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Cent. Eur. J. Med. • 9(2) • 2014 • 250-253
DOI: 10.2478/s11536-012-0137-2

Central European Journal of **Medicine**

Odontogenic fibroma – a case report

Case Report

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Received 26 September 2012; Accepted 11 December 2012

Abstract: The present study outlines the case of a 30-year-old patient with central odontogenic fibroma. The tumour developed in the alveolar process of the maxilla in the area of 13-15. The study describes the clinical symptoms, the radiological image, treatment method and histopathological image of the tumour. The study also presents a one-year period of post-surgical observation.

Keywords: *Odontogenic fibroma • Odontogenic tumours*

Odontogenic fibroma (OF) is a very rare neoplasm that only develops in the maxilla and mandible [1]. According to the WHO classification adopted in 2005, there are two types of odontogenic fibroma: epithelium-poor and epithelium-rich [2]. The epithelium-poor type is extremely rare. Until now only a few cases have been reported.

OF develops from ectomesenchymal tissue, periodontal fibres, dental papilla or the dental sac [3]. Tumour incidence rate is three times higher in female patients than in male patients, and it usually develops between the second and fourth decade of life [4]. There are two types of tumour location: central (COF - central odontogenic fibroma) and, less frequently, peripheral (POF - peripheral odontogenic fibroma [5]. OF develops within the mandible six times more frequently than within the maxilla. Within the mandible it usually develops in the posterior area, whereas in the case of the maxilla it occurs in the area of the front teeth [6].

OF growth is very slow. The central (COF) type initially develops asymptomatically in cancellous bone. Over time bone prominence and teeth dislocation appear. The peripheral version of the disease transforms into an exophytic, hard, pedunculated tumour with a smooth surface [3]. Mechanical injuries while eating or brushing one's teeth can cause bleeding from POFs increasing in size. A radiological image of a small OF reveals well defined radiolucency, sometimes with an osteosclerotic halo. Images of larger tumours usually show multilocular lesions. The teeth adjacent to a tumour are often dislocated, and resorption of their roots sometimes occurs. Occasionally, calcified mass of different density or an impacted tooth is observed within the tumour. In the case of POF, an X-ray image shows bone atrophy with smooth borders around the tumour caused by pressure [7].

OF consists of fibroblasts located in a myxoid matrix with collagen fibres [6]. The matrix can also contains epithelial-rich and epithelial-poor areas, as were observed in the present case. If odontogenic epithelium is present in the tumour it must be differentiated from ameloblastoma [8].

The presence of cells with granular cytoplasm suggests granular cell odontogenic fibroma or granular cell ameloblastic fibroma. The presence of such cells also requires ruling out the possible presence of central odontogenic granular cell tumours in which granular cells express CD 68, and do not express epithelial antigens or s-100 protein [9]. The presence of myxoid stroma requires differentiation from odontogenic myxoma [9,10]. This is extremely important because of the different biological character and distinct clinical course of the above-mentioned lesions.

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1. Case description

Mr P.M., a 30-year-old patient, came to the Oral Surgery and Implantology Out-Patient Clinic because of prominence on the superior surface of the maxillary alveolar process which he had noticed one month earlier. It did not cause any symptoms. The Patient had no diagnosed systemic diseases.

An examination of the oral cavity revealed a hard, painless and immovable prominence covered with normal mucous membrane on the vestibular surface of the maxillary alveolar process in the area 13-15. Teeth 13 and 14 responded to pulp vitality tests.

A pantomographic X-ray image showed osteoporotic lesions in the alveolar process between the roots of teeth 13 and 14. A periapical X-ray confirmed the presence of osteolytic focus, without clear borders. The roots of teeth 13 and 14 were moved apart (Figure 1). Puncturing revealed the elastic-hard consistency of the lesion. Aspiration of fluid content was impossible.

Because of the large size of the lesion affecting teeth 13 and 14, the patient underwent endodontic therapy. The operation was performed under local anaesthesia and involved enucleating a solid, well-defined tumour measuring 2.0 x 1.5 cm. The tumour was elastic in consistency and penetrated into the alveolar process.

