

## Uncommon Peripheral Osteoma of the Mandible: Report of Two Cases

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### Abstract

The osteoma is a benign osteogenic neoplasm of bone. Peripheral osteoma of the mandible is uncommon. It is often asymptomatic and usually discovered when a patient complains of esthetic problems and presents for treatment. Peripheral osteomas have a characteristic clinical and radiographic appearance, but their pathogenesis is obscure. Described here are two patients with peripheral osteoma of the mandible, which might occur as a result of a combination of trauma and muscle traction.

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## Introduction

Osteoma is a benign neoplasm of bone tissue characterised by very slow, continuous growth.<sup>1-3</sup> In the facial bones, both central and peripheral osteomas have been described.<sup>2,3</sup> The peripheral osteoma of the mandible is uncommon.<sup>2,4</sup> It is a circumscribed, slow drawing hard mass usually located on the mandible producing an obvious asymmetry that is generally asymptomatic.<sup>3,6</sup> There are a few cases that are not related to Gardner's syndrome in the literature.<sup>1</sup> This report includes two new cases of peripheral osteoma of the mandible and presents the pathogenesis of peripheral osteoma in the context of the current literature.

## Report of Cases

### Case 1

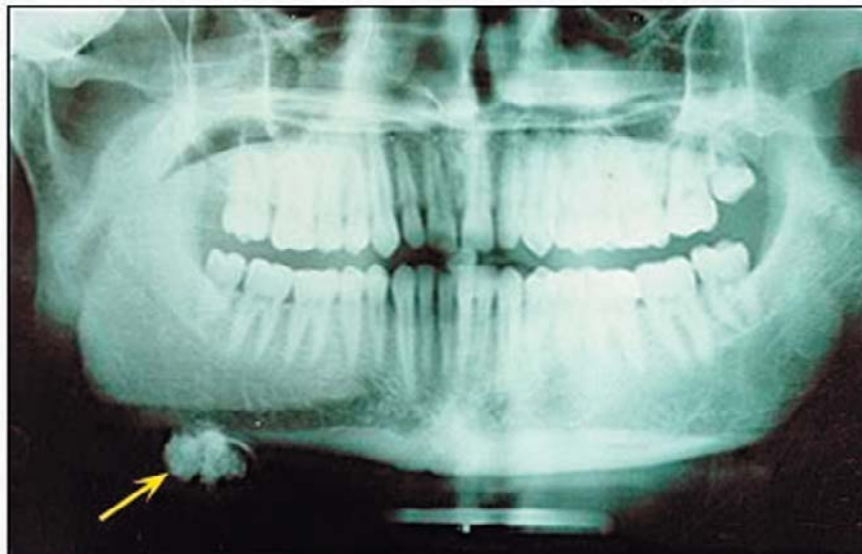
A 27-year old man visited the Department of Oral and Maxillofacial Surgery, Dentistry Faculty of Ataturk University on February 20, 2001 seeking treatment for a slowly enlarging mass beneath the inferior border of the body of the right mandible, anterior to the angle (Figure 1).

There was a previous history of trauma to this area that occurred four years ago. The patient's mandible was fractured when he was 23 years old. This fracture had been treated



**Figure 1.** Enlarged mass beneath the inferior border of the body of the mandible.

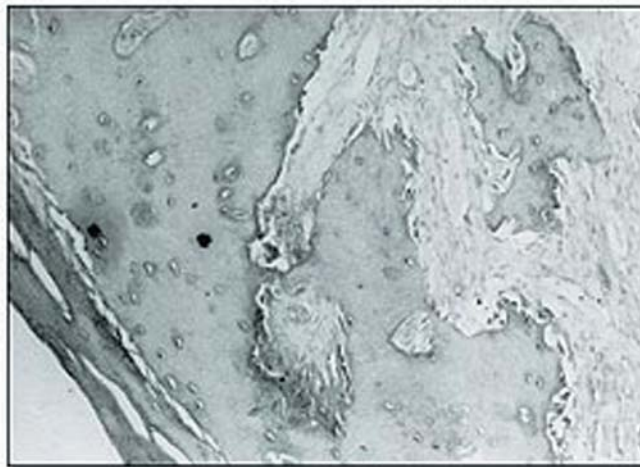
at another clinic. The patient had an obvious right facial asymmetric swelling. There was a 1.5 by 2 cm immobile mass on the right side of the mandible. No other neck masses were felt. Intraoral, nasopharyngeal, and laryngeal examination findings were within normal limits. There were no features of Gardner's syndrome. All laboratory and data were within normal limits. Mandibular and panoramic radiographs were obtained. The lesion appeared as a well-circumscribed, dense radiopacity at the inferior lateral aspect of the right mandibular angle (Figure 2).



