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Bilateral same-day endoscopic transcanal cartilage tympanoplasty: initial results[☆]

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KEYWORDS

Cartilage;
Endoscopy;
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Abstract

Introduction: Same-day closure of bilateral tympanic membrane perforations is a quick and more comfortable procedure for the patients. However, conventional bilateral same-day tympanoplasty or myringoplasty has been rarely performed because of the theoretical risk of postoperative complications.

Objective: To evaluate the advantages and outcomes of bilateral simultaneous endoscopic cartilage tympanoplasty in patients with bilateral tympanic membrane perforations.

Methods: From February 2012 to March 2013, patients with bilateral dry tympanic membrane perforations who had some degree of hearing loss corresponding to the size and location of the perforation entered the study. There was no suspicion to disrupted ossicular chain, mastoid involvement or other middle or inner ear pathology. Endoscopic transcanal cartilage tympanoplasty was done using the underlay (medial) technique. The graft was harvested from cymba cartilage in just one ear with preservation of perichondrium in one side. A 1.5 cm × 1.5 cm cartilage seemed to be enough for tympanoplasty in both sides.

Results: Nine patients (4 males and 5 females) with the mean age of 37.9 years underwent bilateral transcanal cartilage tympanoplasty in a same-day surgery. The mean duration of follow up was 15.8 months. There were detected no complications including hearing loss, otorrhea and wound complication with no retraction pocket or displaced graft during follow-up period. The grafts take rate was 94.44% (only one case of unilateral incomplete closure). The mean of air-bone gap overall improved from 13.88 dB preoperatively to 9.16 dB postoperatively ($p < 0.05$).

Conclusion: Bilateral endoscopic transcanal cartilage tympanoplasty can be considered as a safe minimally invasive procedure that can be performed in a same-day surgery. It reduces the costs and operation time and is practical with a low rate of postoperative complications.

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PALAVRAS-CHAVE

Cartilagem;
Endoscopia;
Mesmo dia;
Perfuração da
membrana timpânica;
Timpanoplastia

Timpanoplastia bilateral transcanal por via endoscópica com cartilagem realizada simultaneamente: resultados iniciais**Resumo**

Introdução: O fechamento no mesmo dia de perfuração bilateral da membrana timpânica é um procedimento rápido e mais confortável para os pacientes. Entretanto, a timpanoplastia ou miringoplastia convencional bilateral executada no mesmo procedimento tem sido raramente realizada devido ao risco teórico de complicações pós-operatórias.

Objetivo: Avaliar as vantagens e resultados da timpanoplastia bilateral simultânea com cartilagem por via endoscópica em pacientes com perfuração bilateral da membrana timpânica.

Método: De fevereiro de 2012 a março de 2013, pacientes com perfuração seca bilateral da membrana timpânica que tinham algum grau de perda de audição correspondente ao tamanho e localização da perfuração foram incluídos no estudo. Não houve suspeita de cadeia ossicular interrompida, envolvimento do mastoide ou outra doença da orelha média ou interna. Timpanoplastia com cartilagem transcanal foi executada por via endoscópica usando a técnica de *underlay* (medial). O enxerto foi colhido de cartilagem da concha superior (cymba) em apenas uma orelha com preservação do pericôndrio em um lado. Um enxerto de 1,5 × 1,5 centímetros de cartilagem pareceu ser o suficiente para a timpanoplastia em ambos os lados.

Resultados: Nove pacientes (4 homens e 5 mulheres) com idade média de 37,9 anos foram submetidos à timpanoplastia bilateral com cartilagem transcanal em uma cirurgia realizada em etapa única. O tempo médio de acompanhamento foi de 15,8 meses. Não foram detectadas complicações, incluindo perda de audição, otorreia e complicações como bolsa de retração ou deslocamento de enxerto durante o período de seguimento. A taxa de sucesso do enxerto foi de 94,44% (apenas um caso de fechamento unilateral incompleto). A média do gap aéreo-ósseo em geral melhorou de 13,88 dB no pré-operatório para 9,16 dB no pós-operatório ($p < 0,05$).

Conclusão: Timpanoplastia bilateral com cartilagem transcanal por via endoscópica pode ser considerada como um procedimento minimamente invasivo, seguro e que pode ser executado em uma única cirurgia. Isso reduz os custos e tempo de operação e é prático, com um baixo índice de complicações pós-operatórias.

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Introduction

Tympanoplasty is the standard and well-established procedure for closure of tympanic membrane perforations. Traditionally each eardrum was taken up for grafting sequentially in two different settings, which leads to considerable increase in operation cost, time and discomfort to the patient.¹

Same-day closure of bilateral tympanic membrane perforations is a quick and more comfortable procedure for the patients. However, conventional bilateral same-day tympanoplasty or myringoplasty has been rarely performed because of the theoretical risk of postoperative complications.² The risk of iatrogenic hearing loss related to bilateral tympanoplasty on the same day is reported to be about 1.2–4.5%. Therefore, the conventional belief amongst otosurgeons is to avoid doing bilateral tympanoplasty simultaneously.^{3–5}

In this study, we evaluated the advantages and outcomes of performing bilateral simultaneous endoscopic cartilage tympanoplasty in a case series of patients with bilateral tympanic membrane perforations.

Methods

Institutional ethical clearance obtained prior to conduction of this study from the local ethics committee of ENT-Head & Neck surgery research center of Rasoul Akram Hospital, Iran University of Medical Sciences Tehran, Iran and the patients has consented for submission of this paper to the journal.

Nine patients with bilateral dry tympanic membrane perforations entered the study. All patients had some degree of hearing loss (all of them less than 30 dB) that seemed corresponding to the size and location of the perforation. There was no suspicion to disrupted ossicular chain, mastoid involvement or other middle or inner ear pathology. All the patients had at least 2 months dry ear prior to the surgery, which is logically suitable for performing a regular tympanoplasty.

The patients were placed in the supine position, with head 30 degrees up and turned slightly toward the side to be operated. The video equipment was placed in front of the surgeon and the instrument trolley and scrub nurse were positioned at the head. We used Karl Storz (Tuttlingen, Germany) high definition monitor and camera and 4 mm in

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