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原文作者姓名：	Monteiro M, Rout J
通訊作者學校：	Royal Sussex County Hospital, Oral&Maxillofacial Department, Brighton,UK Department of Maxillofacial Radiology, Birmingham Dental Hospital, Birmingham,UK
報告者姓名(組別)：	實習H組 翁蔚任
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內文：

Abstract

- ◇ Paget's disease is a chronic disorder of bone remodeling of uncertain etiology. We present an unusual case of Paget's disease presenting *with significant external root resorption*.
- ◇ The oral manifestations and radiological features of Paget's disease as well as the implications for surgery in the mouth are discussed.

Introduction

- ◇ *Paget's disease of bone (osteitis deformans)*, is a disease characterized by abnormal *bone deposition* and *resorption*.
- ◇ Craniofacial manifestations have been reported, typically involving the *calvarium, maxilla* and, on rare occasions, the *mandible*¹.
- ◇ The condition mainly affects *middle aged or elderly persons*. They may complain of *bone pain*, or *deafness* or *blindness* due to cranial nerve compression.
- ◇ When the facial skeleton is affected, the entire maxilla or mandible is usually involved and this may result in *alveolar ridge expansion*.
- ◇ Tooth roots are affected by increased deposits of cementum (*hypercementosis*)²⁻⁴.
- ◇ We report an unusual case of Paget's disease associated with extensive root resorption of the dentition.

Case report

1. A *72-year-old* man presented an 8-week history of pain, swelling and purulent discharge associated with the lower left first molar tooth.
2. Extraction of the tooth revealed severe *root resorption*
3. Past medical history and systems review was unremarkable.
4. Clinical examination revealed extensive *bucco-lingual expansion* of the mandibular alveolus.
5. Dental panoramic tomogram (DPT) ([Fig. 1](#)) and lateral skull ([Fig. 2](#)) radiographs showed typical features of Paget's disease in the *maxilla, mandible, calvarium and skull base*. These included *hypercementosis, loss of lamina dura, altered bony trabeculation, osteolytic and osteosclerotic areas* and *bone enlargement with generalized loss of cortical bone*.
6. An interesting finding was that of significant external *root resorption of the 35, 44,46 and 47* teeth.
7. A bone scan was performed which demonstrated intense uptake of [technetium-labelled](#) (鎝 ; Tc) medronate throughout the skull vault and facial skeleton with focal uptake in the 12th thoracic (*T12*) and 4th lumbar (*L4*) vertebral bodies.
8. A serum *alkaline phosphatase test* showed an elevated level of 2222 U/L, with a

normal adult range of 70–330 U/L. Serum calcium was within normal limits.

- ✧ These results are consistent with a [diagnosis of Paget's disease](#).
- ✧ As the patient required multiple extractions and recontouring of the jaws, **bisphosphonate therapy**, to suppress disease activity, and **prophylactic antibiotics** were commenced prior to surgery.

Discussion

Characteristics

- ✧ Its prevalence is reported to be between **0.01% and 3%** in patients **above the age of 40**, increasing to **10%** in patients above the age of 70 and more commonly occurring in individuals of [Anglo-Saxon](#) origin.
- ✧ The [etiology](#) of Paget's disease is uncertain. It affects certain bones, typically **sacrum, spine, femur, tibia and skull**, usually in a **symmetrical distribution**⁵.
- ✧ In a large series⁶, jaw involvement was reported to occur in 17% of Paget's cases. The maxilla is more commonly affected than the mandible.
- ✧ Oral manifestations of the disease include **enlargement of the alveolar ridge** resulting in **separation of the teeth, flattening of the palate, malocclusion and pulpal calcification**^{2,5}.
- ✧ The radiographic features of Paget's disease of the skull vary with the stage of the disease. The bone progresses through an **osteolytic** and **osteoblastic** phase which can occur simultaneously but with the osteoblastic phase ultimately becoming dominant.
 - A. The osteolytic resorptive phase is characterised by radiolucent lesions with a fine trabecular pattern producing a **ground glass appearance**².
 - B. In the osteoblastic phase, irregular areas of increased bone formation give rise to a distinctive **cotton wool appearance** on skull radiographs^{2,5}.
- ✧ **Thickening of the outer table** of the skull vault leads to a loss of demarcation between the diploe⁵.
- ✧ In the jaws, the bone appears granular or may show a **linear trabecular pattern** posteriorly in the mandible. (**horizontal direction in the mandible but randomly oriented in the maxilla**)
- ✧ Radiographs of the teeth may show loss of lamina dura, hypercementosis, root resorption and pulpal calcification^{2,4,5}. Root resorption may result in increased **mobility and migration of teeth**. However, **root resorption accompanied by ingrowth of pagetoid bone or hypercementosis** may result in **ankylosis**. A surgical approach is advisable for the removal of such teeth⁵.
- ✧ An explanation for root resorption is that the osteolytic and osteoblastic phases affecting the bone probably also affect the teeth, particularly as bone and cementum have a similar structure. Thus the **osteoblastic phase** is probably responsible for the formation of **hypercementosis** and the **osteolytic phase** for **root resorption**. In this case, it would appear that the osteolytic phase persisted resulting in extensive root resorption.