**Figure 2.** A well-circumscribed, dense radiopacity at the inferior lateral aspect of the right mandibular angle.



**Figure 3.** Surgical removal of the bony mass.



**Figure 4.** Photomicrograph of the lesion.

The patient was subsequently admitted to the hospital for excision of the mass. Following induction of general nasotracheal anesthesia, a 3 cm submandibular incision was made approximately 5 cm below the inferior border of the mandible. The soft tissue overlaying the mass was reflected and the lesion was exposed. The mass was spherical in shape and attached to the angle (Figure 3).

The lesion was completely excised using a bone bur, chisel, and surgical mallet. The cortical plate of the mandible was shaped and smoothed with the bur before wound closure. The patient did well postoperatively. Microscopically, the material was composed chiefly of dense lamellar cortical bone (Figure 4). A diagnosis of peripheral osteoma was made.

## Case 2

A 20-year old man presented for evaluation of an asymptomatic mass of the left posterior portion of the mandible. The patient denied pain or inability to masticate but desired removal of the mass for esthetic reasons. There was no previous facial trauma or contributory medical history. He had noticed the nodular mass for two years, and it had gradually increased in size. Physical examination showed a hard, immobile mass with approximately 1.5 cm diameter on the inferior border of the left mandible. The overlying skin was normal in color and showed no adhesion to the mass (Figure 5).

Radiographs showed a round radiopaque mass associated with the left mandible body (Figure 6). All laboratory data were within normal limits. A working diagnosis of osteoma was made and the patient was scheduled for surgery.

Under general nasotracheal anesthesia, the bony mass was approached extraorally (Figure 7).

After exposure, the mass was removed from the left inferior surface of the mandible body, just anterior to the angle by cutting across the base with the help of a bur and bone chisel. The

