

Right Otorrhea Revealing a Benign Osteonecrosis of the Temporal Bone: A Case Report

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Citation: Hafidi S, Hamza G, Lahjaoui M, et al. Right Otorrhea Revealing a Benign Osteonecrosis of the Temporal Bone: A Case Report. *Medi Clin Case Rep J* 2026;4(3):1904-1906. DOI: doi.org/10.51219/MCCRJ/Sarah-Hafidi/507

Received: 30 July, 2026; **Accepted:** 04 August, 2026; **Published:** 06 August, 2026

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ABSTRACT

Introduction: Benign osteonecrosis of the temporal bone (BONTB) is a rare condition of unknown cause. It results in an avascular bony sequestrum of the tympanic plate. Repeated trauma to the external ear canal and vascular abnormalities are the main implicated factors. BONTB must be distinguished from malignant otitis externa and ear canal carcinoma, as their management differs significantly. Long-term medical treatment is generally recommended.

Case presentation: We report a 46-year-old woman with a five-month history of intermittent right otorrhea and severe pruritus. Otoscopy revealed skin ulceration on the walls of the external auditory canal. CT scan showed tympanic bone erosion. Medical treatment with long-term follow-up was recommended.

Conclusion: BONTB is rare and frequently underdiagnosed. It is often mistaken for ear canal cholesteatoma, malignant otitis externa or temporal bone malignancy. Conservative management is effective for localized disease; surgery is required for diffuse disease.

Keywords: Osteonecrosis; External auditory canal; Tympanic bone; Benign; Otorrhea

Introduction

Benign osteonecrosis of the temporal bone (BONTB) is a rare condition of unknown cause affecting the tympanic bone¹. It is also known as idiopathic tympanic bone necrosis, benign necrotizing otitis externa, benign necrotizing osteitis and aseptic bone necrosis of the external ear canal²⁻⁴. Unlike

osteoradionecrosis or malignant disease, BONTB has no identified cause and follows a less aggressive clinical course. Symptoms are often nonspecific². No standard treatment protocol exists; long-term medical follow-up is generally recommended.³ We report a rare case of BONTB presenting as unilateral right otorrhea.

Case Report

A 46-year-old woman presented with a five-month history of intermittent right otorrhea and severe pruritus. She had no otalgia or hearing loss. She reported recurrent trauma to the right ear from cotton bud use. Otoscopy revealed skin ulceration on the walls of the external auditory canal (**Figure 1**).



Figure 1: Otoscopy of the right external auditory canal showing skin ulcers on the walls of the external auditory canal.

Audiometry was normal. CT scan of the temporal bone showed tympanic bone erosion (**Figure 2**). Histopathological examination revealed a non-specific inflammatory reaction. Conservative medical treatment with long-term follow-up was recommended.

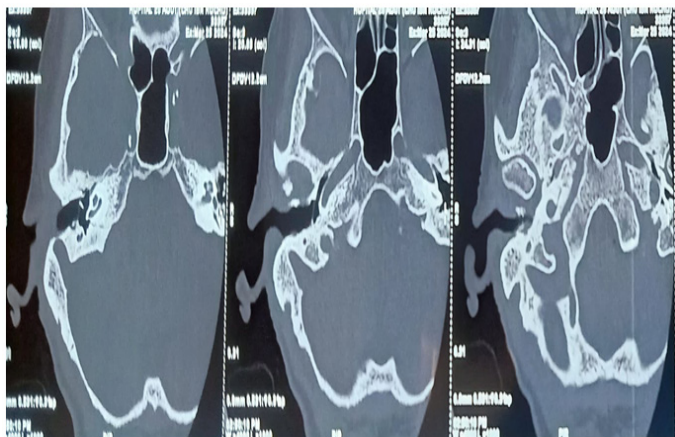


Figure 2: CT scan of the temporal bone showing erosion of bone in the anterior and posterior wall of the right external ear canal.

Discussion

Benign idiopathic osteonecrosis of the external auditory canal is a rare condition affecting the tympanic bone of unknown etiology^{1,5}. It may remain asymptomatic and confined to a small area of the temporal bone or it may involve large areas of the skull base and become life-threatening². The proposed mechanism involves disruption of blood supply to the tympanic plate, leading to the formation of an avascular bone sequestrum^{1,3}. Diabetes mellitus and low blood pressure were previously considered risk factors due to vascular damage; however, recent case reports have not confirmed this association⁶. Bisphosphonate use has been linked to osteonecrotic lesions in several studies⁷. Other recognized risk factors include chronic trauma to the external auditory canal from instruments such as cotton buds, vascular insufficiency and hematological disorders including polycythemia, hemoglobinopathies, hemophilia

and thrombocytopenia, as well as connective tissue and rheumatological conditions^{3,8-10}.

Clinically, BONTB typically presents with ear fullness, reduced hearing, pain or tinnitus². The hallmark finding is a focal, well-circumscribed area of skin ulceration and bony sequestrum on the floor of the external canal. CT imaging shows a punched-out necrotic focus with relatively normal adjacent bone. Histological examination is rarely diagnostic and is primarily useful for excluding malignancy². BONTB must be differentiated from malignant otitis externa, ear canal carcinoma and radionecrosis of the tympanic plate (BNOE), which is a fibro-atrophic process in which irradiated bone becomes exposed and devitalized without healing¹¹⁻¹⁴.

Treatment options for BONTB are limited. Localized disease is managed conservatively with ear cleaning, office debridement, otic drops and oral antibiotics as needed⁶. Diffuse disease is treated based on symptom severity. Surgery is recommended when conservative measures fail^{1,3,6}. The procedure involves removing the necrotic bone and covering the defect with a graft or flap.³ Vascularized tissue is preferred given the hypovascular nature of the area. Options include an external meatal skin flap or a temporoparietal fascia flap.³

Conclusion

BONTB is a rare and frequently underdiagnosed condition. Limited clinical awareness means it is often confused with ear canal cholesteatoma, malignant otitis externa or temporal bone malignancy. Its etiology remains unknown and is likely multifactorial. Further research is needed to identify risk factors and improve early diagnosis. Conservative management is effective for localized disease; surgery is required for diffuse disease.

Acknowledgments

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

Declaration of Interest Statement

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethical Approval

We confirm that Ethical Committee approval was not necessary and this is acknowledged within the text of the submitted manuscript.

Consent

Written informed consent for publication of clinical details and/or clinical images was obtained from the patient.

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