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ORIGINAL ARTICLE

Retrospective analysis of skin complications related to
bone-anchored hearing aid implant: association with
surgical technique, quality of life, and audiological
benefit☆☆☆

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KEYWORDS

Skin complications;
Quality of life;
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Abstract

Introduction: The bone-anchored hearing aid is an effective form of auditory rehabilitation. Due to the nature of the implant, the most common complications are skin related. A number of alternative surgical implantation techniques have been used to reduce the frequency and severity of skin complications, including the U-shaped graft and the linear incision.

Objective: To assess skin complications and their association with surgical technique, quality of life, and audiological benefit in patients with bone-anchored hearing aids.

Methods: This was a retrospective study conducted in a tertiary referral center in Bogotá, Colombia. Patients who had been fitted with a bone-anchored hearing aid implant (unilaterally or bilaterally) for at least 6 months were included in the study. The Holgers classification was used to classify skin complications (Grade 0 = none; Grade 1 = erythema; Grade 2 = erythema and discharge; Grade 3 = granulation tissue; and Grade 4 = inflammation/infection resulting in the removal of the abutment). The Glasgow Benefit Inventory questionnaire was used to determine quality of life, and the Abbreviated Profile of Hearing Aid Benefit questionnaire was used to determine the subjective audiological benefit.

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Results: A total of 37 patients were included in the study (30 with unilateral implants and 7 with bilateral implant). Of the 44 implants evaluated, 31 (70.3%) were associated with skin complications (7 [15.9%] Grade 1; 4 [9.1%] Grade 2; 15 [34.1%] Grade 3, 5 [11.4%] Grade 4). The U-shaped graft was statistically associated with major complications (Grades 3 and 4) compared with the linear incision technique ($p=0.045$). No statistically significant differences were found between Abbreviated Profile of Hearing Aid Benefit scores and severity of complications. Similarly, no differences were found between Glasgow Benefit Inventory physical health questions and skin complications.

Conclusion: Despite the high frequency, skin complications did not seem to affect quality of life or subjective audiological benefits of patients with bone-anchored hearing aids.

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PALAVRAS CHAVE

Complicações cutâneas;
Qualidade de vida;
Prótese auditiva óssea;
BAHA;
Técnica cirúrgica

Análise retrospectiva de complicações cutâneas relacionadas ao implante de prótese auditiva óssea: associação com técnica cirúrgica, qualidade de vida e benefício audiológico

Resumo

Introdução: A prótese auditiva óssea (BAHA, do inglês *Bone-Anchored Hearing Aid*) é uma forma eficaz de reabilitação auditiva. Devido à natureza do implante, as complicações mais comuns são relacionadas à pele. Várias técnicas alternativas de implantação cirúrgica têm sido utilizadas para reduzir a frequência e a gravidade das complicações cutâneas, incluindo o enxerto em forma de U e a incisão linear.

Objetivo: Avaliar as complicações cutâneas e sua associação com a técnica cirúrgica, qualidade de vida e benefício audiológico em pacientes com BAHAs.

Método: Esse é um estudo retrospectivo realizado em um centro terciário de referência em Bogotá, Colômbia. Os pacientes que receberam um implante de BAHA (unilateral ou bilateralmente) durante pelo menos 6 meses foram incluídos no estudo. A classificação de Holgers foi utilizada para classificar as complicações cutâneas (Grau 0 = nenhuma, Grau 1 = eritema, Grau 2 = eritema e secreção, Grau 3 = tecido de granulação e Grau 4 = inflamação/infeção resultando na remoção da estrutura de apoio). O questionário *Glasgow Benefit Inventory* (GBI) foi utilizado para determinar a qualidade de vida, e o questionário *Abbreviated Profile of Hearing Aid Benefit* (APHAB) foi utilizado para determinar o benefício audiológico subjetivo.

Resultados: Um total de 37 pacientes foi incluído no estudo (30 com implantes unilaterais e 7 com implantes bilaterais). Dos 44 implantes avaliados, 31 (70,3%) foram associados às complicações cutâneas (7 [15,9%] Grau 1; 4 [9,1%] Grau 2; 15 [34,1%] Grau 3, e 5 [11,4%] Grau 4). O enxerto em forma de U foi estatisticamente associado a complicações maiores (Graus 3 e 4) em comparação com a técnica de incisão linear ($p=0,045$). Não foram encontradas diferenças estatisticamente significativas entre os escores APHAB e gravidade das complicações. Do mesmo modo, não foram encontradas diferenças entre as questões de saúde física pelo questionário GBI e complicações cutâneas.

Conclusão: Apesar da alta frequência, as complicações cutâneas não parecem afetar a qualidade de vida ou os benefícios audiológicos subjetivos de pacientes com BAHAs.

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Introduction

The bone-anchored hearing aid (BAHA) has proved to be effective in auditory rehabilitation. The device was introduced by Tjellström and Carlsson in 1977,¹ and was initially approved for conductive and mixed hearing loss. More recently, the implants have been accepted for bilateral and sensorineural hearing loss.²⁻⁴ Several studies have reported

improvements in quality of life as well as subjective and objective audiological benefits in patients fitted with the implant(s).⁴⁻⁶ Even patients with congenital abnormalities, such as aural atresia, are reported to benefit from BAHA implants.⁷

The BAHA is an acoustic amplification system consisting of three elements: a titanium fixture implanted in the mastoid process of the temporal bone, a skin abutment, and a

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