eosinophils/field		No. of Cases
Occasional	...	1
1—3	...	2
6—7	...	1
Nil	...	9

Histopathology.—A punch biopsy of the mucosa was taken to make a histopathological examination before and after the treatment.

TREATMENT

The following rules were observed before starting the treatment :

(1) The patient should not have an acute attack of coryza at the time of injection.

(2) If there was history of recent attack of coryza antihistaminics to be administered (Dose: Avil 1 2 tablet twice a day). Our observation has been that congested mucous membrane returns to normalcy fairly earlier with this regime.

(3) There should be no evidence of sinusitis, grossly deviated septum, presence of polypi or obvious septic focus in the vicinity.

TECHNIQUE OF INJECTIONS

(*i*) **Premedication.**—1·1 2 grains of nembutal half an hour before anaesthesia.

(*ii*) **Local preparation.**—Cleaning of the nose and anaesthetizing the mucosa by cocaine or anethaine.

(*iii*) **Injections.**—Plan of the injection was as follows: Four injections of venous blood were given each at the interval of two weeks, in increasing dosage, *viz.* 4 c.c., 6 c.c., 8 c.c. and 10 c.c. respectively. Each time blood was kept fluid by addition of 2 c.c. of 2 per cent sodium citrate solution and the half of the total quantity was injected on either side submucously in the inferior turbinates. Each injection was preferably done by a single prick taking care that nothing escaped in the nasal cavity.

The puncture was allowed to seal by the pressure of a cotton plug kept for about 10 to 15 minutes. Patients were asked not to blow the nose for 24 hours. The puncture site of injection was shifted from posterior to anterior turbinate in subsequent injections.

COMPLICATIONS

(1) Exacerbation of symptoms with marked blocking occurred in most of the cases for a period of 24—48 hours. However this disappeared in every case within a period of 72 96 hours.

(2) Other minor complaints were loss of concentration, depression of mental faculties and slight giddiness. The symptoms never lasted for more than 4—6 hours.

(3) One patient stated that he developed asthma following the therapy.

RESULTS

Seventy-five patients came for regular follow up. The results were recorded on the basis of following classification into four categories:

Category I.—*Successful:* Disappearance of all symptoms for 6 months or longer.

Category II.—*Improved:* Frequency and intensity of all the symptoms markedly diminished and/or some of the symptoms entirely disappeared.

Category III.—Not improved or failed.

Category IV.—*Worsened:* Aggravation of existing symptoms or development of new ones like asthma.

The overall results are tabulated below:

TABLE X—RESULTS OF TREATMENT

Total number of cases followed up 75.

Category	Result	No. of Cases	Percentage
I	Successful	... 24	32·0
II	Improved	... 35	46·66
III	Failed	... 15	20·0
IV	Worsened	... 1	1·33

Follow up results:

TABLE XI—ANALYSIS OF THE CASES OF CATEGORY I

Total number of successful cases 24

Duration of absence of symptoms	No. of Cases
6 months to 1 year ...	11
1 year to 2 years ...	7
2 years to 3 years ...	6

Three cases of this category (who had recurrence of symptoms) were given repeat-autohaemo-therapy. All of them had again the same effect with absence of symptoms for 2—3 years.

TABLE XII—ANALYSIS OF THE CASES OF CATEGORY—II

Total number of improved cases—35.

Duration of relief of symptoms	No. of Cases
0—1 year ...	12
1—2 years ...	11
2—3 years ...	11
3—7 years ...	1

The injections were repeated in 12 cases of this category when the improvement had disappeared. The rest did not turn up for follow up.

Results of second course of autohaemo therapy in these patients are as stated in Table XIII.

TABLE XIII—RESULTS OF REPEAT-AUTOHAEMO-THERAPY

Successful	No. of Cases
Improved for 0—1 year ...	1
Improved for 0—2 years ...	8
	3

ANALYSIS OF THE CASES OF CATEGORY—III

Failed cases (Total number of cases—15).

These patients were treated later with various empirical means like galvanocautery, stock vaccines, hydrocortisone injections locally etc. However they failed to show any encouraging results.

