

## Giant osteoma of the mandible causing breathing problem

Seo-Young An, Chang-Hyeon An, Karp-Shik Choi

Department of Oral and Maxillofacial Radiology, School of Dentistry, Kyungpook National University

### ABSTRACT

The review of the literature determines that large osteomas of the mandible are relatively rare. We present a case of a 60-year-old man with painless swelling of the left submandibular area and mild difficulty in breathing. The patient complained that the mass have been progressing slowly for at least 20 years. Radiographic studies showed a giant osteoma that attached to the lingual surface of the left mandibular angle and extended from submandibular space to infratemporal space. After the excision of the tumor the patient made a full recovery. (*Korean J Oral Maxillofac Radiol* 2006; 36 : 217-20)

**KEY WORDS** : Osteoma, Mandible; Tomography, X-Ray Computed

Osteoma is a benign neoplasm characterized by proliferation of compact or cancellous bone. It is usually in an endosteal location (endosteal or central osteoma), periosteal location (periosteal or peripheral osteoma) and uncommonly within soft tissue (extraskelatal osteoma).<sup>1-3</sup> The pathogenesis of the peripheral osteomas is unclear. It has been considered to be a true neoplasm, developmental anomaly, or reactive lesion triggered by trauma, muscle traction or infection.<sup>2-5</sup> Endocrine cause has been considered as possible etiology.<sup>6</sup> This lesion can also arise from embryologic cartilaginous rests or embryologic periosteum.<sup>7</sup> The cause of the peripheral osteoma is still being debated. Peripheral osteomas occur most frequently in the skull. However, lesions are also found in the mandible, especially on the lingual aspect of the body, angle and inferior border.<sup>7</sup> Clinically, peripheral osteomas are usually asymptomatic. They are slow growing lesions which can produce swelling and asymmetry and easily palpated as bony-hard nodules or masses.<sup>1,3</sup> Most peripheral osteomas of the mandible are unilateral pedunculated mushroom-like masses. Although it can arise at any age, it is most common in young adult. Radiographically, the lesions appear as a well-circumscribed radiopacities.<sup>8</sup> Histologically, they can be compact osteoma ('ivory' or eburnated osteoma), cancellous osteoma ('mature' osteoma or osteoma spongiosum) and mixed osteoma.<sup>8,9</sup> Patients with osteomas should be evaluated

for Gardner's syndrome.<sup>8,10</sup> The triad of colorectal polyposis, skeletal abnormalities and multiple impacted or supernumerary teeth are consistent with this syndrome.<sup>8</sup> 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.<sup>8</sup> Additional features of this syndrome include cutaneous fibromas and epidermoid cysts.<sup>3,11</sup> Less than 10% of patients present with the entire symptom triad, but 45% have some characteristics, and 14% have skeletal features.<sup>12</sup>

This report presents a case of giant osteoma of the lingual surface of the left mandibular angle.

### Case report

A 60-year old man was referred to the department of oral & maxillofacial surgery, Kyungpook national university hospital with a suspected giant osteoma of the mandible. The patient presented with 20 years' history of slowly progressive painless swelling of the left submandibular area and complained of mild difficulty in breathing. In an extraoral examination, a subcutaneous painless bony-hard mass of the submandibular area was palpated (Fig. 1). On intraoral inspection, there was a hard palpable mass with normal mucosal surface lingual to the left mandibular angle. It was bulging into the oropharyngeal area and the tongue was shifted to the right. Panoramic and posteroanterior mandibular radiographs revealed a large solitary exophytic radiopaque mass on the medial side of the left mandibular ramus (Fig. 2). It extended from submandi-

Received September 13, 2006; accepted November 4, 2006

Correspondence to : Prof. Chang-Hyeon An

Department of Oral and Maxillofacial Radiology, School of Dentistry, Kyungpook National University 188-1 Samdeok 2-ga, Jung-gu, Daegu 700-714, Korea  
Tel) 82-53-420-5971, Fax) 82-53-427-3396, E-mail) chan@knu.ac.kr

