Mixed cortical and cancellous osteoma of the mandible

An unusual lesion and review of the literature

Brian M Berezowski BDS, M Dent (MFOS), FDSRCS, PhD, FFD(SA), FFD RCS(Ire), FCMFOS(SA)[1]
Gary C Cousin BDS, MBChB, FDSRCS, FRCS(OMS), FDSRCPS(Glasg), FRCS(Edin)[2]
Horst Luckey, Dr med dent[3]

Abstract

German: Osteome sind gutartige Tumore, die aus reifem, kompaktem, kortikalem oder spongiösem Knochen bestehen. Sie sind fast immer auf das kraniofaziale Skelett beschränkt.[1] Selten finden sie sich in anderen Skelettbereichen. Die Mehrheit der Osteome tritt bei jungen Erwachsenen auf. Sie sitzen in der Regel breitflächig auf, aber gelegentlich auch gestielt. Osteome sind solitär und asymptomatisch. Sie sind typischerweise selten, langsam wachsend und oft zeigt sich als einziges Symptom eine Asymmetrie.[2] Eine maligne Entartung wurde in der Literatur noch nicht beschrieben.[3] Die Behandlung der Wahl für Osteome der Kiefer ist eine chirurgische Entfernung. Die Wahrscheinlichkeit eines Rezidivs ist sehr gering.[4]
Dieser Artikel beschreibt ein Osteom im Bereich des rechten Unterkieferwinkels bei einem Patienten mittleren Alters.

Introduction

Osteomas are benign tumours composed of mature compacted cortical or cancellous bone and are almost always restricted to the cranio-facial skeleton, being rare elsewhere in the skeleton.[1] The majority of osteomas occurs in young adults and are usually sessile but sometimes pedunculated, solitary, and asymptomatic. They are typically rare slow growing and often the only symptom is asymmetry.[2] Malignant transformation has not been reported[3]. The treatment of choice for osteomas of the jaw is surgical removal and they have very limited potential for recurrence.[4]
This paper describes an osteoma at the right angle of the mandible in a middleaged patient.

Case report

A 42-year-old male patient presented with a progressive painless swelling of the right angle of the mandible. This had been growing steadily over a number of years. He had first noticed it two years previously and intentionally masked this deformity by growing a beard, but this was later shaved off revealing the facial asymmetry. Past medical history was unremarkable; he had no regular medication, and no drug allergies. He was a smoker. He had no previous surgery. Extra-oral examination revealed a bony-hard well-circumscribed swelling of the right angle of the

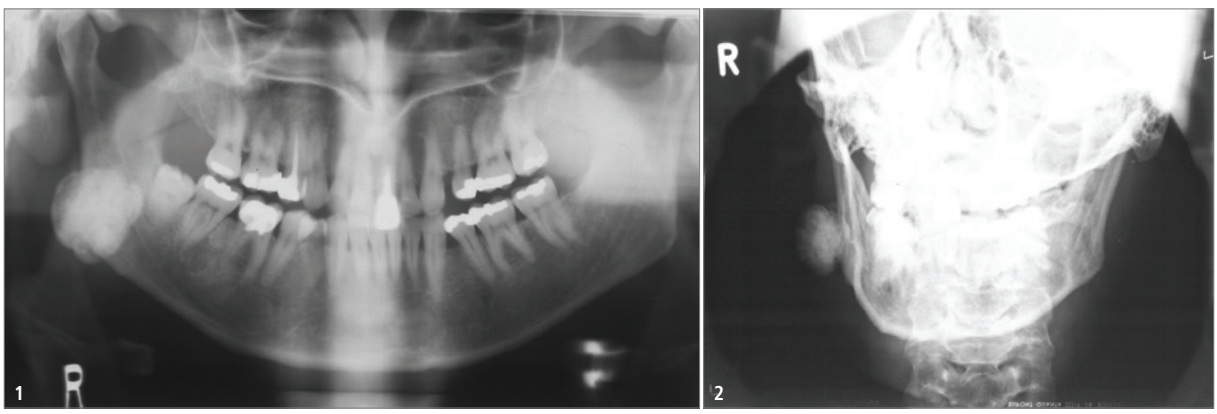


Fig. 1: Preoperative orthopantomograph with radiopaque body at the right angle of the mandible. – **Fig. 2:** Preoperative PA illustrating the pedunculated nature of the lesion.