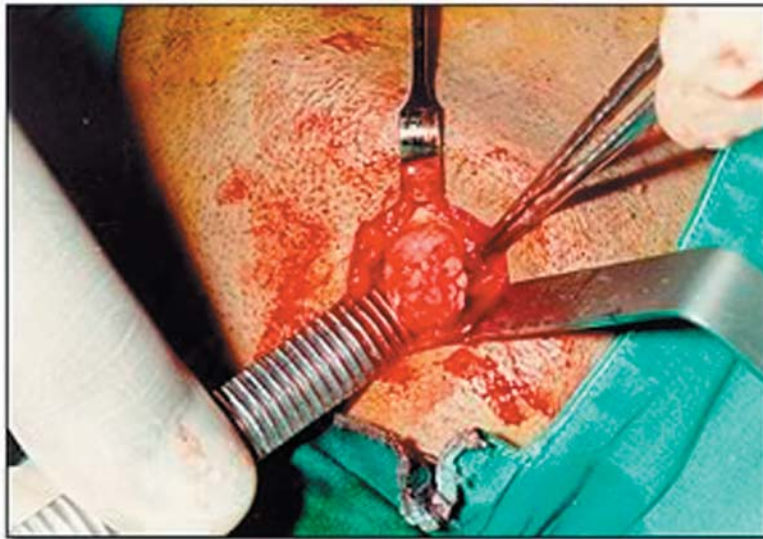


**Figure 5.** An immobile mass on the inferior border of the left mandible

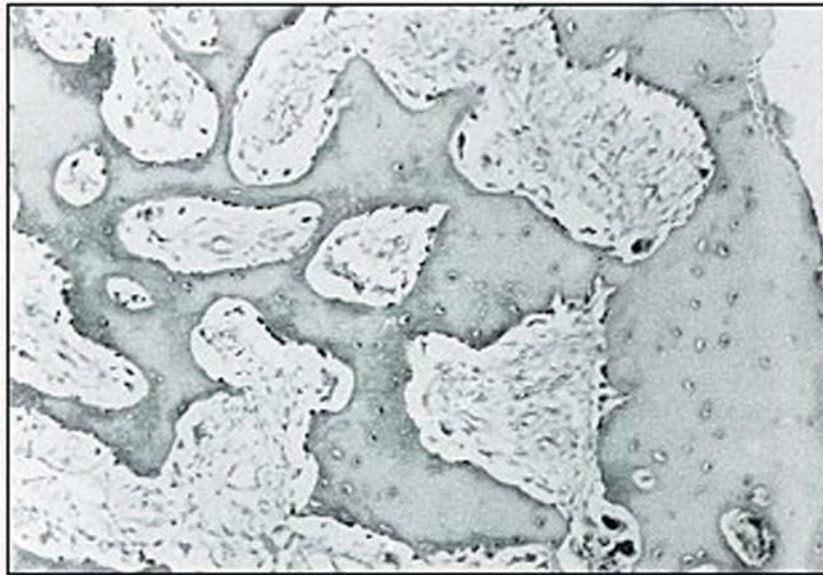
specimen was smooth, stony hard bone tissue. The cortical plate of the mandible was then shaped and smoothed. Microscopic examination of the surgical specimen confirmed the diagnosis of peripheral osteoma (Figure 8). Postoperative recovery was uneventful. The facial asymmetry was completely restored.



**Figure 6.** A panoramic radiograph showing the radiopaque mass on the left inferior border of the mandible.



**Figure 7.** Surgical removal of the bony mass.



**Figure 8.** A photomicrograph of the bony mass.

### Discussion

Osteoma is a benign neoplasm consisting of well-differentiated compact or cancellous bone that increases in size by continuous osseous growth.<sup>1,2,4-6,7</sup> Peripheral osteoma occurs most frequently in the frontal, ethmoid, and maxillary sinuses<sup>4,8-10</sup> but are not common in jawbones.<sup>1,4,5</sup> A review of the English literature of the last 30 years revealed only 16 well documented cases: 15 in the mandible and 1 in the body of the maxilla.<sup>4</sup> Kaplan et al.<sup>4</sup> reported the age at which the lesions are first identified ranges between

15 and 75 years, the majority being noticed after the age of 25. The duration of the lesions varies between 1 and 22 years. Although the cases in this report are men, it is reported that females predominate by a ratio of 3:1.<sup>1</sup>

The pathogenesis of peripheral osteoma is still unknown.<sup>1,3,5,7,10</sup> Some investigators classified it as a reactive condition triggered by trauma, because peripheral osteomas are generally located on the lower border or buccal aspect of the mandible which are traumatized areas<sup>1,4,5</sup> and others

consider it as a true neoplasm.<sup>1,4</sup> Peripheral osteomas are probably not neoplastic in nature because in the majority of cases their growth potential and growth rate seem to be limited.<sup>4</sup> The lesions in our cases were shown to be present for no more than 7 years and they were not developmental in origin. Twenty-four percent of cases of peripheral osteoma of the mandible were associated with a history of trauma which may cause subperiosteal bleeding or edema that simulate an oestrogenic reaction<sup>1,3-5</sup> Trauma may be minor, that is, unlikely to be remembered by the patient years later.<sup>4</sup> Bony hyperplasia associated with muscle traction is a documented phenomena.<sup>1,4,5</sup> It is suggested a combination of trauma and muscle traction may play a role on its development.<sup>1,4</sup> Either one or both might imitate an oestrogenic reaction that could be perpetuated by the continuous muscle traction in the area. Because the first case had a history of trauma, it was thought this might play a role in its development. It was also possible that masseter muscle traction stimulated the oestrogenic reaction in the area. There was no history of trauma in our second case, but there is the chance the patient experienced minor trauma and was not aware of it. It is thought masseter traction, in particular, might play a role in the occurrence of this lesion.

The discovery of an osteoma of the facial skeleton should raise the possibility of Gardner's syndrome.<sup>1,6,8-10</sup> Patients with Gardner's syndrome



may present with symptoms of rectal bleeding, diarrhea, and abdominal pain. The triad of colorectal polyposis, skeletal abnormalities, and multiple impacted or supernumerary teeth is consistent with this syndrome. Onset occurs in the second decade, with malignant transformation of the colorectal polyps approaching 100% by age 40. The skeletal involvement includes both peripheral and endosteal osteomas, which can occur in any bone but are found more frequently in the skull, ethmoid sinuses, mandible, and maxilla. However, no corroborating syndromal lesions were found in these patients. The lesion rarely recurs after surgical excision<sup>2,3,6,7,10</sup>, and it is not associated with malignant change.<sup>6,7,10</sup>

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