Management

- ✧ Dental surgery in Paget's disease requires careful preoperative planning. Extractions can be difficult because of hypercementosis resulting in bulbous tooth roots or ankylosis, thereby necessitating a surgical approach.
- ✧ In addition, the poor quality of the bone renders it susceptible to infection and prophylactic antibiotic therapy should be maintained during the healing phase.
- ✧ Reducing the activity of the abnormal bone with bisphosphonates should help reduce the likelihood of subsequent infection.
- ✧ [Diet and Exercise](#)

Conclusion

Extensive root resorption in Paget's disease of the mandible is an uncommon finding^{2,3,5}.

Gross resorption of the roots of permanent teeth should always be considered abnormal, particularly in the absence of trauma, tumour or cyst formation⁴.

References

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key words

BISPHOSPHONATES (also called: diphosphonates) are a class of drugs that inhibit [osteoclast](#) action and the [resorption of bone](#). Its uses include the prevention and treatment of [osteoporosis](#), [osteitis deformans](#) ("Paget's disease of bone"), [bone metastasis](#) (with or without [hypercalcaemia](#)), [multiple myeloma](#) and other conditions that feature bone fragility.

ANGLO-SAXON is the term usually used to describe the peoples living in the south and east of [Great Britain](#) from the early [5th century](#) AD to the [Norman conquest](#) of 1066.

POSSIBLE FACTORS:

A. Infection factor: Paget's disease may be caused by a [slow virus](#) infection (i.e., [paramyxoviruses](#) such as [measles](#), [Canine distemper virus](#)^[2], and [respiratory syncytial virus](#));

B. Hereditary factor: Prevalence of familial Paget's disease (where more than one family member has the disease) ranges from 10 to 40 percent in different parts of the world. Because early [diagnosis](#) and treatment is important, after age 40, siblings and children of someone with Paget's disease may wish to have an [alkaline phosphatase](#) blood test every 2 or 3 years. If the alkaline phosphatase level is above normal, other tests such as a bone-specific alkaline phosphatase test, [bone scan](#), or [x-ray](#) can be performed.

DIAGNOSIS:

Paget's bone has a characteristic appearance on [x-rays](#). A [skeletal survey](#) is therefore indicated.

An elevated level of [alkaline phosphatase](#) in the blood in combination with normal [calcium](#), [phosphate](#), and [aminotransferase](#) levels in an elderly patient are suggestive of Paget's disease.

[Bone scans](#) are useful in determining the extent and activity of the condition. If a bone scan suggests Paget's disease, the affected bone(s) should be x-rayed to confirm the diagnosis.

Diet and Exercise

In general, patients with Paget's disease should receive 1000-1500 mg of [calcium](#), adequate [sunshine](#), and at least 400 units of [vitamin D](#) daily. This is especially important in patients being treated with bisphosphonates. Patients with a history of kidney stones should discuss calcium and vitamin D intake with their physician.

[Exercise](#) is very important in maintaining skeletal health, avoiding [weight gain](#), and maintaining joint mobility. Since undue stress on affected bones should be avoided, patients should discuss any exercise program with their physician before beginning.

題號	題目
1	Paget's disease最不常involve到的骨頭為以下何者? (A) Pelvis (B) Spine (C) Tibia (D) Radius
答案(D)	出處：different diagnosis of oral & maxillofacial lesions 5 th edition p.407
題號	題目
2	下列何者不適合做為Paget's disease的診斷依據? (A) Alkaline phosphatase test過高 (B) Smear slides檢查口腔中有真菌菌落 (C) Panorax, LA films 上有skull, maxilla, mandible骨頭沉積 (D) Bone scan 上有多處骨頭高活性反應
答案(C)	出處：different diagnosis of oral & maxillofacial lesions 5 th edition p.511