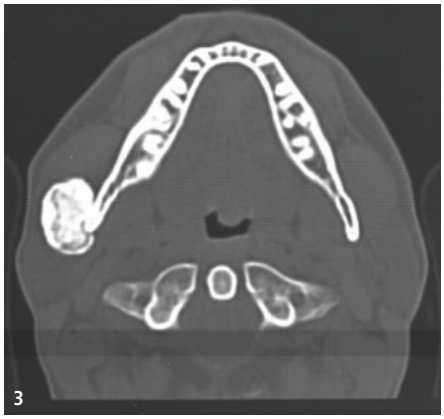
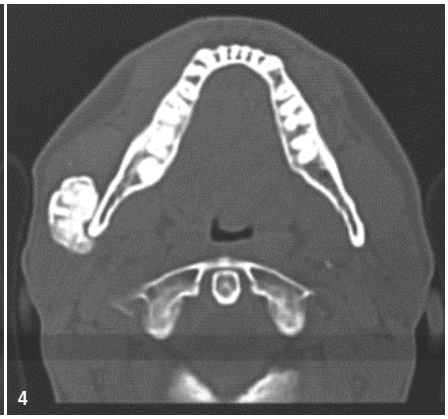
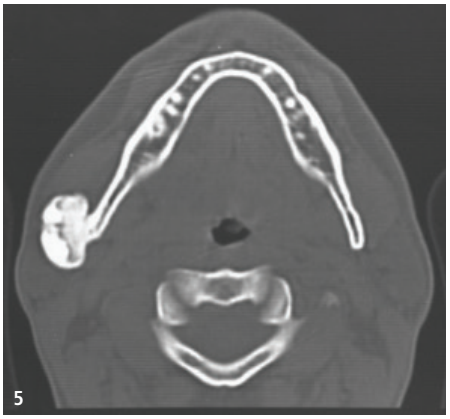




Fig. 3: CT showing a dense outer cortical area and more radiolucent inner aspect. – **Fig. 4:** CT of the mixed radiopaque and radiolucent lesion at the right angle of the mandible. – **Fig. 5:** CT demonstrating the base of tumour attached to the right angle of the mandible.

mandible. It did not appear to be attached to any overlying structures and was fixed at the angle of the mandible. The trigeminal and the facial nerves were tested, and no deficit detected. There was right sided asymmetry of his face and his TM joints functioned well. Intra-orally there was a partially erupted lower right wisdom tooth and he complained of having some pain in that area. Tongue function, glossopharyngeal and vagal nerve functions as well as the mucosae of his mouth were all normal.

The orthopantomograph taken by his dentist confirmed a well-defined radiopaque body at the right angle of the mandible and measured approximately 3 cm in diameter (Fig. 1). There was also a partially erupted lower wisdom tooth in close proximity. The inferior alveolar nerve was not clearly visualised on the orthpantomograph and serial computer tomography (CT) cuts were ordered as well as a PA mandible (Fig. 2). The axial 4 mm slices of the CT showed that the lesion at the angle of the mandible was 30 mm in diameter, sharply demarcated and surrounded by hard cortical bone (Fig. 3). The centre of the lesion contained material of intermediate density which was thought either to be cartilage or cortical bone (Fig. 4). It was attached to the angle of the mandible with a base of 12 mm (Fig. 5). There was no periosteal reaction, bone erosion or infiltration of the surrounding tissues. There was no obvious lymphadenopathy noted and no additional lesions of the mandible were seen. The diagnosis made by the radiologist was that of a benign bony exostosis of the right angle of the mandible. After excluding Gardiner's syndrome, the differential diagnosis included osteoma, osteoblastoma, central ossifying fibroma, complex odontoma and osteosarcoma.

