CLINICAL RECORDS

MYRINGOPLASTY—A CRITICAL STUDY

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HAVING recently reviewed the cases of myringoplasty done in the past 3 years, it may be of interest to describe briefly the technique and the materials used, as well as the results and the conclusions that can be drawn from them.

All cases were operated under magnification, usually ×6, but occasionally ×10. Higher magnification is not necessary and, in fact, might hinder manipulations.

All cases were done through an aural speculum and incision of the outer meatus was unnecessary. This route is adequate, especially if one is trained to use it in stapes surgery.

As few instruments as possible were used. In the removal of the outer epithelial layer of the drum Zöllner's fine sucker and raspatory is usually all that is required.

In most cases a local anæsthetic was given, which was found adequate, especially if the patient is given sedation pre-operatively. A general anæsthetic, with or without hypotensives, was always given to patients below 15 years and to those who requested it. Even in those cases where a general anæsthetic was given, the meatus was always injected with a local anæsthetic (xylocaine 2 per cent. and 1 : 10,000 adrenaline HCl) at the three injection points used for stapes surgery. Bleeding is usually negligible, but may sometimes be troublesome when working at the junction of the floor of the meatus with the drum. It can be easily controlled by adrenaline plugs. We have used rubber-covered suckers which can be connected to a diathermy machine, but their use is rarely necessary, and may, in fact, delay healing.

Almost all cases received some form of medical treatment before operation, and no case was operated unless the ear had been dry for at least 6 weeks. Medical treatment usually took the form of examination and suction-lavage under the microscope, removal of granulations when present, drops (antibiotics, cortisone) and attempts at spontaneous closure by cauterization of the edges of the perforation and application of sterilized cigarette paper soaked in tincture of benzoin, which acts as an adhesive.

Those cases which were operated without prior medical treatment were the large central or anterior perforations which had been dry for a number of months or years. They were, however, examined under the microscope to make certain that no sign of active disease was present.

The Eustachian tube was patent in all cases.

The technique was practically the same for all cases and the only variation was in the choice of material for the graft. Great care was taken to ensure that

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the outer epithelial lining of the drum had been completely removed. Removal is usually easy using a fine sucker to scrape the epithelium and at the same time suck away blood from the field. The outer layer of the meatal skin was removed for 2 mm. or so away from the drum. The anterior tympano-meatal angle may present some difficulty, especially if the meatus bends sharply forwards at this point. In these cases, the angle was reduced by drilling away the bone, thus straightening the meatus. An incision opposite to that used by Rosen for stapes surgery had to be done and the soft meatal wall dissected away from the bone that had to be removed; it was later replaced and the stages of myringoplasty continued. This is not a common occurrence.

Four types of material were used to close the perforations: skin, mucosa, vein and connective tissue.

A whole thickness skin graft is easily obtained from the postauricular region. Owing to the rarity of elastic fibres in this region, good apposition of the graft to the drum is assured. Results, however, proved disappointing and this method was given up.

Mucosa taken from the inside of the cheek or lip is also easy to control, but the method is unpleasant to the patient, mostly because of the bleeding that it provokes; this is true if the operation is done under a local anæsthetic. When applied to the drum, the graft usually stayed in place, but a "take" was rare and, when it happened, the drum was invariably found retracted and immobile.

Vein tissue is not easy to keep in place and will only adhere to the drum and meatal walls with difficulty; the edges show a tendency to curl inwards, and a large graft must therefore be used.

In one case, following Shea, the graft was applied to the medial surface of the drum, but we found the technique difficult and uncertain, and the result did not warrant perseverance.

Fascial grafts taken from the temporal muscle were found to be the most suitable for this type of operation. A small piece of fascia is quickly obtained and, after examination under the microscope to make certain that no muscle fibres remain, is cut somewhat larger than the area of the drum and put in place; it will retain this position. Fascia does not require a rich blood supply and failures are, therefore, rare; when they happen one should suspect a fault in technique rather than in the method.

In an endeavour to prevent adhesion formation to the promontory, the middle ear was packed with absorbable gelfoam (Sterispon) or patient's coagulated blood. The value of this is doubtful because adhesions were found post-operatively in patients that had been packed and absent in some that had not been packed.

At the end of the operation a piece of silk soaked in a solution of antibiotics and cortisone was placed against the graft and the meatus was lightly packed with BIPP ribbon gauze. It was not removed before 6 weeks, unless it was extruded spontaneously.

Two problems are worth consideration: First, there is the problem of the hearing in relation to the type and position of the perforation. Although generalizations are dangerous, yet experience shows that a loss of up to 50 db. may be reduced considerably by a successful result. But in central perforations

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with a severe hearing loss, notwithstanding closure of the perforation, the deafness remains unchanged. One can only surmise that adhesions which form as a result of chronic infection close off a part of the middle ear and possibly enfold one of the ossicles, usually the incus, thus preventing vibrations from reaching the internal ear.

The other problem is closure of a perforation when other operations have been done. These operations may have been rather crude, for example, a poorly performed cortical or modified radical mastoidectomy. In these cases failure is the rule.

In our series a case was considered successful if the two aims of the operation were achieved, viz. closure of the perforation and improvement in hearing by 10 db. or more.

The following are the results:

Skin

No. of cases	Perforation closed	Perforation partly closed	No "take"	Hearing improved
26	4 = 15%	16	6	8 = 23%

The number of partial closures is impressive. In all cases we found a "chink" between the graft and the drum.

Mucous Membrane

No. of cases	Perforation closed	Perforation partly closed	No "take"	Hearing improved
18	5 = 28%	8	5	6 = 33%

Vein

No. of cases	Perforation closed	Perforation partly closed	No "take"	Hearing improved
31	9 = 29%	2	20	7 = 22%

Connective Tissue

No. of cases	Perforation closed	Perforation partly closed	No "take"	Hearing improved
53	41 = 77%	10	2	37 = 61%

Fascia appeared to be more resistant to infection from the middle ear or the meatus than the other tissues used.

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Summary

A brief outline of the technique used for closure of dry tympanic perforations is given. The materials used for a graft are mentioned and the advantages and disadvantages of each discussed. Fascia taken from the temporal muscle is the material of choice. The results of 128 cases operated in the last 3 years are given.

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