

Osteonecrosis of a Torus Palatinus Secondary to Bisphosphonate Therapy: A Case Report and Literature Review

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Abstract

Background: Medication-related osteonecrosis of the jaw (MRONJ) is a known complication of long-term bisphosphonate therapy, typically affecting the mandible or maxilla. Involvement of the torus palatinus is rare.

Case Presentation: A 67-year-old female with prolonged bisphosphonate use presented with ulceration and exposed bone of the hard palate. Imaging confirmed osteonecrosis of the torus palatinus. She underwent complete resection of the necrotic torus and mucosa, followed by reconstruction with a greater palatine artery island flap. Recovery was uncomplicated with successful healing and no recurrence.

Conclusion: MRONJ of the torus palatinus is rare. Complete excision with vascularized local flap reconstruction provides reliable soft tissue coverage and favorable postoperative outcomes compared to conservative management.

Introduction

Bisphosphonate-associated osteonecrosis of the jaw (ONJ), classified as medication-related osteonecrosis of the jaw (MRONJ), is a recognized complication of antiresorptive therapy. It most commonly affects the mandible and less frequently the maxilla, presenting as exposed maxillofacial bone persisting for more than eight weeks, with or without fistula formation. MRONJ can significantly impair quality of life due to pain, mucosal inflammation, and difficulty chewing, swallowing, and speaking.

Pathophysiology

- Bisphosphonates inhibit osteoclast-mediated bone resorption
- Impair osteoblast, fibroblast, and keratinocyte function
- Reduced mucosal healing and increased risk of bone exposure
- Minor trauma may precipitate necrosis in susceptible patients

Although ONJ typically involves the mandible or maxilla, involvement of bony exostoses such as the **torus palatinus** is exceedingly rare. The torus palatinus, a benign midline bony protuberance of the hard palate, may be particularly vulnerable in patients receiving long-term bisphosphonate therapy.

Literature Context

- Majority of cases involve the mandible, fewer cases affect the maxilla
- Very limited reports describe torus palatinus involvement
- Most published cases favor conservative management or limited debridement

We present a rare case of bisphosphonate-associated osteonecrosis of a torus palatinus successfully managed with complete surgical resection and vascularized local flap reconstruction, highlighting an effective definitive treatment strategy for this uncommon presentation.

Case Presentation

A 67-year-old female with a 10-year history of denosumab (Prolia) therapy for osteoporosis presented with progressively painful ulcerations of the hard palate over a five-week period. Pain worsened with oral intake and did not improve despite conservative management- salt water rinses and Waterpik irrigation. Physical examination demonstrated a prominent torus palatinus with multiple areas of mucosal ulceration and granulation tissue.

Diagnostic Workup

- Biopsy: negative for malignancy; inflamed granulation tissue
- CT imaging: calcified mass of the hard palate. 2.6 cm (AP), 1.0 cm (SI), and 1.7 cm (LR). (Figure 1)

Given the patient's history of long-term antiresorptive therapy and persistent symptoms, a diagnosis of medication-related osteonecrosis involving the torus palatinus was established. Surgical intervention was recommended due to symptom severity and failure of conservative treatment. The patient elected to proceed after informed consent was obtained.

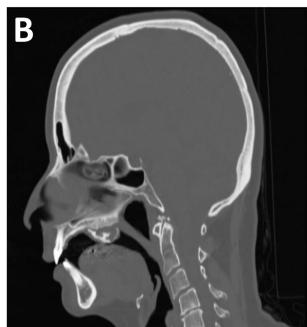
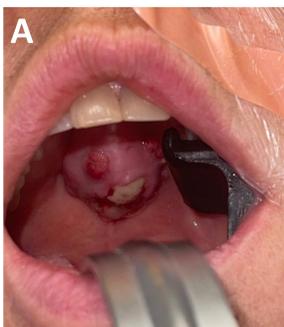


Figure 1 A & B: A) Pre-operative photograph of necrotic torus palatinus with granulation tissue and exposed osteonecrotic bone. B) Preoperative sagittal CT demonstrated a calcified soft tissue mass involving the hard palate region representing a torus palatinus.

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Surgical Management

Surgical Management:

- Resection of necrotic palatal mucosa and partial maxillectomy with excision of the osteonecrotic torus palatinus
- Excision of ulcerated, nonviable mucosa with specimens sent for histopathology and tissue culture
- Debridement of multiple necrotic bone fragments
- Resection carried to viable, punctate bleeding bone
- Preservation of the nasal floor to prevent oronasal fistula

Reconstruction

- Resultant 2 x 2 cm palatal defect reconstructed with a vascularized palatal island flap
- Right greater palatine artery identified and preserved
- Mucosal incision extended along the lingual gingiva with a 4-mm mucosal cuff preserved adjacent to dentition
- Subperiosteal elevation of a mucoperiosteal flap to the greater palatine foramen
- Flap advanced, rotated, and secured with absorbable sutures for complete defect coverage
- Donor site dressed with Xeroform gauze



Figure 2: Central palatal mucosal defect following resection of osteonecrotic torus palatinus and overlying inflamed mucosa



Figure 3: Right palatal island mucoperiosteal flap (*) utilized for reconstruction of mucosal defect overlying site of resected torus palatinus. Flap pedicled on greater palatine vascular bundle.

Postoperative Course & Outcome

Postoperative Course:

- Uncomplicated recovery with resumption of regular diet
- Final pathology: ulcerated, acutely inflamed oral mucosa with reactive bone and granulation tissue. Tissue culture: rare *Prevotella melaninogenica*
- Treated with a one-month course of oral Augmentin
- Follow-up exams showed appropriate flap healing (Figures 4 & 5)
- Two-month postoperative CT demonstrated expected postoperative changes without recurrence or oronasal fistula

Clinical Significance:

Osteonecrosis involving a torus palatinus is rare and sparsely reported. The torus palatinus may be particularly susceptible due to thin mucosal coverage, limited vascularity, or increased vulnerability to minor trauma.

This case highlights several key management principles:

- Complete resection of necrotic bone rather than partial debridement
- Use of a vascularized greater palatine artery island flap
- Reliable coverage of moderate-sized (2 x 2 cm) palatal defects
- Preservation of native blood supply with reduced donor site morbidity compared to free grafting

The patient's successful healing and absence of recurrence support definitive resection with vascularized reconstruction as an effective treatment strategy for this rare presentation of antiresorptive-associated osteonecrosis.

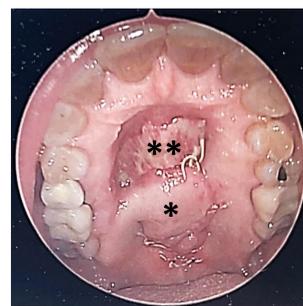


Figure 4: Appearance of hard palate 14 days following surgery. Palatal island flap (*) demonstrates excellent perfusion with complete coverage of operative site. Donor site along anterior hard palate (**) demonstrates active granulation and re-mucosalization.



Figure 5: Appearance of hard palate 30 days following surgery. Complete re-mucosalization of the flap donor site has been achieved.

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