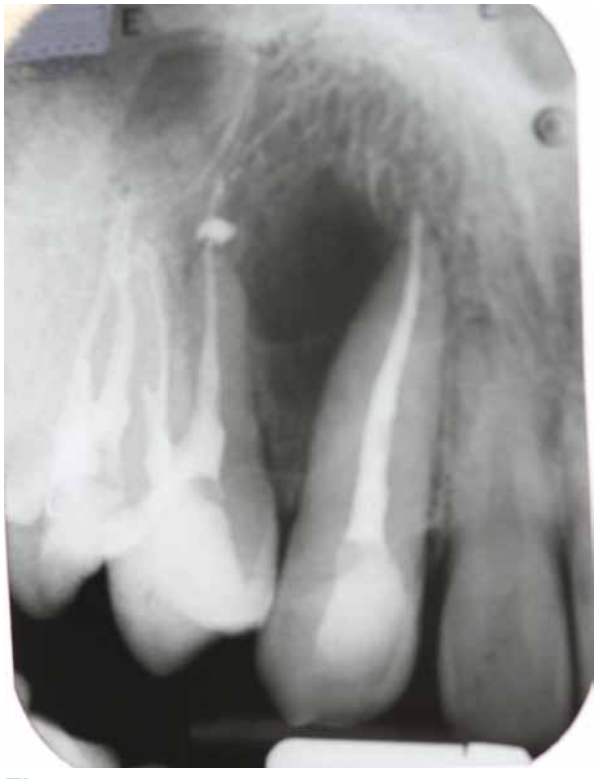

Figure 1. X-ray of patient PM

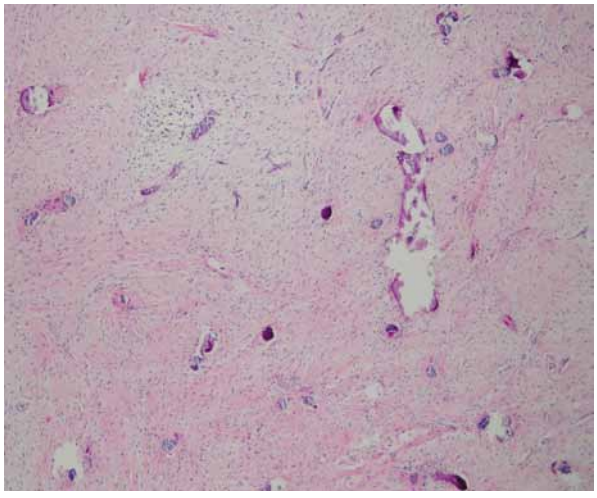

Figure 2. Inactive odontogenic epithelium and amorphous calcifications sourrounded by fibrous and focally myxoid tissue. HE. 50x.

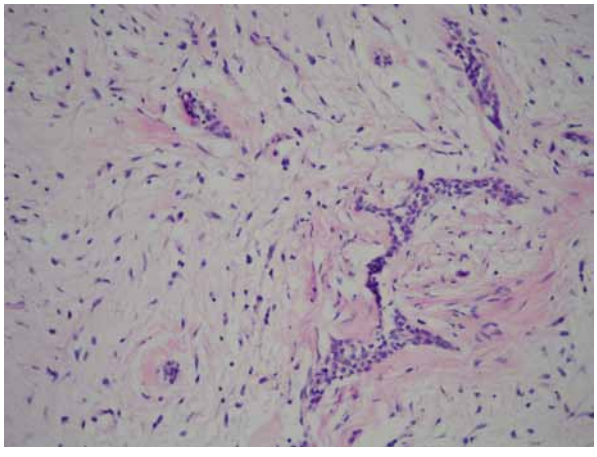

Figure 3. Histopathological image. HE. 200x

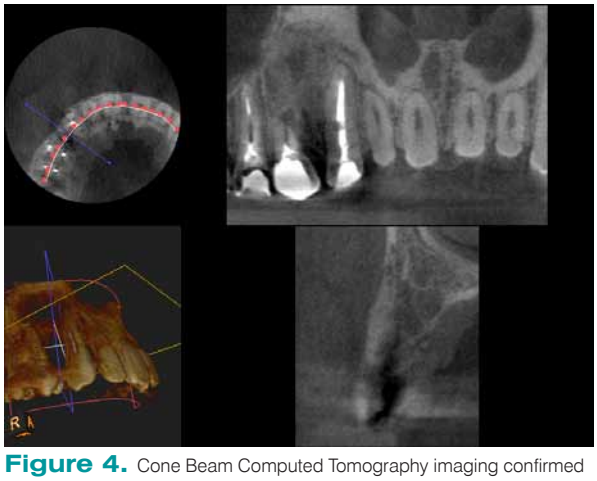

Figure 4. Cone Beam Computed Tomography imaging confirmed regeneration of bone structure.
a. cross-section in a horizontal plane
b. pseudopantomogram reconstraction
c. reconstruction in the sagittal plane
d. 3D reconstruction

A sample was taken for histopathological examination purposes. The postoperative period was uneventful.

The histopathological examination revealed central odontogenic fibroma, epithelial-rich type.

The examination revealed that the tumour had not spread to adjacent bone tissue. The tumour pattern consisted of fibrous tissue with numerous fibroblasts. Numerous islands of teeth-forming epithelium and dispersed calcifications were embedded in stroma, which is focally myxoid (Figure 2, Figure 3).

No relapse was observed during the one-year follow-up. Control X-rays showed that the bone structure had properly reformed in the postoperative area. Cone Beam Computed Tomography imaging confirmed the regeneration of bone structure in all dimensions at the place where the tumour had been enucleated (Figure 4). The patient remains under clinical observation.

