Mandibular peripheral osteoma, a study of seven cases

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Abstract: Peripheral osteoma is a rare benign neoplasm affecting maxillofacial region, there is no age predilection for its occurence. Surgical excision of osteoma may be adopted when it interferes with the mandibular movements or causes facial asymmetry, also preheral osteoma in very rare cases may be associated with Gardener syndrome that is complicated by malignant gastro-intestinal polyposis. Here, 7 cases of osteomas affecting the mandible are presented.
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Introduction

The osteoma is a benign neoplasm characterized by a proliferation of either compact or cancellous bone, usually in an endosteal or periosteal location..[1] Peripheral osteoma more commonly affects the lower jaws, it occurs at the surface of the cortical bone and it may be sessile or pedunculated[2]. Mostly osteomas which affect the mandible are of compact type, while the cancellous one is rare,there is no age limits for its evidence, also osteoma is characterized by its slow enlargement where it may remain less than two cm in size for years [2-3] etiology of osteoma is unclear,it may be true neoplasm, while other investigators consider it as a developmental anomaly or it may be due to reactive mechanism associated with trauma or infection [4] multiple osteomas in very rare occurrence may be associated with Gardener's syndrome that is characterized by skin dermoid or sebaceous cysts, multiple impacted teeth and malignant gastrointestinal polyps[5] through this article seven cases of peripheral mandibular osteomas are reported.

patients and methods

This article was approved by the scientific committee of south valley university. all the patients presented with maxillofacial osteomas through the period from January 2010 to July 2014, were managed in the Maxillofacial surgery department of Kena general hospital in Egypt, the following items were recorded:, age, sex, location of the lesion, patient complain, surgical management and recurrence, type of the osteoma, osteomas were managed by surgical excision. through intraoral or extraoral approach according to the accessibility. after exposure of the lesion it is divided into pieces using surgical bur and saline irrigation the osteotome was used to separate the lesion from the underlying base then the bone surface was smoothed,all the lesions sent for pathological investigation

Results

The number of the patients was 7 The age of the patients varied between 13 to 55 years with a mean value of 33 years, female/male ratio was 1to 6 and the time of follow up ranged from one to 4 years and follow up was lost with the patient number 7 who refused any further investigations There was no recurrence and as regards the location of the lesion one patient was presented with osteoma located at the Lower border of symphyseal region (fig1) and two patients were presented with osteoma located at the Lower border of mandibular body at left site,one patient were presented with osteoma located at the Lower border of mandibular body at right site (fig2,3),and two patients presented with osteoma the lingual site related to the alveolar ridge (fig4,5) and only one patient presented with multiple craniofacial osteomas with multiple impacted teeth(fig6,7) with history of excision of multiple lesions scattered throughout the trunk diagnosed as fibromas there is also a history of recurrent diarrhea. This patient could be diagnosed as Gardener syndrome unfortunately further investigation could not be done due to loss of follow up.

In three patients osteoma excised through sub mandibular approach fig (8) the other cases were managed through intraoral approach the gross specimen was lobulated rounded in shape.

The histopathologic pictures revealed hard mass composed of dense lamellar compact bone (Figure 9).

Discussion

Osteomas may arise in the paranasal sinuses, skull bones, and facial bones, including the maxilla and mandible. The craniofacial and jaw bones are the

most commonly affected of all bones. [5] our study is in accordance with that of Horikawa et al [6]. Where peripheral osteomas occur more frequent in the mandible than in the maxilla. Cutilli & Quinn[7] reported that osteomas have no predilection for gender. However Sayanet al.[4] reported that men are more frequently affected than women, at 2:1 ratio. But the study of Schneider et al.[8], reported an inverted ratio of 3:1 where females affected more than males. In our study we found higher incidence in males than females. Hamartoma and neoplastic factors has been implicated for osteoma pathogenesis.[9] osteoma has been considered as a reactive condition triggered by trauma or infection [10]. But most commonly osteomas are considered as neoplasm.

Multiple osteomas are associated with Gardner syndrome, which is characterized by multiple adenomatous polyps of the colon and rectum, multiple osteomas, epidermoid cysts and subcutaneous fibromas. Multiple odontomas, supernumerary teeth, and impacted teeth are also seen in Gardner syndrome, [11,12] in our case which is suspected to be Gardener syndrome revealed no familial history, the patient refused colonoscopy or any further investigation although she was warned against the complication of her condition.