ANALYSIS OF THE CASES OF CATEGORY—IV

One patient had aggravation of symptoms which partly subsided with time but was later complicated by attacks of asthma.

DISCUSSION

It will be evident that the data on etiology do not merit much discussion, since no new fact has been revealed in the course of investigations. The same diversity of various factors

which underlies the etiology of allergic diseases anywhere else, can be seen to exist in this series also. It is our endeavour, therefore, to restrict our discussion to the scope and utility of autohaemo therapy only.

Out of the 75 patients that came for regular follow up, 78·66% showed definite improvement indicating that this therapy deserves further trial. Moreover, technical simplicity makes this procedure suitable for outdoor routine and also economically convenient of any class of society. Not only the therapy is effective in cases where catarrh and sneezing dominate, but it has proved beneficial even to those who complained of headache in addition to other symptoms. This headache was probably due to congestion of mucous membrane of the ostia of various sinuses and once the allergic process was under control the headache also disappeared. These few observations indicate the wide applicability of this simple procedure.

A few complications have been recorded. Since the nature of these complications was mild as well as temporary, they should not deter the enthusiasm of a practitioner in this field. A solitary example of development of asthma following the injections has been stated. The patient might have been a potential candidate of asthma and this is a matter of coincidence. Whether this dangerous complication is possible in some cases will have to be proved by further observations and detailed investigations.

Our inquisitive colleagues may be struck with a question on mode of action of this therapy. We have not got still a definite answer to this query. However the following few are the possible explanations.

(1) The " antibodies " of the blood are liberated when it is injected in tissue spaces. The autoblood injections, by virtue of such antibodies, help desensitize the nasal mucosa against offending protein.

(2) The injections act as mild sclerosing agents and bring about aseptic inflammatory reactions in the submucosa. The

Fig. 1.
Mucosa from inferior concha in allergic rhinitis. Oedema and cellular infiltration of submucosa is obvious. (× 100).

Fig. 2.
Higher magnification of Fig. 1 showing oedema. (× 450).

Fig. 3.
Higher magnification of Fig. 1 showing cellular infiltration which consists of mononuclear cells and eosinophils. (× 450).

Fig. 4.
Conchal mucosa in a case of allergic rhinitis treated successfully with nasal autohaemo therapy. Oedema, cellular infiltration and vascularity has diminished. There is obvious deposition of fibrous tissue in submucosa. (× 100).

Fig 5.
Higher magnification of Fig. 4.
(× 450)

Fig. 6.
Conchal mucosa from a case of allergic rhinitis treated with nasal autohaemo therapy without any clinical improvement. Findings are similar to those of an untreated case. Marked vascularity is a prominent feature. (× 100).

resultant fibrosis prevents swelling and turgescence of the mucosa. The changes are restricted to the submucous layers only and the cilia and their function is not affected. This has been proved by our histopathological studies of the nasal mucosa before and after treatment. (See Figs. 1—6).

(3) In past autohaemo injections have been given in the muscles for various allergic conditions. We have treated a small series of 8 patients with the same. The results of this are stated below :

TABLE XIV—RESULTS OF INTRAMUSCULAR AUTOHAEMO THERAPY

No. of patients		Result
4	...	No improvement
2	...	Deterioration
1	...	Improved—2 months
1	...	Successful—2 months

This experiment suggests that autohaemo injections may be acting in some general way and that even a psychological factor cannot be excluded.

It is difficult to anticipate the usefulness of nasal treatment in a particular patient. Yet it has been our experience that where catarrh is the presenting symptom, the mucosa is typically pale blue and boggy, rather than hypertrophic, this treatment shows most encouraging results.

Extremes of excellent as well as disappointing results are recorded in individual cases and are rare examples. But on the whole, this has proved a satisfactory treatment in every respect and merits attention. Since repetition of this therapy has brought relief to some patients that had proved comparatively refractory to first course of injections, evaluation of this therapy also deserves consideration. Further trials with readjustment of doses, intervals between the injections, the total number of injections and combinations with newer drugs like cortisone are necessary to standardize the therapy.

SUMMARY

(1) One hundred and fifty cases of allergic rhinitis were studied.