The proposed operation was discussed with the patient. The operation was performed under general anaesthesia using an extra-oral lower border approach for removal of the bony hard lesion at the angle of the mandible. The lesion measured about 3.5 cm by 2 cm in diameter and was removed using osteotomes. Thereafter the surface of the angle of the mandible was contoured using acrylic burrs. At operation it was confirmed that the lesion was not attached to the overlying soft tissue. The lower right wisdom tooth was removed conventionally as well as the soft tissues associated. All excised tissue was sent for histological examination. The neck incision was closed using resorbable sutures for the deep tissues and 5/0 nylon sutures and Steri-Strips for the skin. Intra-orally, resorbable sutures were used. He was given postoperative analgesics and antibiotics and discharged the day after surgery.

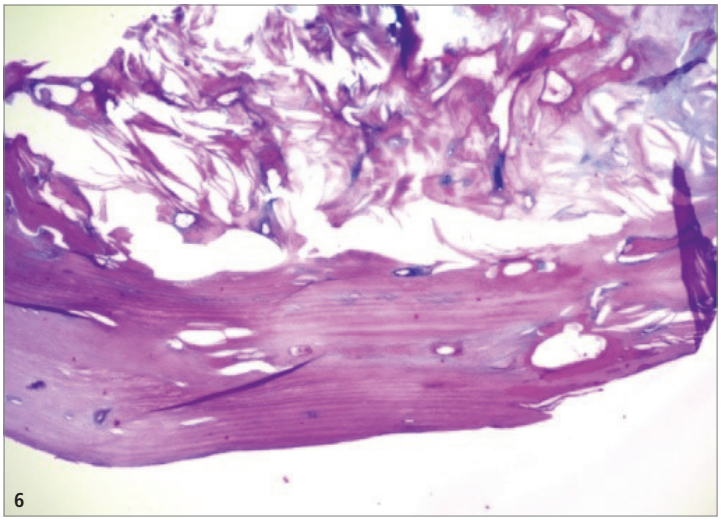
Histology

The macroscopic appearance was of a lobulated mass, comprising bony hard material approximately 4 cm in diameter. Microscopic examination of the decalcified sections of the lesion showed fragments of cortical bone (Fig. 7) with periosteum on the periphery and signs of active osteoblastic activity around the trabeculae of bone especially in between the fibrous and fatty marrow spaces. There were fragments of lamella bone and woven bone within the central fibrofatty cortical tissue (Fig. 6). No signs of malignancy were evident in the sections examined, and the diagnosis of the lesion confirmed as a cortical osteoma with no signs of malignancy.

A year later the postoperative orthopantomograph showed that he had made an excellent recovery with no recurrence of the osteoma (Fig. 8).

Discussion

Osteomas are benign lesions composed of mature compact or cancellous bone and are restricted to the facial skeleton, rarely occurring in other bones.[1] Since they are slow growing, there is usually no pain associated with this tumour, and the presentation is often of facial asymmetry.[2] The two distinct varieties are those composed of cortical bone predominantly and the other being less dense composed of cancellous bone.[6] The lesions are solitary and must be distinguished from Gardner's Syndrome which consists of multiple osteomas, supernumerary teeth, adenomatoid gastro-intestinal polyps and dermoid tumours.[5] Exclusion of Gardner's Syndrome is important, as polyps found in Gardner's Syndrome have premalignant potential and patients with multiple peripheral osteomas must be investigated for Gardner's Syndrome. Osteomas must be differentiated from Exostoses seen in the facial skeleton such as Torus Palatinus and Torus Mandibularis which stop growth after puberty.[6]



