



Case report

Post-surgery cholesteatoma complicated by facial nerve paralysis: A case report from Afghanistan



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ABSTRACT

Introduction: Cholesteatoma is a benign tumoral lesion of squamous epithelial cells in middle ear that can exist as congenital or acquired forms.

Presentation of cases: A 35-year-old housewife presented to ENT clinic of a private hospital in Kabul, Afghanistan, with a complete facial nerve paralysis in the right side. In her antecedents, there is a tympanomastoidectomy due to chronic middle ear infection. First symptom was right side earache without any discharge. She started to notice a progressive nodule in the posterior-inferior side of her right ear. The patient was taken to the operating room. She underwent general anesthesia, an extensive cholesteatoma was removed, and a limited area of the fallopian canal in which facial nerve oedema or redness was evident. Post-operative House Brackmann grade was 1 on day 15 after the surgery.

Discussion: Cholesteatoma is primarily managed surgically and currently there is no suitable medical substitute treatment strategy for cholesteatoma. Hearing improvement, making the ear dry and total omission of cholesteatoma are primary goals of surgical interventions in cholesteatoma management.

Conclusion: Cholesteatoma after surgical manipulations of middle ear is a rare complication with notable morbidity that has been reported almost from all around the world but our patient is the first reported case of cholesteatoma formation after surgical management of COM from Afghanistan that presented with facial nerve paralysis and hear decline.

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1. Introduction

Cholesteatoma is a benign tumoral lesion of squamous epithelial cells in middle ear that can exist as congenital or acquired forms [1]. The existing theories about the natural history of acquired cholesteatoma are squamous metaplasia triggered by middle ear inflammation, squamous cell migration via a perforation in drum, and basal cell hyperplasia [2]. Another notable mechanism of cholesteatoma formation, is secondary triggering by trauma, infection or surgical interventions [1]. Cholesteatoma is a rare but important complication after otologic surgical interventions as it can become infected or have

compressive effects on adjacent structures such as facial nerve [3,4]. Facial nerve compression can result in facial nerve paralysis, and surgical decompression can mitigate the situation [4]. Based on the Surgical CAse REport, 2020 (SCARE) guidelines [5], in this article we report Afghanistan's first confirmed case of facial nerve paralysis resulted from cholesteatoma formation after surgical management of chronic otitis media (COM).

2. Case presentation

A 35-year-old housewife female referred to ENT clinic of a private hospital in Kabul, Afghanistan with a complete right side facial nerve paralysis. The facial muscles weakness started about 6 months before her referral; the weakness was progressive and during this time she did not visit any health facilities and did not receive any treatments. In her antecedents, there is a tympanomastoidectomy due to chronic middle ear infection dating back in December 2019 and otherwise in good health.

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Fig. 1. The photos show the peripheral weakness around the mouth and eyebrow in the right side.

Family history, drug history and social history were unremarkable. The first symptom was right side earache without any discharge, she started to notice a progressive nodule in the posterior-inferior side of her right ear. The facial weakness has progressed to a nodule size. Later she presented progressive weakness around her mouth and forehead muscles (Fig. 1). The patient denied any taste impairment and/or deafness. The examinations were done on the patient in good state. In inspection, signs of right complete peripheral facial paralysis, with a giant nodule in the back of the ear were seen (Fig. 2). Pre operation House-Bracmann grade was four (Table 1). The patient was transferred to ENT ward for further interventions. Computed Tomography (CT) scan and Magnetic Resonance Imaging (MRI) were not available in the center. Blood investigations were in normal ranges; a total leucocyte count of 6000/mcl (Normal 4000/mcl to 11,000/mcl), Hemoglobin (HB) 11 g/dL (Normal: 13 g/dL to 18 g/dL), Platelets 224×10^3 (Normal: 140×10^3 to 400×10^3), Partial Thromboplastin Time (PTT) 33 (Normal: 23 s to 35 s), International Normalized Ratio (INR) 1 (Normal: 0.8 to 1.1). The patient was taken to the operating room. She underwent general anesthesia, an extensive cholesteatoma was removed, and a limited area of the fallopian canal in which facial nerve oedema or redness was evident. The epineurial sheath was opened for nerve decompression. The

Table 1

Scale of facial muscle function after repair.

Grade	Results	Definition of recovery
I	Super	Excellent with minimal mass movement
II	Excellent	Mass movement; can close eyes, smile
III	Good	Tone and symmetry without ability to smile and close eyes simultaneously
IV	Fair	Incomplete eyelid closure or very weak mouth movement
V	Poor	Symmetry only, tone intact, no movement
VI	Failure	Flaccid, tone lost

surgery had been carried out by attending ENT surgeon. The patient was discharged after 24 h after surgery and visited on day 15 after surgery, post-operative House Brackmann grade was 1 on day 15 after surgery, (Fig. 3), (Table 1) [6].

3. Discussion

Cholesteatoma is a benign lesion in middle ear with local invasion and potential destructive effects due to its excessive abnormal growth



Fig. 2. The photo show a giant nodule in the inferior-posterior of the right side ear.



Fig. 3. The photos show excellent movement of facial muscles.

[1,7]. Cholesteatoma is categorized into two subgroups; congenital and acquired which the acquired subtype consists of retraction pocket and non-retraction pocket forms [1,7]. Congenital anomalies, trauma, surgical manipulations and infections of middle ear are some of the risk factors of cholesteatoma development [8,9]. Our patient had a history of COM that was managed surgically. Cholesteatoma can cause symptoms such as otorrhea, progressive conductive hearing loss and compressive effects on adjacent structures such as facial nerve, resulting in facial nerve paralysis [4,10]. Our patient experienced hear decline and facial nerve paralysis after she underwent tympanotomy for management of COM. Cholesteatoma is primarily managed surgically and currently there is no suitable medical substitute treatment strategy for cholesteatoma [7]. Hearing improvement, making the ear dry and total omission of cholesteatoma are primary goals of surgical interventions in cholesteatoma management [11]. In our patient, surgical removal of cholesteatoma resulted in improvement of hearing and restored the facial nerve function. Cholesteatoma after surgical manipulations of middle ear is a rare complication with notable morbidity that has been reported almost from all around the world but our patient is Afghanistan's first reported case of cholesteatoma formation after surgical management of COM that presented with facial nerve paralysis and hear decline.

Finally, we should highlight that although cholesteatoma is a benign tumoral lesion of middle ear, it can cause serious morbidity and be annoying to patients as it can have compressive effects on adjacent structures such as facial nerve. Thus, facial nerve paralysis after otologic surgical interventions should make physicians suspicious of cholesteatoma formation and appropriate surgical interventions should be considered as there is not any medical substitution for surgery in management of cholesteatoma. We hope that reporting this case would make our colleagues more sensitive to surgical complications of middle ear surgery and improve patients' quality of life after surgical management of COM.

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Ethical approval

This is a case report paper.

Consent

Informed consent was obtained from the patient, for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon request.

CRedit authorship contribution statement

SH, SQ, SHM and YF conceptualized the study. YF, AAMN and SQ acquisition of data, and drafted the manuscript. FN and SH revised the manuscript for critical intellectual concept and approved the final draft.

Declaration of competing interest

Author declare no conflict of interest.

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Registration of research studies

Not applicable.

Guarantor

Shohra Qaderi, the corresponding author, accepted full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

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