Journal of african clinical cases and reviews / Journal africain des cas cliniques et revues

www.jaccrafrica.com ISSN 1859-5138 Open access

Technical Note

Fat graft endoscopic myringoplasty

Myringoplastie endoscopique par greffe de graisse

CA Lame*[1], B Loum[1], TB Diallo[1], CB Ndiaye[1], KMA Diouf[1]

Abstract

Myringoplasty is a surgical procedure performed to repair tympanic perforation.

Different techniques have been developed and improved over time using various materials.

The technique we describe in this article uses fat graft under endoscopic guidance. This minimally invasive and simple surgical procedure allows excellent results. It presents itself as a good alternative in poor countries where strong demand of tympanic repairs face few number of otologists and deficient technical platforms.

Keywords: tympanic perforation, myringoplasty, endoscopic procedure, fat graft.

Résumé

La myringoplastie est une procédure chirurgicale réalisée pour réparer une perforation du tympan.

Différentes techniques ont été développées et améliorées au fil du temps en utilisant divers matériaux.

La technique que nous décrivons dans cet article utilise une greffe de graisse sous guidage endoscopique. Cette procédure chirurgicale simple et peu invasive permet d'obtenir d'excellents résultats. Elle se présente comme une bonne alternative dans les pays pauvres où la forte demande de réparation du tympan se heurte à un nombre restreint d'otologues et à des plateaux techniques déficients.

Mots-clés : perforation tympanique, myringoplastie, procédure endoscopique, greffe de graisse.

Introduction

Myringoplasty is a commonly used procedure in ear surgery [1]. It is conventionally performed under microscopy [2]. Different techniques and various graft materials are used [2, 3, 4].

Recently, the use of endoscopy in otologic surgery allowed evolution of these techniques [2, 4, 5, 6].

The myringoplasty procedure we describe hereby derives from coupling endoscopy with fat graft material.

Surgical technique

Surgical team

The surgeon operates alone; a circulating nurse will take care of dressing and serving instruments.

Instrumentation

A 0o or 30o rigid endoscope (2.7 or 3 mm diameter, 10 to 18 cm length) is connected to video system (camera, monitor and light source).

Classic myringoplasty instruments, suction device

with fine cannulas are needed.

Installation

The patient is in supine position with head slightly turned towards tympanic perforation opposite side. The surgeon stands on operated side, video monitor in front and instrument table at patient's head.

Anesthesia

For adults, the procedure is most often performed under local anesthesia.

For children, pusillanimous adults, or on request, the intervention is done under general anesthesia.

Procedure

- Otoendoscopic examination

After external acoustic meatus cleaning, initial otoendoscopy visualizes all eardrum parts, especially anterior angle ; it permits to precise perforation seat and size, and also appreciates tympanic remains.

- Fat graft sampling

A piece of fat, slightly larger than perforation diameter is taken in abdominal peri-umbilical area through a 5 to 10 mm incision (Fig. 1).

- Myringoplasty

The endoscope held by left hand (for a right-handed operator) slowly goes down through external auditory meatus. Endoscope trip is followed on the monitor.

- Desepidermisation of perforation margins

The tympanic perforation is revitalized by making small circumferential holes at 1 mm from the banks using a curved tip. The holes are then connected by a scanning movement of the tip. The scar tissue is then extracted using a micro-clamp (Fig 2A).

- Graft implementation

The fat graft is inserted by «champagne cork» technique through the perforation allowing the fatty tissue to cover medial and lateral faces of the perforation (Fig. 2B). A piece of gelfoam is placed on the graft, and wedged by a cotton ball or a pope (Fig. 2C).

- Post-operative care

Antibiotic drops are prescribed for a week. Removal of the cotton ball is done on 7th day. The patient is seen one month, and three months postoperative (Fig. 3A and 3B).

Figure 1: Abdominal peri-umbilical fat graft collection site.

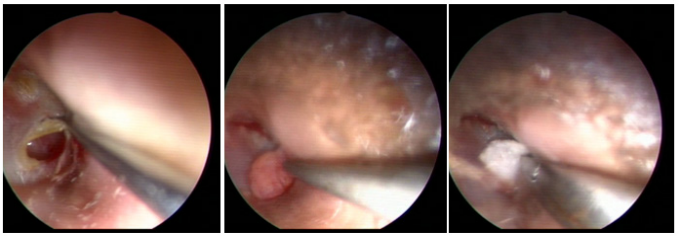

Figure 2: (A) Tympanic perforation margins reviving, (B) Fat graft set up, (C) Gelfoam on the graft.