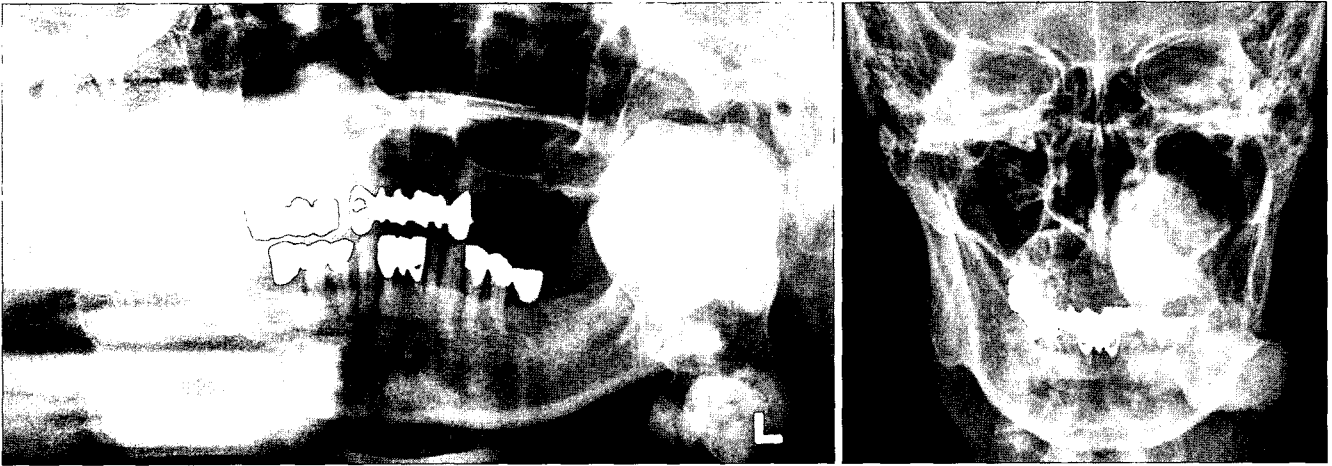


**Fig. 1.** Extraoral photograph shows a swelling on the left sub-mandibular area.

bular space to infratemporal space and showed a normal bony structure.

A CT scan demonstrated a large bony pedunculated mass attached to the lingual surface of the left mandibular angle. The bony mass protruded toward the pharynx and displaced the base of the tongue to the contralateral side. The upper and lower parts of the mass were compact type and the middle part was a somewhat cancellous type (Fig. 3). The clinical and radiographic findings were consistent with an osteoma.

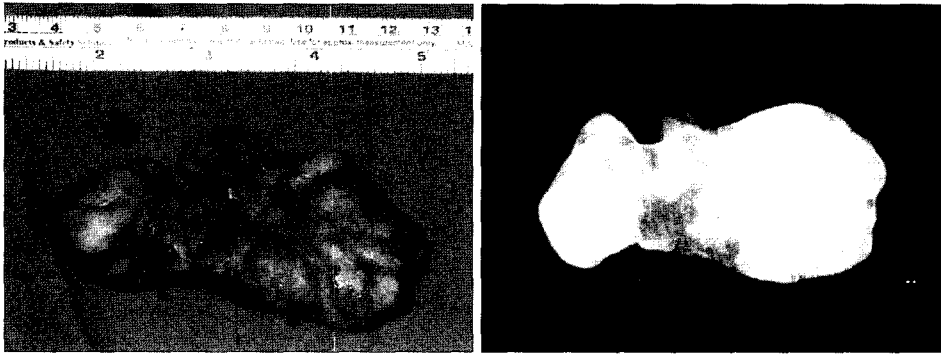
Because of the actual difficulty in breathing and the progression of the lesion, it was decided to perform an surgical excision. The specimen was a hard, irregular and lobulated mass measuring 33 mm × 52 mm × 87 mm and weighed 69 grams (Fig. 4). Histopathologic examination confirmed the diagnosis finally.



**Fig. 2.** Panoramic and posteroanterior mandibular radiographs show a large radiopaque mass on the medial side of the left ramal area.



**Fig. 3.** Axial, coronal and 3D CT scans show a bony mass arising from the lingual surface of the left mandibular angle and extending from submandibular space to infratemporal space. The bony mass protrudes toward the pharynx and displaces the base of the tongue to the contralateral side.



**Fig. 4.** The surgical specimen and its radiograph measure 33 mm × 52 mm × 87 mm.

## Discussion

Peripheral osteoma occurs most frequently in the frontal, ethmoid and maxillary sinuses.<sup>13-15</sup> As our case, the most common location in the jaws is the posterior lingual surface of the mandible.<sup>11,16</sup> It is circumscribed slow-growing hard mass producing an obvious asymmetry that is generally asymptomatic.<sup>5,15</sup> Sometimes it can cause functional impairment such as difficulty in chewing,<sup>5</sup> dysphagia<sup>2,5</sup> and limited mandibular movement.<sup>5,10,14</sup> Difficulty in breathing caused by an osteoma of the lingual surface of the mandibular angle was a significant and unusual finding of our case and we couldn't find any other cases reported a breathing problem as a result of an osteoma. Because of its large size and location close to the airway, it might give rise to a compression of airway space and so the patient might feel a mild difficulty in breathing. Size of peripheral osteomas varied from 10 mm to 80 mm and there was no one which exceeded 80 mm as far as we reviewed. Kaplan I et al.<sup>5</sup> described ten cases of peripheral osteoma of the mandible. In nine patients the lesions were located on the lower border or the buccal aspect of the body of the mandible. In one patient osteoma was attached to the lingual aspect of the mandibular body and its size was 80 mm which is similar to our case. In our case, osteoma weighed 69 grams and it corresponds to the weight of 17 times of a ten-won coin.