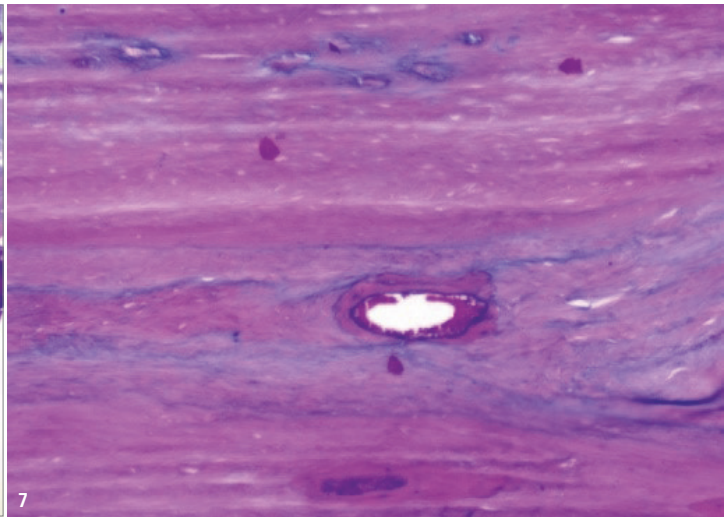


Fig. 6: The histology of the decalcified hard tissue showing cortical bone and adjacent irregular trabecular bone (200x). – **Fig. 7:** The dense cortical bone showing osteoblasts (400x).

Conclusion

In our report the patient fulfilled the criteria often seen for a solitary osteoma, being a middle-aged man presenting with a painless bony jaw swelling. No signs of malignancy were found, and Gardner's Syndrome was excluded. The osteoma found in this case was not composed only of cortical bone as found in the Ivory osteoma but had areas of cancellous bone associated which corresponded to the radiographic findings preoperatively and the histological findings postoperatively. This case showed both mixed cortical and cancellous features radiographically.

The patient was treated successfully, with no recurrence two years postoperatively.

Acknowledgements

The authors would like to thank Dr Horst Luckey for the German translation of the abstract. The authors also wish to express their grateful thanks to Mr Rafael Berezowski for computer assistance and to Ms Hayleigh Murray for preparation and typing the manuscript.

Conflict of interest

There is no conflict of interest.

References

All references (1–6) can be accessed in the electronic form of this paper and via the following link: qr.oemus.com/9543

Author affiliations

1 *Brian M Berezowski: Consultant Maxillofacial and Oral Surgeon University of the Western Cape and private practise, Cape Town, South Africa. Visiting Consultant, Department of Maxillofacial and Oral Surgery East Lancashire Teaching Hospitals NHS Trust, Lancashire, United Kingdom.*

2 *Gary C Cousin: Consultant Maxillofacial and Oral Surgeon and Director, Department of Maxillofacial and Oral Surgery East Lancashire Teaching Hospitals NHS Trust, Lancashire, United Kingdom.*

3 *Horst Luckey: Private Practise and Past President BDO and EFOSS, Neuwied, Germany.*

