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SHORT TERM OUTCOME OF REVISION MYRINGOPLASTY

ABSTRACT

Objectives:

To observe the short term outcome of revision myringoplasty in terms of graft uptake and hearing result.

Materials and methods:

Retrospective review was done of 60 patients from June 2013 to April 2017 who underwent revision myringoplasty for total graft failure and residual perforation following primary myringoplasty. Patients above 5 years of age and who underwent redo myringoplasty with temporalis fascia were included in the study. Cartilage tympanoplasty and ossiculoplasty as well as re-revision myringoplasty were excluded from the study. Surgical outcomes were measured in term of total graft uptake and hearing result after 3 months post-surgery.

Results:

A total of 60 cases were included in the study. Graft uptake was seen in 54/60 (90%) cases and hearing improved in 50/60 (83%) cases.

Conclusion:

Short term outcome of revision myringoplasty is good if it is done meticulously in selective inactive cases

Keywords: Graft uptake, Hearing outcome, Myringoplasty, Revision

INTRODUCTION

Myringoplasty is one of most common surgeries done in Otorhinolaryngology. Post-surgical graft failure is the notorious complications. There are various factors which is responsible for graft failure. Some of the risk factors includes age, location and size of perforation, status of contralateral ear, nasopharyngeal pathology, surgical approach and technique, graft material, surgeon experience, smoking.[1,2] Other factors responsible for graft failure are infection with graft necrosis, no uptake of graft, poor adaptation of graft and acute otitis media after surgery.[3] A study done by Nardone et al shows overall 10-year graft success rate to be 78% in 1,040 patients.[4] The 10-year recurrence rate of chronic otitis media was 15% in overlay myringoplasty and 26% in underlay technique.[4] Most of the small residual perforation may heal over a period of time whereas some may go toward activity. Revision myringoplasty due to reperforation of the tympanic membrane or failure of the previous surgery is a challenge to both the surgeon and the patient because of the risk of hearing loss due to repeated manipulation of the ossicles and loss of site of grafting material. The results of revision myringoplasty are variable. Some study show excellent results whereas some shows modest results of 50 % only.[1,5-7] Nagai et al found 52.3 percent success rate in 23 children up to 14 years of age[15]. But the success rate of this group was not significantly different from that of the older group. The aim of the study was to observe the short term outcome of revision myringoplasty in our setup.

MATERIALS AND METHODS

It was a retrospective review of patients who underwent revision myringoplasty because of residual perforation or graft failure following primary myringoplasty from June 2013 to April 2017 in Ganesh Man Singh Memorial Academy of ENT & HN studies Tribhuvan University Teaching Hospital, Kathmandu Nepal after obtaining ethical clearance from institutional review comittee. Patients above 5 years of age who underwent redo myringoplasty with temporalis fascia graft were included in the study. Cartilage tympanoplasty and ossiculoplasty, re-revision myringoplasty and who had active discharge were excluded from the study. Moreover, the cases where ossicular status could not be assessed or with ossicular discontinuity were also excluded from the study. Surgeries in adult were done under local anaesthesia and in children was done under general anaesthesia.

Types of soft tissue approaches were permeatal and postaural approach. Standard tympanomeatal flap was elevated when perforation size was <60% and U flap was elevated when perforation size was >60%. Temporalis fascia graft was harvested. Ossicular chain and their mobility were assessed and grafting was done as underlay. Patients were followed up after 2 weeks for detection of any infection and after 3rd month. On 3 months follow up, patients were evaluated for graft uptake and hearing status. Hearing status was evaluated with pure tone audiogram. Air and bone conduction threshold and air bone gap were evaluated. Air bone gap closure < 10 dB were regarded as audiological success. Surgical outcome was measured in term of total graft uptake 3 months post-surgery.

RESULTS

A total of 72 patients with residual perforation or graft failure presented in our department. Among 72 cases, 12 patients were excluded. Eight patients were excluded because of ossicular discontinuity, three patients refused for second surgery and one patient lost to follow up. Therefore, a total of 60 cases were included in the study.Out of 60 cases, 36 were female and 24 were male patients. Eight patients were in pediatrics age group (5-15 years) and 52 patients were adult patient. Six patients had failure even after revision myringoplasty. Among which, two pediatrics patients had acute otitis media within one month of surgery and four adult patients had residual perforation.

Table 1: Size of residual perforation (n=60)

Size of perforation	No of cases
>60%	16
<60%	44

Table 2: Graft uptake (n=60)

Graft status	No of cases (%)
Uptake	54 (90%)
Failure	6 (10%)

Table 3: Airbone gap (n=60)

Air bone gap	No of cases (%)
AB gap <10 dB	50 (83.4%)
AB gap >10dB	10 (16.6%)

DISCUSSION

Myringoplasty is one of the common surgeries done in our department. Post-surgical graft failure is one of the notorious complications. Revision surgery is challenging for surgeon as there is chance of injury to structure like ossicles due to excessive fibrosis and lack of graft material. At the same time patient too may have high expectation from revision surgery that has to be addressed by the surgeon.

Vartiainen E, had twenty-five percent of failures after primary myringoplasty that were considered attributable to eustachian tube insufficiency.[8] In 11 cases, the hearing didn't improve and the cause of persistent conductive hearing loss was found to be fixation or erosion of ossicles. He concluded that 10.6% ear drum re-perforate after myringoplasty and half of which occur immediately after surgery.[9]

In a study by Roberto Albera, he reported that 89% of failures appear within 3 months of surgery and 63% within first month.[10] Immediate failure was due to faulty surgical technique.[11]

In our study, the graft uptake was 90% in 3 months. Similar report was also observed in the study done by Veldman JE, who performed 323 revision tympanoplasty and achieved a success in nearly 90% of cases.[12] Similarly, Jan E .Veldman did revision myringoplasty with autologous fascia and also achieved 90% success.[13] Yetiser S et al, used solvent-dehydrated human dura mater (Tutoplast) and had 86.7% graft success rate in revision surgery.[14] In our study temporalis fascia was used as a graft material similar to Attallah et al where temporal fascia was used with overall success of 85% and significant improvement in hearing[11]

In contrast to our study, Berger et al, had less success rate after revision myringoplasty.[7] They reviewed short and long term result of 70 revision myringoplasty and had success rate of 61.4% after six weeks of surgery. The leading causes of immediate failure (27 cases) were associated with a complete rejection of graft, infection with graft necrosis and poor anterior adaptation of the graft.[7] Even in our study, two pediatrics patient had failure because of acute otitis media. In study by Berger et al, six out of 43 patients developed late re-perforations during the follow-up period, thus reducing the success rate of revision myringoplasty to 52.8%. Late re-perforations were attributed to insidious atrophy of tympanic membrane or episodes of acute otitis media.[7]

Some of the literatures shows less favorable outcome of Paediatric revision myringoplasty. Nagai et al. found 52.3% success rate of revision myringoplasty in 23 children.[15] Berger et al. reviewed short and long term results of revision myringoplasty in children up to the age of 15 years. Twenty-six out of 38 operated ears (68.4 per cent) were initially intact. Six ears developed delayed re-perforations, thus decreasing the overall success rate to 52.6%. The latter were attributable to either episodes of acute otitis media or to insidious atrophy of the tympanic membrane.[3]

CONCLUSION

Short term outcome of revision myringoplasty in selective cases and done by experienced surgeon yield good result. However, long term follow up with larger sample size is needed to conclude the final outcome of revision myringoplasty.

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