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ORIGINAL ARTICLE

Effects of cavity reconstruction on morbidity and quality of life after canal wall down tympanomastoidectomy[☆]

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KEYWORDS

Caloric test;
Epithelial migration;
Quality of life

Abstract

Introduction: Canal wall down (CWD) tympanomastoidectomy is commonly used to treat advanced chronic otitis media or cholesteatoma. The advantages of CWD mastoidectomy are excellent exposure for disease eradication and postoperative control of residual disease; its disadvantages include the accumulation of debris requiring life-long otological maintenance and cleaning, continuous ear drainage, fungal cavity infections, and the occurrence of dizziness and vertigo by changing temperature or pressure.

Objective: To evaluate whether cavity-induced problems can be eliminated and patient comfort can be increased with mastoid cavity reconstruction.

Methods: In total, 11 patients who underwent mastoid cavity reconstruction between March 2013 and June 2013 comprised the study group, and 11 patients who had dry, epithelialized CWD cavities were recruited as the control group. The study examined three parameters: epithelial migration, air caloric testing, and the Glasgow Benefit Inventory (GBI). Epithelial migration, air caloric testing, and the GBI were evaluated in the study and control groups.

Results: The epithelial migration rate was significantly faster in study group (1.63 ± 0.5 mm/week) than control group (0.94 ± 0.37 mm/week) ($p=0.003$, $p<0.05$). The mean slow component velocity of nystagmus of the study group ($13.33 \pm 5.36^\circ/s$) was significantly lower when compared to control group ($32.11 \pm 9.12^\circ/s$) ($p=0.018$). The overall GBI score was -7.21 , and the general subscale, physical and social health scores were -9.71 , -21.09 , and $+20.35$, respectively in the control group. These were $+33.93$, $+35.59$, $+33.31$, and $+29.61$, respectively in the study group. All but the social health score improved significantly (0.007, 0.008, 0.018, and 0.181, respectively).

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PALAVRAS-CHAVE

Prova calórica;
Migração epitelial;
Qualidade de vida

Conclusions: Cavity reconstruction improves epithelial migration, normalizes caloric responses and increases the quality of life. Thus, cavity rehabilitation eliminates open-cavity-induced problems by restoring the functional anatomy of the ear.

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Efeitos da reconstrução da cavidade da timpanomastoidectomia com técnica aberta na morbidade e qualidade de vida

Resumo

Introdução: A timpanomastoidectomia utilizando a técnica *Canal Wall Down* (CWD), ou técnica aberta, é comumente utilizada para tratar otite média crônica avançada ou colesteatoma. As vantagens da mastoidectomia pela técnica aberta são uma excelente exposição para a erradicação da doença e controle pós-operatório da doença residual; suas desvantagens incluem o acúmulo de detritos que requerem manutenção e limpeza otológica ao longo da vida, drenagem contínua da orelha, infecções fúngicas na cavidade e a ocorrência de tonturas e vertigem com alterações de temperatura ou pressão.

Objetivo: Avaliar se os problemas induzidos pela cavidade podem ser eliminados e o conforto do paciente aumentado com a reconstrução da cavidade mastoide.

Método: No total, 11 pacientes submetidos à reconstrução da cavidade mastoide entre março de 2013 e junho de 2013 constituíram o grupo de estudo, e 11 pacientes com cavidades secas e epitelizadas, operadas pela técnica aberta, foram recrutados como grupo controle. O estudo analisou três parâmetros: migração epitelial, prova calórica com estimulação a ar e o questionário *Glasgow Benefit Inventory* (GBI). A migração epitelial, a prova calórica e o GBI foram avaliados nos grupos de estudo e controle.

Resultados: A taxa de migração epitelial foi significativamente mais rápida no grupo de estudo ($1,63 \pm 0,5$ mm / semana) do que no grupo controle ($0,94 \pm 0,37$ mm/semana) ($p = 0,003$, $p < 0,05$). A velocidade média do componente lento do nistagmo no grupo de estudo ($13,33 \pm 5,36^\circ/s$) foi significativamente menor se comparada ao grupo controle ($32,11 \pm 9,12^\circ/s$) ($p = 0,018$). O escore global do GBI foi de $-7,21$, e os escores da subescala geral, saúde física e social foram $-9,71$, $-21,09$ e $+20,35$, respectivamente, no grupo controle. Esses escores foram $+33,93$, $+35,59$, $+33,31$ e $+29,61$, respectivamente, no grupo de estudo. Todos, exceto o escore de saúde social, melhoraram significativamente ($0,007$, $0,008$, $0,018$ e $0,181$, respectivamente).

Conclusões: A reconstrução da cavidade melhora a migração epitelial, normaliza as respostas da prova calórica e aumenta a qualidade de vida. Assim, a reabilitação da cavidade elimina os problemas induzidos por cavidades abertas ao restaurar a anatomia funcional da orelha.

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Introduction

Canal wall down (CWD) tympanomastoidectomy is commonly used to treat advanced chronic otitis media or cholesteatomas. The advantages of CWD mastoidectomy include excellent exposure for disease eradication and post-operative control of residual disease^{1,2}; its disadvantages include the accumulation of debris requiring life-long otological maintenance and cleaning, continuous ear drainage, cavity infections, especially with fungal pathogens, and the occurrence of dizziness and vertigo induced by changing temperature or pressure.³ This study examined how well cavity reconstruction surgery eliminated cavity problems and increased patient comfort by epithelial migration measurement, air caloric testing, and the Quality Of Life (QOL)

assessment. To date, epithelial migration, caloric responses or QOL assessment were evaluated separately and partially in some studies which dealt with mastoid obliteration. However, all parameters have not been studied entirely and adequately in patients who undergo mastoid obliteration. Surgical reconstruction involves reconstructing the posterior wall of the external auditory canal with conchal cartilage, and partially obliterating the mastoid cavity with temporal muscle.

Methods

This study was performed in accordance with the Helsinki Declaration of the World Medical Association and informed consent was obtained from all participants. The study was

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