

Brown Tumours: A Case of a Non-Healing Tooth Socket

Natalie Bradley^{1*}, Neha P Shah², Selvam Thavaraj³ and Jerry Kwok²

¹Kent Community Health Foundation Trust, St Leonard's Hospital, Nuttall Street, London, UK

²Department of Oral Surgery, Guy's Dental Hospital, London, UK

³Department of Oral Medicine, Guy's Dental Hospital, London, UK

***Corresponding Author:** Natalie Bradley, Kent Community Health Foundation Trust, 3rd Floor B Block, St Leonard's Hospital, Nuttall Street, London, UK.

Received: May 02, 2017; **Published:** May 29, 2017

Abstract

Introduction: Brown tumours are boney complications of hyperparathyroidism. They giant cell lesions that often appear as an expansile osteolytic lesion of the bone. We discuss the diagnosis and management of a brown tumour that presented as a non-healing extraction socket.

Case Report: A 59 year old male presented with a one year history of a non-healing extraction socket on the lower left mandible following the removal of the LL6. The socket was not associated with any acute symptoms such as pain or swelling, but lack of mucosal closure persisted despite local measures with his general dental practitioner. The patient had a medical background of hypercholesterolaemia, hypertension, and anxiety. He previously had hyperparathyroidism as a result of a parathyroid adenoma, which was surgically removed 6 months after the dental extraction. Intra-oral examination revealed a suspicious-looking heterogenous lesion on the lower left alveolar ridge within the extraction socket. Radiographically there was a diffuse area of irregular radiolucency along the lower left mandible which had a moth eaten appearance in the absence of retained tooth fragments. An urgent incisional biopsy was undertaken which showed giant cells present. Bloods revealed mildly elevated calcium levels and low levels of phosphate. A diagnosis of Brown's Tumour was made and the area was curetted and treated with Leukocyte-Platelet Rich Fibrin (L-PRF) and primary closure.

Discussion: We discuss the possible differential diagnoses of non-healing tooth sockets together with the pathology of Giant Cell Lesions and their surgical management including the benefits of using L-PRF to improve healing.

Conclusion: Brown tumours in the mandible can present as a non-healing extraction socket. Curettage and treatment with L-PRF is enables boney healing and is suitable management technique for this type of presentation.

Keywords: Brown Tumour; L-PRF; Giant Cell Lesion; Non-Healing Socket; Hyperparathyroidism

Abbreviations

L-PRF: Leukocyte-Platelet Rich Fibrin

Introduction

Hyperparathyroidism (PHPT) results in excessive secretion of parathyroid hormone (PTH) with single benign parathyroid adenomas being the most common cause. Brown tumours are bony complications of PHPT. These giant cell lesions that often appear as an expansile

osteolytic lesions of the bone [1]. We discuss the diagnosis and management of a brown tumour, using Leukocyte-Platelet Rich Fibrin (L-PRF), that presented as a non-healing extraction socket.

Case Report

A 59-year-old male presented with a one year history of a non-healing extraction socket on the lower left mandible following the removal of the LL6. The socket was not associated with any acute symptoms such as pain or swelling, but lack of mucosal closure persisted despite local measures with his general dental practitioner. The patient had a medical background of hypercholesterolemia, hypertension, and anxiety. He previously had hyperparathyroidism as a result of a parathyroid adenoma, which was surgically removed 6 months after the dental extraction.

Clinical Findings

Intra-oral examination revealed a suspicious-looking heterogeneous lesion on the lower left alveolar ridge within the extraction socket.