Usually, surface osteoma appears as slowly growing well defined non tender mass,its size may be very small as 2mm with no significant clinical symptoms, sometimes it may reach large size as 10mm and may cause facial deformity or functional impairement[13,14,15] the lesions in our study were slowly enlarged and lead to facial deformity in four patients the intraoral osteoma lead to frequent mucosal ulceration and interference with chewing. As regards the histopathologic patterns of the osteoma, it may be compact or cancellous. The compact osteoma is composed of histologically normal, dense, lamellar bone with few marrow spaces. The cancellous variant is composed of intertwining bony trabeculae separated by fatty or fibro-fatty marrow[4,8] in this study all osteomas were of compact type,our study is in accordance to that of Johann et al [16] and Roy [2] who stated that Peripheral osteomas can be recognized easily due to their common radiographic features. Where a peripheral osteoma of the mandible appears as well-circumscribed, round or oval, radiopaque mass which may be sessile or pedunculated,

Surgical excision of peripheral osteoma is not necessary when it is asymptomatic however Surgical intervention is indicated when osteoma becomes so large that it causes facial asymmetry and functional impairment[12] in this study intraoral and extraoral approaches were used according to the accessibility without any complications, there is no recurrence of the osteomas throughout our study.

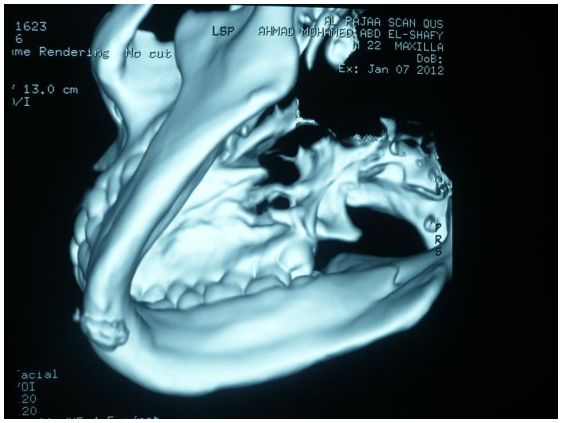

Figure 1. Osteoma at the anterior lower border of the mandible in 3D computerized tomography

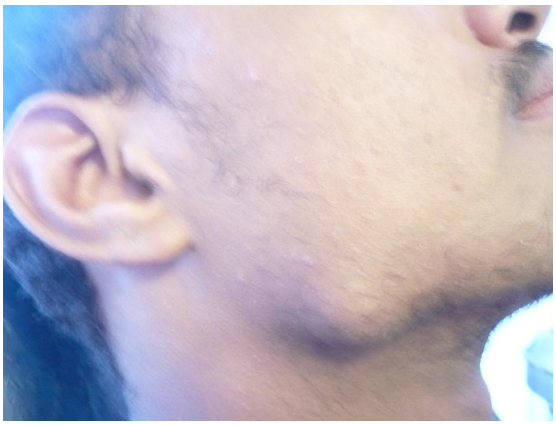

Figure 2. Facial deformity due to osteoma located at the right lower border of the mandible

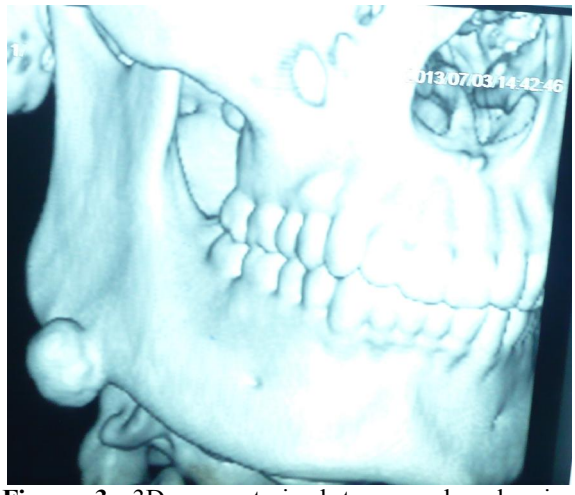

Figure 3. 3D computerized tomography showing osteoma located at the right lower border of the mandible

