Atlas of Genetics and Cytogenetics in Oncology and Haematology

OPEN ACCESS JOURNAL AT INIST-CNRS

Solid Tumour Section

Mini Review

Bone: Osteoma

Carlos Eduardo de Andrea, Pancras CW Hogendoorn

Department of Pathology, Leiden University Medical Center, P1-30, Albinusdreef 2, 2333 ZA Leiden, The Netherlands (CEd, PCWH)

Published in Atlas Database: February 2009

Online updated version: http://AtlasGeneticsOncology.org/Tumors/OsteomaID5427.html
DOI: 10.4267/2042/44672

Identity

Note

Osteoma is a benign osteogenic lesion characterized by proliferation of compact, lamellar cortical bone.

It presents as an exophytic mass usually arising from the bones of the skull and paranasal sinuses. Large osteomas may develop on the clavicle, pelvis, and tubular bones (parosteal osteomas).

Some investigators consider the osteoma a true neoplasm, and others classify it as a developmental anomaly.

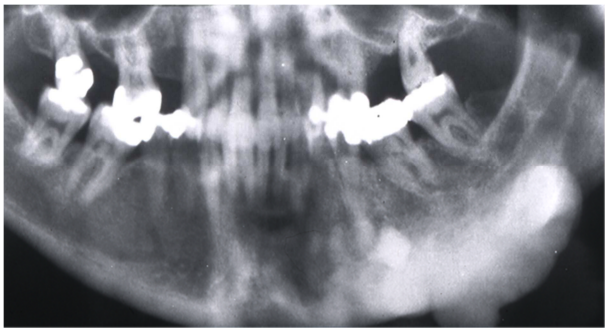

Figure 1: Radiograph of the jaw bone demonstrates a well-circumscribed, homogeneously dense lesion.

Clinics and pathology

Etiology

The etiology of the osteoma is still unknown. The possibility of a reactive mechanism, triggered by trauma or infection, has also been suggested.

Very rarely osteomas of the facial bones may be associated with Gardner's syndrome.

Gardner's syndrome and Familial adenomatous polyposis (FAP) were originally described as two different syndromes. Characteristic for both syndromes is the presence of 100 or more colorectal adenomas and the development of colorectal cancer.

Patients with Gardner's syndrome differ from FAP patients by also demonstrating sebaceous cysts and osteomas, forming the so-called Gardner triad of colorectal adenomas, soft and hard tissue tumors. Gardner's syndrome and FAP traits map to the same chromosomal locus and may share the same somatic, as well as germline, adenomatous polyposis coli (APC) gene mutations.

Osteomas were observed in 46-93% of the patients with FAP, an incidence 4 to 20 times more frequent than in control groups (4-16%). Palpable osteomas were reported in 26 of 180 patients with FAP and 17 of them had a mutation situated within the spectrum spanning from codon 767 to codon 1513.

Epidemiology

Although any age may be affected, most osteomas occur in adults between the ages of 30 and 50 years.

Osteomas occur more often in women than men (3:1).

Clinics

Osteomas are often incidental and asymptomatic findings. However, some present with long-stand-ing (often years) symptomatic of sinus obstruction.

The most common anatomic site is the frontal sinus, followed by ethmoids and sphenoid sinuses.

Central osteomas are well delineated sclerotic lesions, without surface irregularities or satellite lesions. Peripheral osteomas are lesions with expansive borders that may be pedunculated.

Pathology

Compact osteomas, on microscopic examination, are consisted of mature lamellar bone. They have no Haversian canals and no fibrous component (Image 2, 3). Trabecular osteomas are composed of cancellous trabecular bone with hematopoietic elements

surrounded by a cortical bone margin. They may be found centrally (endosteal) or peripherally (subperiosteal) in the bone.