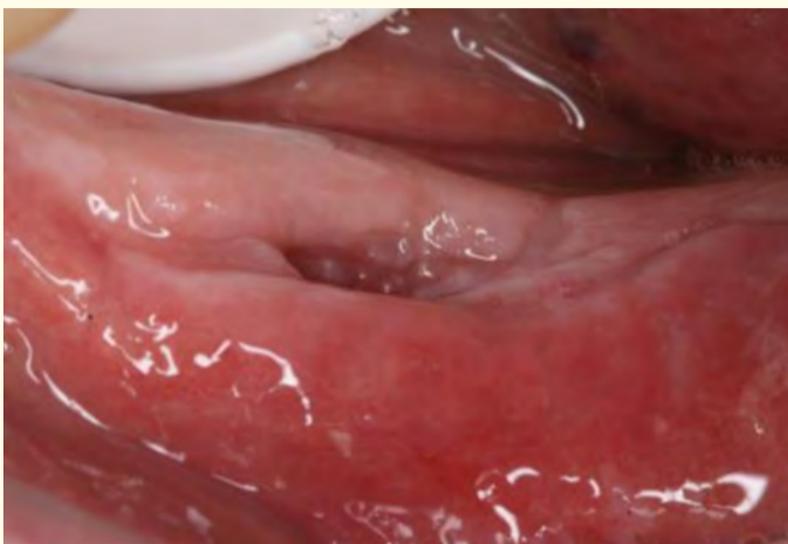
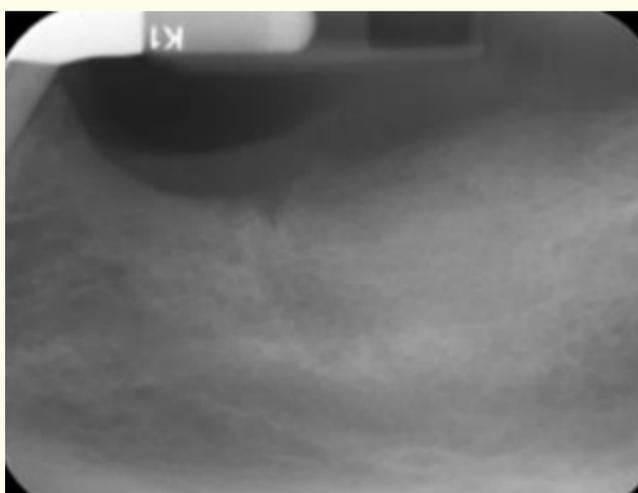


Figure 1: Clinical appearance of non-healing tooth socket.

Radiographic Findings

Both a Dental Panoramic Tomograph (DPT) and a Long Cone Periapical (LCPA) were taken which showed there was a diffuse area of irregular radiolucency along the lower left mandible which had a sunray spicule appearance in the absence of retained tooth fragments.



Figures 2 and 3: Radiographic appearance of tooth socket.

Histological Findings

Incisional Biopsy showed Giant Cells with deposits of Haemosiderin.

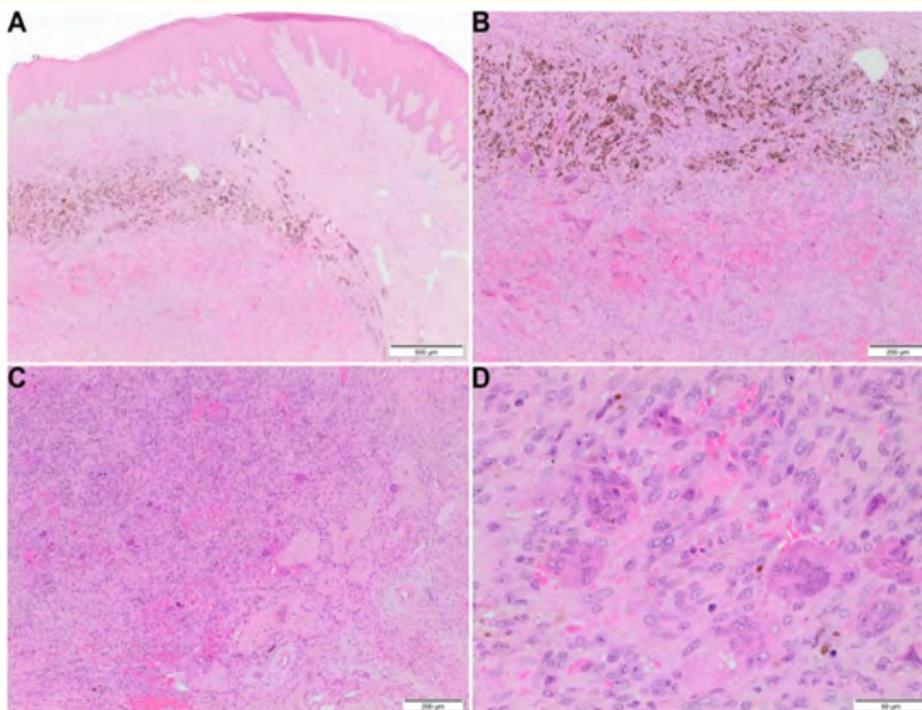


Figure 4: Representative photomicrographs of histological feature.

- A. Low-power view demonstrating normal gingival mucosa and underlying lesional tissue.
- B. Medium-power view of superficial aspect of lesion demonstrating haemosiderin deposition at the periphery
- C. Medium-power view of deep aspect of lesion demonstrating cortical perforation with associated remodelling bone
- D. High-power view of multinucleate giant cells with intervening mononucleate stromal component.