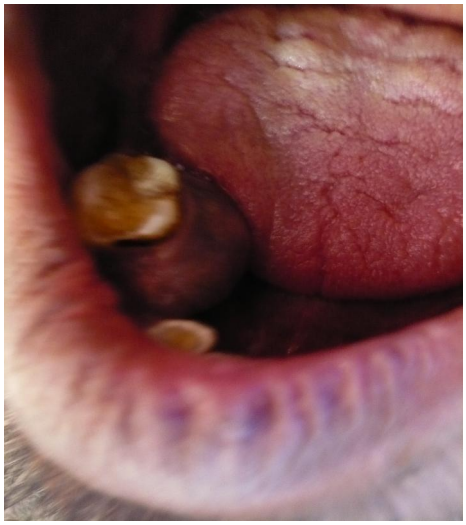

Figure 4. Osteoma at the lingual site related to the alveolar ridge

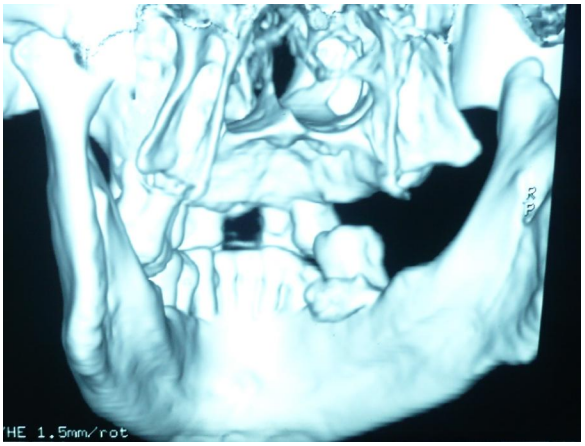

Figure 5. Osteoma at the lingual site related to the alveolar ridge in 3D ct

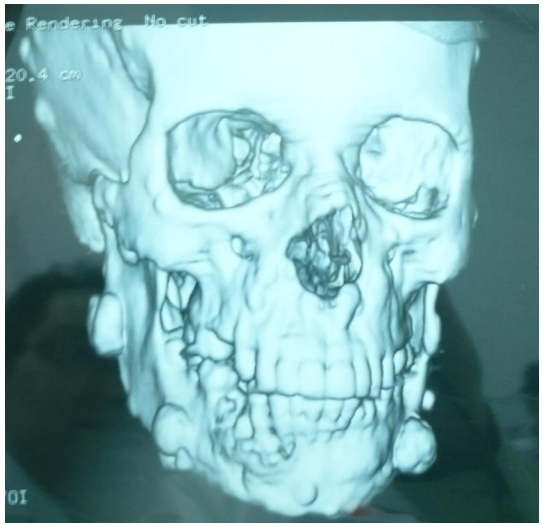

Figure 6. 3D ct of patient presented with multiple craniofacial osteomas

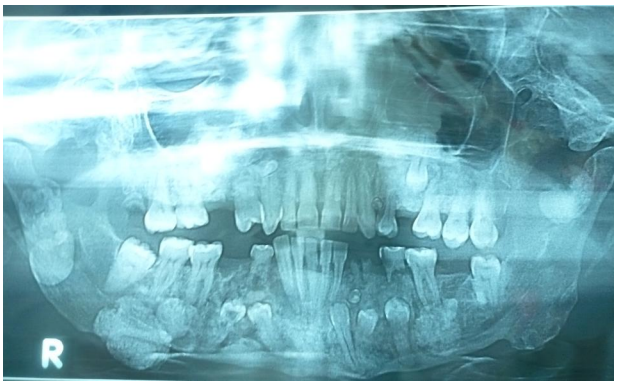

Figure Panorama x ray showing multiple impacted teeth with multiple osteomas

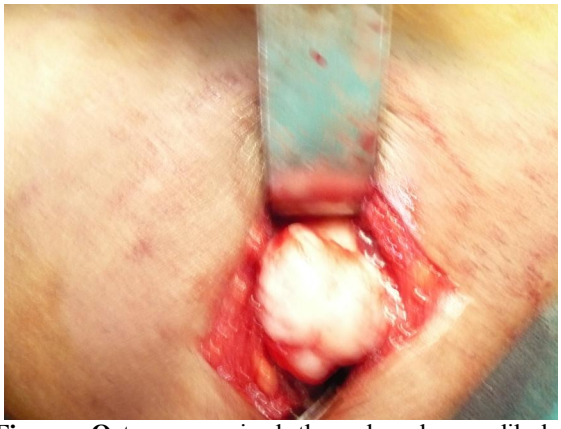

Figure. Osteoma excised through sub mandibular approach

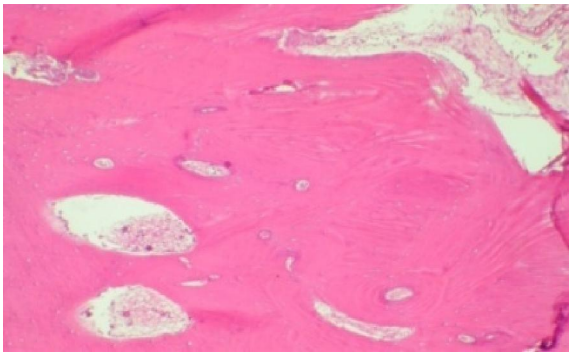

Figure 9. Histological aspect: dense compact bone

Conclusion

Mandibular peripheral osteoma is a rare lesion of unknown etiology, with higher incidence in male than female, osteoma can affect patient at any age. Also patients presented with multiple osteomas must be investigated for other symptoms of Gardener syndrome.if the osteoma interferes with the jaw function or causes facial deformity it can be managed by surgical excision with low recurrence rate.

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