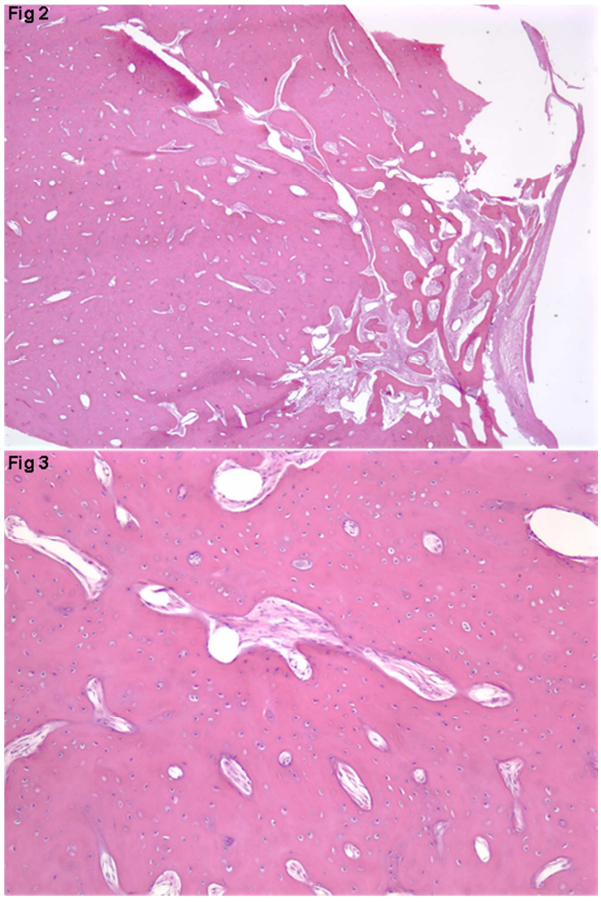

Figure 2: The lesion consists of dense and lamellar cortical bone with a focal area of active bone modeling.
Figure 3: Photomicrograph of the more solid area of the lesion to demonstrate the cellular woven character of the bone.

Treatment

Simple excision is the treatment of choice for symptomatic lesions.

Prognosis

The lesion does not recur after surgical excision and it is not associated with malignant change.

References

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 May;52(5):467-70

Sayan NB, Uçok C, Karasu HA, Günhan O. Peripheral osteoma of the oral and maxillofacial region: a study of 35 new cases. J Oral Maxillofac Surg. 2002 Nov;60(11):1299-301

Herrmann SM, Adler YD, Schmidt-Petersen K, Nicaud V, Morrison C, Paul M, Zouboulis ChC. The concomitant occurrence of multiple epidermal cysts, osteomas and thyroid gland nodules is not diagnostic for Gardner syndrome in the absence of intestinal polyposis: a clinical and genetic report. Br J Dermatol. 2003 Oct;149(4):877-83

Bilkay U, Erdem O, Ozek C, Helvaci E, Kilic K, Ertan Y, Gurler T. Benign osteoma with Gardner syndrome: review of the literature and report of a case. J Craniofac Surg. 2004 May;15(3):506-9

Oku T, Takayama T, Sato Y, Sato Y, Takada K, Hayashi T, Takahashi M, Kuroda M, Kato J, Niitsu Y. A case of Gardner syndrome with a mutation at codon 1556 of APC: a suggested case of genotype-phenotype correlation in dental abnormality. Eur J Gastroenterol Hepatol. 2004 Jan;16(1):101-5

Bisgaard ML, Bülow S. Familial adenomatous polyposis (FAP): genotype correlation to FAP phenotype with osteomas and sebaceous cysts. Am J Med Genet A. 2006 Feb 1;140(3):200-4

Wijn MA, Keller JJ, Giardiello FM, Brand HS. Oral and maxillofacial manifestations of familial adenomatous polyposis. Oral Dis. 2007 Jul;13(4):360-5

Larrea-Oyarbide N, Valmaseda-Castellón E, Berini-Aytés L, Gay-Escoda C. Osteomas of the craniofacial region. Review of 106 cases. J Oral Pathol Med. 2008 Jan;37(1):38-42

This article should be referenced as such:

de Andrea CE, Hogendoorn PCW. Bone: Osteoma. Atlas Genet Cytogenet Oncol Haematol. 2010; 14(1):81-82.