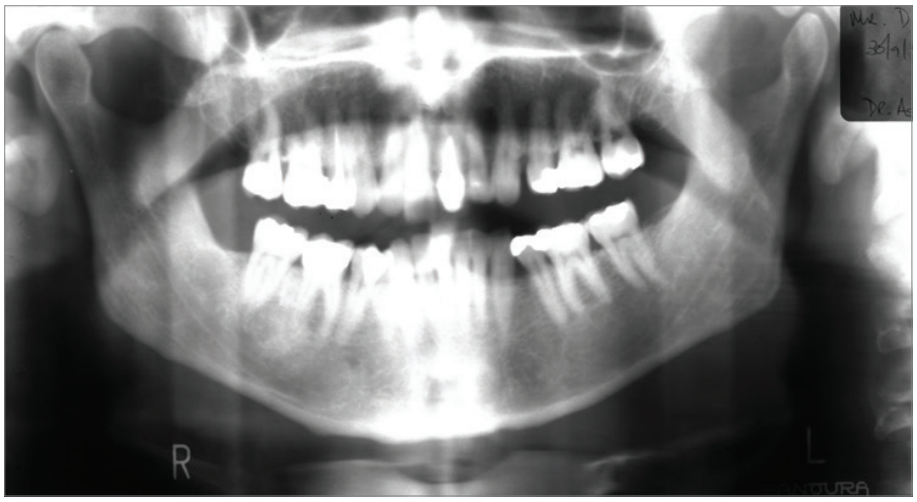


Fig. 8: Orthopantomograph one year postoperatively.

Brian M. Berezowski
[Infos zum Autor]

Literatur

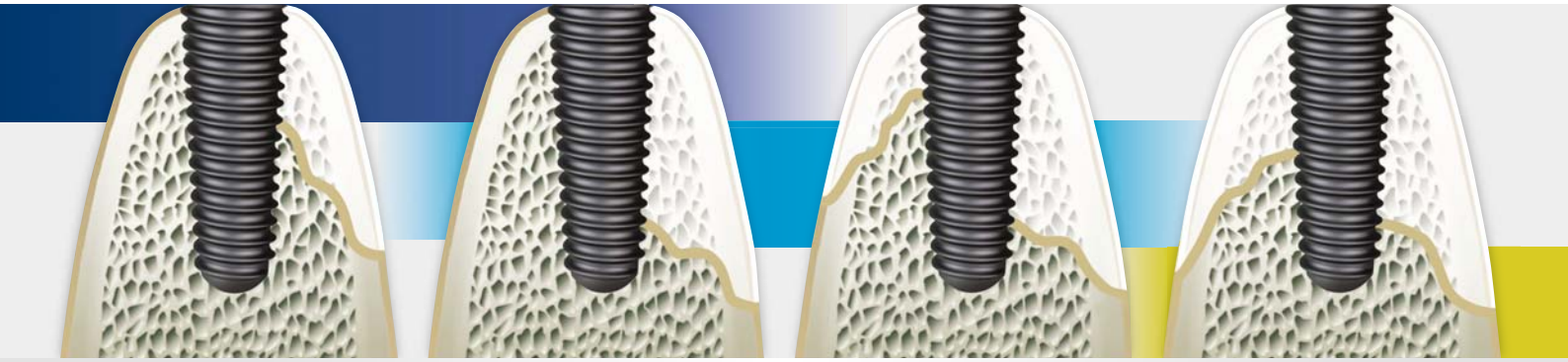
Kontakt

Dr Brian M. Berezowski PhD
8 Mount Pleasant Road
Newlands
Cape Town, 7700
South Africa
berezbc@mweb.co.za

LEADING REGENERATION

Geistlich Biomaterials

Das defektorientierte Geistlich-Konzept



KLASSIFIKATION DER ALVEOLARKAMMDEFEKTE*

Guided Bone Regeneration

kleine Knochendefekte

Stabilized Bone Regeneration

kleinere komplexe Knochendefekte

Customized Bone Regeneration

größere komplexe Knochendefekte

EMPFOHLENE MATERIALIEN

* modifiziert nach Terheyden H. (2010). DZZ 65:320-331

Bitte senden Sie mir folgende Broschüren zu:

- ☐ Informationsbroschüre | Das defektorientierte Geistlich-Konzept
- ☐ Therapiekonzepte | Kleinere Knochenaugmentationen
- ☐ Broschüre | Instrumente und Zubehör
- ☐ Yxoss CBR® Produktkatalog mit Therapiekonzepten

Mehr Stabilität und Sicherheit

Geistlich Biomaterials Vertriebsgesellschaft mbH
Schneidweg 5 | 76534 Baden-Baden
Tel. 07223 9624-0 | Fax 07223 9624-10
info@geistlich.de | www.geistlich.de

Oralchir. Journal 04/2021

Praxisstempel