Computed tomography is the best imaging modality for the diagnosis of osteoma.<sup>16</sup> With large osteomas, a computed tomography scan should be obtained in addition to plain films.<sup>8</sup> As demonstrated in this case, additional CT imaging is helpful to know its anatomical location, size, internal structure and relation with surrounding structures as well as to plan the surgery.

Onset of Gardner's syndrome occurs in the second decade, with malignant transformation of the colorectal polyps approaching 100% by age 40.<sup>17</sup> In present case, we didn't examine

further for Gardner's syndrome because he was already 60 years old.

We presented a case of a giant osteoma of the lingual surface of the mandibular angle. It had grown slowly for 20 years and needed to be removed because of a mild difficulty in breathing and its progression. In this case, computed tomography was very useful in diagnosing osteoma and planning treatment plan.

## References

1. Langlais RP, Langland OE, Nortgé CJ. Diagnostic Imaging of the Jaws. 1st ed. Malvern: Williams & Wilkins; 1995. p. 493-7.
2. Kerckhaert A, Wolvius E, van der Wal K, Oosterhuis JW. A giant osteoma of the mandible: Case report. *J Craniomaxillofac Surg* 2005; 33 : 282-5.
3. Woldenberg Y, Nash M, Bodner L. Peripheral osteoma of the maxillofacial region. Diagnosis and management: A study of 14 cases. *Med Oral Patol Oral Cir Bucal* 2005; 10 Suppl2 : E139-42.
4. Cutilli BJ, Quinn PD. Traumatically induced peripheral osteoma: Report of a case. *Oral Surg Oral Med Oral Pathol* 1992; 73 : 667-9.
5. Kaplan I, Calderon S, Buchner A. Peripheral osteoma of the mandible: A study of 10 new cases and analysis of the literature. *J Oral Maxillofac Surg* 1994; 52 : 467-70.
6. Bessho K, Murakami K, Iizuka T, Ono T. Osteoma in mandibular condyle. *Int J Oral Maxillofac Surg* 1987; 16 : 372-5.
7. Schneider LC, Dolinsky HB, Grodjesk JE. Solitary peripheral osteoma of the jaws: report of a case and review of literature. *J Oral Surg* 1980; 38 : 452-5.
8. Richardson PE, Arendt DM, Fidler JE, Webber CM. Radiopaque mass in the submandibular region. *J Oral Maxillofac Surg* 1999; 57 : 709-13.
9. Ataman M, Ayas K, Gursel B. Giant osteoma of the frontal sinus. *Rhinology* 1993; 31 : 185-7.
10. Lew D, DeWitt A, Hicks RJ, Cavalcanti MG. Osteomas of the condyle associated with Gardner's syndrome causing limited mandibular movement. *J Oral Maxillofac Surg* 1999; 57 : 1004-9.
11. Richards HE, Strider JW Jr, Short SG, Theisen FC, Larson WJ. Large peripheral osteoma arising from the genial tubercle area. *Oral Surg Oral Med Oral Pathol* 1986; 61 : 268-71.
12. Arendt DM, Frost R, Whitt JC, Palomboro J. Multiple radiopaque masses in the jaws. *J Am Dent Assoc* 1989; 118 : 349-51.
13. Varboncoeur AP, Vanelois HJ, Bowen LL. Osteoma of the maxillary

## Giant osteoma of the mandible causing breathing problem

- sinus. *J Oral Maxillofac Surg* 1990; 48 : 882-3.
14. Bodner L, Gatot A, Sion-Vardy N, Fliss DM. Peripheral osteoma of the mandibular ascending ramus. *J Oral Maxillofac Surg* 1998; 56 : 1446-9.
  15. Sayan NB, Ucok C, Karasu HA, Gunhan O. Peripheral osteoma of the oral and maxillofacial region: A study of 35 new cases. *J Oral Maxillofac Surg* 2002; 60 : 1299-301.
  16. Swanson KS, Guttu RL, Miller ME. Gigantic osteoma of the mandible: Report of case. *J Oral Maxillofac Surg* 1992; 50 : 635-8.
  17. DelBalso AM, Werning JT. The role of computed tomography in the evaluation of cemento-osseous lesions. *Oral Surg Oral Med Oral Pathol* 1986; 62 : 354-7.