(2) They were subjected to treatment with autoblood injections submucously in the inferior conchae.

(3) A follow up of 75 cases with the results is discussed.

(4) Possible mode of action of this therapy is discussed in the light of histopathological study.

ACKNOWLEDGEMENTS

We thank the Dean, King Edward VII Memorial Hospital, Bombay, for facilities for clinical trials, and use of hospital records, Dr. Joe V. DeSa, M.S., D.L.O. (Lond.) and Dr. P. P. Karnik, M.S. for their valuable suggestions and advice from time to time, Dr. D. K. Gosavi, M.B.B.S. for his assistance in the preparation of this paper, and the Resident staff of the E. N. T. Department for keeping a good record of our cases.

Neurilemmoma of Pharynx

BY

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Neurogenic Tumors are decidedly uncommon in the pharynx. The tumor was first described by Verocay in 1908. Stout proposed that the term Neurilemmoma be used in 1935. It has been given many names - neuroma, neurinoma, peripheral glioma, solitary neurofibroma, schwannoma. The tumor arises from the nerve sheath cells. They have their origin in the deep nerves of the neck. They may arise from the cervical sympathetic, roots of spinal nerves, trunks of the cervical plexus, spinal accessory and vagus. It is often difficult to know the actual site of parentage of a neurilemmoma even after extirpation.

Neurilemmomas arising from any of these sites finally present themselves in the pharynx. In the literature the incidence is mentioned as equally distributed in both the sexes. All my three cases have been in females. Age incidence ranges from 20 years to 61 years. There is no known factor associated with their occurrence.

SCHWANNOMAS HAVE CERTAIN CHARACTERISTICS

They are usually single, encapsulated. These tumors enlarge progressively. They are firm, non-tender, non-fluctuant. They are slow growing, painless ; though of neurogenic origin, circumscribed. They are round or fusiform. They do not ulcerate the pharyngeal mucosa or fix themselves to it. The mucous membrane covering the tumor is pale, not inflammed. They do not undergo malignant degeneration.

SIGNS AND SYMPTOMS

Patients showing a mass which presents itself in the neck and in the pharynx on the same side are seen frequently by the Otolaryngologists. All the patients had initial symptoms

referrable to the pharynx. They seek Otolaryngological consultation because of a lump in the throat or due to the difficulty in swallowing. All had a visible tumor presenting in the pharynx. They may press on the vagus and produce hoarseness and paralysis of the ipsilateral vocal cord. Involvement of cervical sympathetic fibres may result in Horner's Syndrome. The Syndrome may be present before surgical treatment, may be aggrevated by surgery or transient.

DIFFERENTIAL DIAGNOSIS

Sarcoma, parapharyngeal abscess, tuberculous glands and lymphomas.

BIOPSY

Biopsy of tumors through the pharyngeal wall is not satisfactory. The biopsy site is a potential pathway for infection in the neck. Aspiration biopsy usually reveals a small amount of blood. The final diagnosis of these tumors cannot be made without a histological examination.

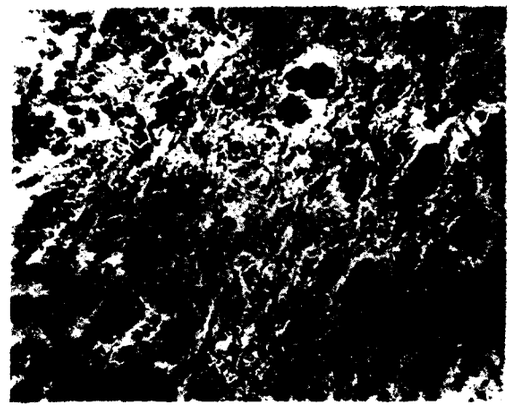
GROSS APPEARANCE OF NEURILEMMOMA AFTER REMOVAL

The gross specimen is usually an encapsulated ovoid mass. It is firm. The cut surface shows white fibrous trabeculae, partially separating the tumor into several lobules. There are some haemorrhagic areas. In some tumors one finds a central cystic cavity.