Haematological Findings

Bloods revealed mildly elevated calcium levels and low levels of phosphate with normal ranges of PTH, albumin and alkaline phosphatase (Alk phos).

	Result	Normal Range
Calcium	2.61	2.15-2.55 mmol/L
Phosphate	0.7	0.9-1.4 mmol/L
PTH	37	10-65 ng/L
Albumin	52	35-129 IU/L
Alk Phos	94	40-52 g/L

Figure 5: Blood findings.

Diagnosis and Management

Histological findings alongside the history of a parathyroid adenoma suggests a diagnosis of a Brown Tumour of hyperparathyroidism.

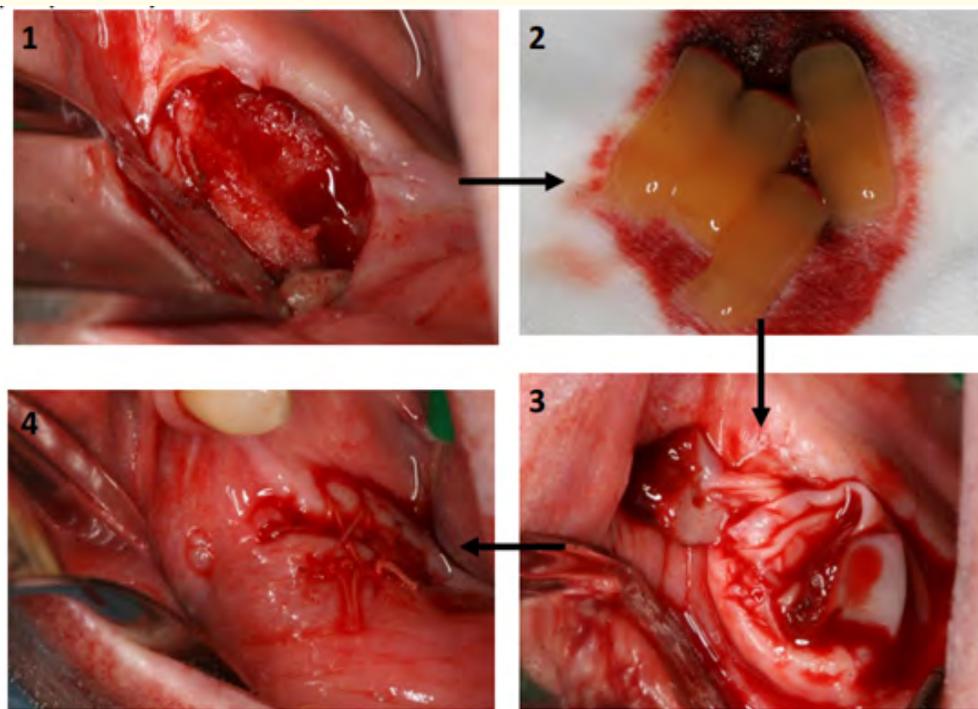


Figure 6: The area was curetted using piezo and dressed with L-PRF and primary closure.

1. Socket opened up and debrided with piezo to remove any affected bone
2. L-PRF using the patient's centrifuged blood
3. L-PRF in situ in debrided socket to fill void
4. Primary closure with Vicryl Rapide 3.0.

Results and Discussion

Possible differential Diagnoses of non-healing tooth sockets in cases such as these include:

- Giant Cell Lesion/Epulis
- Squamous Cell Carcinoma
- Osteosarcoma
- Bone metastases (prostate, breast, lung)
- Osteomyelitis
- Bony sequestra

In this case, a thorough history highlighted giant cell lesion as a result of hyperparathyroidism as a likely diagnosis prior to any further investigations. In any case, we examined and investigated this case urgently due to the possible sinister differential diagnoses that could have been the cause.

Leucocyte-Platelet Rich Fibrin (L-PRF) is becoming more widely used in oral surgery. It is constituted of concentrated platelets and

growth factors which is activated in a fibrin gel which improves the healing of surgical sites. It has been shown to reduce healing times by promoting optimum bone regeneration and appears to be superior to collagen (Bio-Gide) as a scaffold for human periosteal cell proliferation [2].

Conclusion

Brown tumours in the mandible can present as a non-healing extraction socket. Curettage and treatment with L-PRF is enables bony healing and is a suitable management technique for this type of presentation.

Acknowledgements

Many thanks to my seniors Neha Shah, Jerry Kwok and Selvam Thavaraj who assisted me in writing up this case.

Conflict of Interest

No Conflict of interest.

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Volume 10 Issue 6 May 2017

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