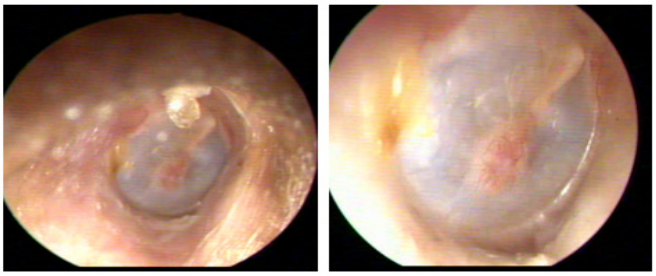

Figure 3: Otoscopic view one month postoperative (A), three months postoperative (B).

Discussion

Recently, endoscopy is increasingly used in otologic surgery [2,4,5,6]. In myringoplasty, the endoscopic approach permits to obtain a wider field of view [4,5,6], especially in anterior perforations, but also in cases of narrow or tortuous external acoustic meatus and in presence of exostosis. The transmeatal pathway thus avoids endaural and retroauricular incisions [3,4,7,8]. It also avoids meatoplasty [5,7,8]. Use of endoscopy reduces the operative time [4,7,9].

Anatomical and functional results are similar for conventional myringoplasty under microscope and

endoscopic myringoplasty [2,4,8,9].

The main disadvantage of using endoscopy is that surgeon works with only one free hand, when the other is holding the endoscope [4,5].

The use of fat graft gives same results as other conventional materials with success rate higher than 92% [1,10]. However, it should be reserved for dry, non-marginal, small or medium-sized (-50%) perforations without associated myringosclerosis [9]. Perforation seat does not affect failure rate [9], and no more complication has been described when using fat graft in myringoplasty [1,9,10]. This material can be used in first or seconde intention [9].

Conclusion

Endoscopic myringoplasty with fat graft is a simple and effective surgical procedure. It may be indicated in case of tympanic perforation in a rigorously selected patient.

It is thus an alternative in developing countries; where, despite of a very strong demand for tympanic repairs, otologists are still rare and technical platform deficient.

***Correspondence**

Cheikh Ahmédou LAME

cheikhlame@gmail.com

Available online : January 4, 2022

1 : Service ORL Hôpital Principal de Dakar

Conflict of interest : None

References

[1] Kwong KM, Smith MM, Coticchia JM. Fat graft myringoplasty using umbilical fat. Int J Pediatr Otorhinolaryngol 2012 ; 76 : 1098–1101.

[2] Akyigit A, Sakallıoglu O, Karlidag T. Endoscopic tympanoplasty. J Otol 2017; 12 : 62-67.

[3] Kiringoda ER, Cohen MS, Endoscopic tympanoplasty. Oper Tech Otolaryngol 2017 ; 28 : 17–22.

[4] Min J, Kim SH. Comparison of transcanal endoscopic tympanoplasty with sterile acellular dermal allograft to conventional endaural microscopic tympanoplasty with tragal perichondrium. Am J Otolaryngol 2018 ; 39 : 167–170.

[5] Mohanty S, Manimaran V, Umamaheswaran P, Endoscopic cartilage versus temporalis fascia grafting for anterior quadrant tympanic perforations : A prospective study in a tertiary care hospital. Auris Nasus Larynx 2018 ; 45 : 936–942.

[6] Tseng CC, Lai MT, Wu CC et al. Comparison of endoscopic transcanal myringoplasty and endoscopic type I tympanoplasty in repairing medium-sized tympanic perforations. Auris Nasus Larynx 2017 ; 44 : 672–677.

[7] Daneshi A, Jahandideh H, Daneshvar A, Safdarian M. Bilateral same-day endoscopic transcanal cartilage tympanoplasty: initial results. Braz J Otorhinolaryngol. 2017 ; 83 : 411-415.

[8] Isaacson G, Harounian JA. Results of pediatric endoscopic and endoscopically assisted tympanoplasty. World J Otorhinolaryngol Head Neck Surg 2017 ; 3 : 136-141.

[9] Thomassin JM, Facon F, Gabert K. Intérêt de l'oto-endoscopie dans la myringoplastie par greffon adipocytaire. Ann Otolaryngol Chir Cervicofac 2004; 121 : 346-349.

[10] Tringali S, Dubreuil C, Bordure P. Les perforations tympaniques et les greffes de tympan. Ann Otolaryngol Chir Cervicofac 2008 ; 125 : 261-272.

To cite this article :

CA Lame, B Loum, TB Diallo, CB Ndiaye, KMA Diouf. Fat graft endoscopic myringoplasty. Jaccr Africa 2022; 6(1): 60-62