MICROSCOPIC APPEARANCE

These are unusually cellular tumors with spindle shaped nuclei and abundant fibrillar material. Nuclear Palisading is a conspicuous feature. Groups and rows of nuclei are associated with fusiform bundles of collagenous fibrils. These groupings of palisaded cells form intertwined, striated zones and areas (Verocay bodies) in between which there is loose oedematous fibrillar tissue (antony type II, containing numerous small blood vessels. The tumor has a fibrous capsule.

MICROPHOTOGRAPH



Gangbar cells lying in the Neurilemmoma—these were lying spread on the surface of the tumour.

Fig. 1.

Neurilemmoma showing Schwan cells and palisading of nuclei of the Fibres.

Fig. 2

Cut sections of tumour removed in Case No. 1

Fig. 3

Gross appearance of the tumour removed in Case No. 1

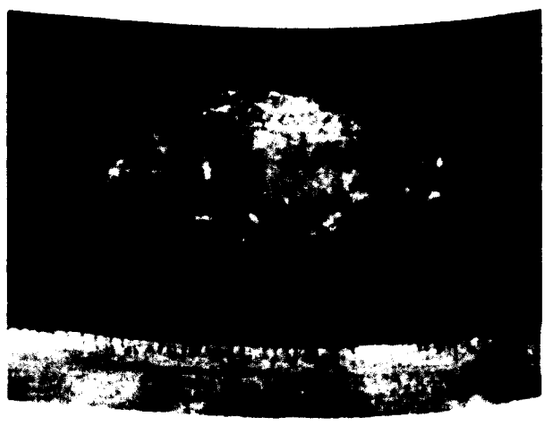


Fig. 4

Fig. 5

Lateral view--skiagram—showing the tumour.

Fig. 6

Skiagram—A. P. view—showing the tumour.

TREATMENT

The treatment of choice is surgical removal. The decision whether to use an intra-oral or external approach depends on the size of the tumor. If the tumor is of sufficiently small size it can be safely removed through mouth. With large tumors cervical approach is preferable. The risk of damage to adjacent structures may be slightly greater by the intra-oral approach. The point in favour of intra-oral approach is that it obviates a scar. A small benign symptomatic neurilemmoma may eventually cause trouble and for that reason should be removed when encountered. Pre-operative ligation of large vessels is seldom necessary. Surgery need not be deferred unless the patient's general health or increasing age are deterring factors. These tumors are radio-resistant and X-ray irradiation is not advisible. The complications following surgery as permanent Horner's Syndrome or ipsilateral vocal cord, paralysis are surgical risks which could appear even without surgery.

Prognosis is satisfactory.

MY CASE REPORTS

Case No. 1.- S. A. 50 years old female in apparent good health complained of fulness in the right side of the throat for one year. Dysphagia, no dyspnoea, lungs *Nad.* Kahn test negative. On examination a mass was found underlying the mucous membrane of the right lateral pharyngeal wall just posterior to the right tonsil fossa. The mass was about the size of a hen's egg. It extended up into the Nasopharynx and down to the epiglottis. An indefinite prominence was noted in the right submaxillary region. No other significant physical finding. At operation under endotracheal anaesthesia the tumor was approached through an incision parallel to the medial border of the right sternomastoid and another curvilinear incision on the top of this from the angle of the mandible to the symphysis menti. The tumor lay beneath some of the constructor muscles of the pharynx and was shelled out by blunt dissection with the aid of a finger in the pharynx. It seemed to arise from a small nerve

trunk which was not definitely indentified. The integrity of the pharyngeal mucosa was maintained throughout the procedure. Convalescence was uneventful. The photograph of the gross specimen and the micro-photograph of the tumor removed in this case appear in the article.

Case No. 2.– A 24 years old female was admitted in the surgical wards with a presumptive diagnosis of cervical tubercular lymphadenitis. She had a low grade fever. A biopsy obtained from the cervical lymphnodes was reported as Chronic Lymphadenitis. She was referred to the E. N. T. Deptt. for examination of pharynx. Physical examination revealed a hard non-tender mass in the neck, half the size of an orange which extended from the left ear to the level of the larynx. A similar mass projected into the left side of the pharynx behind the posterior pillar of the tonsil. Roentgen examination of the neck showed a soft tissue mass. On aspiration of the mass through the pharynx 5 cc. of straw coloured fluid was obtained. The tumor was removed under endotracheal anaesthesia through a lateral cervical approach. Patient developed Horner's Syndrome.