2. Discussion

The authors confirm that OF is a rare odontogenic tumour. According to Cercadillo-Ibarguren et al., there are 68 cases of odontogenic fibroma reported in literature and Calvo et al. mention 22 cases [6,8]. The peripheral type of this tumour is extremely rare. In 2007 Rinagio et al. discussed a case of POF in the region of the mandible incisors. According to these authors, it was the fourth case of this type presented in literature [5].

In the case presented in this study, a 30-year old man was diagnosed with COF in the maxillary alveolar process in the area of the incisor and first premolar tooth. However, according to the majority of the authors, OF develops more frequently in the mandible and in the area of the posterior teeth [6]. The authors also emphasise that tumour growth is slow and initially asymptomatic. Tumours are frequently detected in X-ray images taken for other reasons [7]. In our case, the patient came to the out-patient clinic because he was disturbed by the presence of the painless prominence on the alveolar process. Cercadillo-Ibarguren et al. described a case involving a large CEF covering the ramus, angle of the mandible and the distal section of the mandibular body. This lesion coexisted with the presence of an inflammatory cyst [6]. Calvo et al. presented the case of a 61-year-old patient who came to a hospital with symptoms of an abscess in the anterior part of the maxilla [8].

OF radiological symptoms are also ambiguous [9]. In the present case, poorly bordered osteoporotic focus in the alveolar process was observed together with dislocation of the adjacent tooth roots. In some cases the authors observed well-defined osteolytic foci as well as (in the case of large lesions) multilocularity and teeth roots resorption [7]. Radiological image was not typical of OF. Due to the unsharped appearance it was necessary differentiation of myxoma and fibromyxoma. CT provides very important data for differential diagnostics. In the present case, a CBCT was used to assess bone regeneration in a postoperative osteolytic defect, as well as to detect potential relapse foci. This method makes it possible to assess the examined area in any section. Sections are used for image reconstruction purposes. The markedly lower radiation dose of CBCT compared with CT means that it can also be used during control visits.

Considering the benign character of OF the treatment of choice is to enucleate the tumour together with careful curettage of the bone bed. More radical treatment in the form of a segmental resection is only permitted in very rare cases involving large lesions [9]. In the present case the tumour was enucleated while the adjacent teeth were preserved. The lesion developed within the cancellous bone, causing thinning of the external lamina dura and the lamina dura separating the alveolar process from the mucous membrane of the maxillary sinus around tooth 14. However, the lesion had not spread to the mucous membrane of the sinus. A year after the procedure, an X-ray confirmed bone regeneration in the postoperative bone defect including in the area around the mesial surface of tooth 14 root and the distal surface of tooth 13 root exposed after the extraction of the tumour. However, the patient remains under clinical observation. Other authors recommend the same procedure. This is because some authors report rare cases of OF relapse as long as 9 years after the surgical procedure.

References

[1] Reichart P.A, Philipsen H.P, Moegelin A et al. Central odontogenic fibroma, granular cell variant. Oral Oncol Extra 2006, 42:5-9

[2] Reichart P.A, Philipsen H.P, Sciubba J.J. The new classification of Head and Neck Tumours (WHO)-any changes? Oral Oncol 2006, 42:757-758

[3] Stypułkowska J, Kaczmarzyk T, Zaleska-Szczurek M et al. Unique huge form of peripheral odontogenic fibroma (complex type)-report of a case and clinicopathological analysis. J Cranio-Maxillofac Surg 2004, 32 suppl. 1, 254

[4] Bueno S, Berni L, Gay-Escoda C. Central odontogenic fibroma: a review of the literature and report of a new case. Med Oral 1999, 4: 422-434
[5] Rinaggio J, Cleveland D, Koshy R, Gallante A, Mirani N. Peripheral granular cell odontogenic fibroma.Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007, 104: 676-679
[6] Cercadillo-Ibarguren I, Birini-Aytes L, Marco-Molina V, Gay-Escoda C. Locally aggressive central odontogenic fibroma associated to an inflammatory cyst: a clinical, histological and immunohistochemical study. J Oral Pathol Med 2006; 35:513-516
[7] Kaffe I, Buchner A. Radiologic features of central odontogenic fibroma. Oral Surg Oral Med Oral Pathol 1994, 78: 811-818
[8] Junquera L, Albertos JM, Floriano P et al. Ameloblastic fibroma: Report of two cases. Int J Paediatr Dent 1995, 5: 181
[9] Calvo N, Alonso D, Prieto M, Junquera L. Central odontogenic fibroma granular cell variant: A case report and review of the literature. J Oral Maxillofac Surg 2002, 60: 1192-1194
[10] Handlers J.P, Abrams AM, Melrose RJ, Danforth R. Central odontogenic fibroma: clinicopathologic features of 19 cases and review of the literature. J Oral Maxillofac Surg 1991, 49: 46-54