Case No. 3.—A 50 years old female came with difficulty in swallowing for past several months. A hard egg size mass on the right side of the lateral pharyngeal wall, retro-tonsillar was seen. It extended downwards to the upper part of the laryngopharynx. The mass was circumscribed and covered by normal mucosa. 5 c.c. of straw coloured fluid was aspirated, Lipiodol put in and skiagrams taken which appear in the article. The mass was excised intra-orally. It shelled out with minimum amount of bleeding.

My thanks to Dr. Kailash Chand Rai for helping me in writing this article and to the Superintendent of the S. M. S. Hospital, Jaipur for allowing me the use of the hospital records.

Association Notes

COLONEL AMIR CHAND TRUST PRIZES FOR MEDICAL RESEARCH

Lieut-Colonel Amir Chand, ex-Principal, Lady Hardinge Medical College, New Delhi, has made a donation or Rs. 50,000/- to the Indian Council of Medical Research for the purpose of awarding prizes for the best published research work in the field of medical sciences. The Governing Body of the Council has constituted a Trust called the "Colonel Amir Chand Trust" for the administration and management of the Fund.

The prizes are awarded annually on an All-India basis for the best published research work in any subject pertaining to all fields of medical sciences in general including clinical research. The term, "Clinical Research" will imply research into the mechanism and causation of disease, including its prevention and cure. It covers not only work in patients in hospitals, but also field studies in epidemiology and social medicine and observations in general practice.

It has been decided to award in 1958 *four junior prizes* of the value of Rs. 300/- each to graduates of not more than ten years standing, counting from the date of graduation, for the best research papers in medical sciences published during 1957 (1st January to 31st December, 1957). These prizes will be known as "Shakuntala Amir Chand Prize".

The Competitors for the prizes may be *Medical or Non-Medical Graduates.*

The Selection of candidates for the award of the prizes will be made by a Selection Board.

In a joint Publication the prize shall be divided between the joint workers in such proportion as the Selection Board may decide.

The Award of the prizes will be announced at the annual meetings of the Scientific Advisory Board and the Advisory Committees of the Indian Council of Medical Rasearch, to be held at Indore in November/ December, 1958.

The Candidates are required to submit 10 *Reprints* of their papers published during 1957. These should be sent to the *Director, Indian Council of Medical Research, P.O. Box 494, New Delhi,* so as to reach him *not later than the 1st August, 1958.*

The papers should be accompanied by a short biographical sketch and two copies of *Passport size photographs* of the worker or workers concerned.

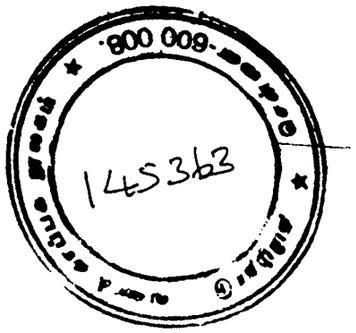
ANNOUNCEMENT

Symposium on Fungus Diseases in India

It is proposed to hold a symposium on "Fungus Diseases in India" under the auspices of the School of Tropical Medicine, Calcutta in the third week of December, 1958. The symposium will be divided in the following sections:—

1. Internal Medicine.
2. Paediatrics.
3. Gynaecology and Obstetrics.
4. Dermatology.
5. Surgery.
6. Medical Mycology.

Papers are invited for the presentation at the symposium. An abstract of the paper (in duplicate) not exeeding 300 words, should be sent to the Director, School of Tropical Medicine, Calcutta, not later than September 15, 1958, and the full paper (in duplicate) should be sent by November 15, 1958. Dr. C. G. Pandit, Director, Indian Council of Medical Research, New Delhi, has kindly consented to preside over the symposium. Scientists from the U. S. A. and U. K. are expected to participate in the symposium. For any further information and details regarding the symposium, kindly write to the Director.



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