Peripheral brown tumour of hyperparathyroidism in the oral cavity

André Luiz Sena Guimarães, Luciano Marques-Silva, Carolina Cavaliéri Gomes, Wagner Henriques Castro, Ricardo Alves Mesquita, Ricardo Santiago Gomez*

Departamento de Patologia e Cirurgia, Faculdade de Odontologia, Universidade Federal de Minas Gerais, Avenida Antonio Carlos, 6627, Belo Horizonte-MG, Brazil, CEP 31270901.

Received 9 September 2005; accepted 15 September 2005

Summary Brown tumour is a non-neoplastic lesion resulting from abnormal bone metabolism in hyperparathyroidism. We describe a rare case of peripheral brown tumour associated with secondary hyperparathyroidism simulating a peripheral giant cell lesion of the jaws.

KEYWORDS Brown tumour; Hyperparathyroidism; Jaws

Introduction

Hyperparathyroidism (HPT) was identified concurrently in Europe and United States in the mid 1920s. The illness was first described in the setting of severe bone disease resulting in significant morbidity. HPT is divided into primary, secondary and tertiary categories. Primary HPT occurs in the setting of excessive parathyroid hormone (PTH) secretion by an autonomous gland resulting in hypercalcemia. Secondary HPT occurs in the setting of hypocalcemia or vitamin D deficiency acting as a stimulus for PTH production. Tertiary HPT is associated with renal failure and results from autonomous functioning glands in patients with long-standing secondary HPT. The fourth type of HPT occurs due to ectopic HPT, which is thought to arise from increased parathyroid hormone levels synthesized in patients with malignant diseases. Secondary HPT most commonly occurs in patients with chronic renal failure caused by decreased levels of 1,25-dihydroxy vitamin D. We report an unusual case of peripheral brown tumour in the maxilla as manifestation of secondary HPT associated with chronic renal failure.

Case report

A 53-year-old man was referred to the Oral Medicine Service at the Dentistry School, Universidade Federal de Minas Gerais, in November 2004 for evaluation of an oral lesion. Medical history was significant for chronic progressive renal failure. Physical extra oral examination was unremarkable.
and facial deformity was not observed. Physical intraoral examination showed a violet, painless, sessile swelling on the anterior region of the maxilla measuring 35 × 15 × 10 mm (Fig. 1A). The patient reported that the lesion had appeared 8 months before. Radiographic exam showed superficial erosion of the bone in the region of the teeth 22, 23 and 24 (Fig. 1B). The lesion was surgically removed and the histopathological analysis revealed a network of ovoid to spindle-shaped mesenchymal cells with focal aggregates of multinucleated giant cells diffusely present throughout the lesion (Fig. 1C).

Blood analysis demonstrated PTH level of 223.0 pg/ml (normal range: 2–72 pg/ml). Calcium, phosphorus and alkaline phosphatase levels were within normal limits. A diagnosis of brown tumour associated to a secondary HPT was made. The patient had no familiar history of HPT or other endocrine disorder and he has been prepared to be submitted to kidney transplant.

Discussion

Bone involvement is the late manifestation of HPT. Classic skeletal lesions, which are bone resorption, bone cysts, brown tumours and generalized osteopenia, occur in less than 5% of cases. The ribs, clavicles, pelvic girdle, and the mandible are the most often involved bones. Both primary and secondary HPT are prone to cause loss of the lamina dura.

Brown tumours are non-neoplastic lesions resulting from abnormal bone metabolism in HPT. It represents the terminal stage of the bone remodelling process during secondary HPT. The committed sites are facial bones, clavicle, ribs, pelvis, and/or femur. In contrast to secondary HPT, jaw bones are commonly affected by brown tumours in primary HPT. Oral radiographic manifestations of HPT include a generalized loss of lamina dura surrounding the roots of the teeth, loss of cortication around the inferior alveolar canal and maxillary sinus, and of the trabecular pattern of the jaws. Peripheral manifestation of brown tumour on the oral cavity is rare. As it can be observed in the present case, the clinical appearance simulates peripheral giant cell granuloma.

The term brown tumour comes from the colour of lesion, which results from the vascularity, haemorrhage and deposits of hemosiderin. Therefore, the brown tumour is actually a kind of giant cell lesion and often appears as a multiple and expansive osteolytic lesion of the bone. Because it is difficult to distinguish histopathologically brown tumour from other giant cell lesions, a clinical diagnosis is made based on the association with HPT. Histologically, all giant cell lesions have two main components: mononuclear stromal cells and multinucleated giant cells. There is no single test that establishes the diagnosis of secondary HPT. However, the diagnosis is made based on the high level of PTH associated with low or normal serum calcium. In the present case the patient presented chronic progressive renal failure together with PTH level five times higher than normal and did not show alteration in calcium level.

The treatment for brown tumour in the jaws includes enucleation and curettage, radical resection and reconstruction, radiation therapy, and chemotherapy. Surgical excision of the brown tumours is indicated for large and disfiguring lesions and in case that the affected bone is weakened. However, other authors initially treat this lesion with systemic corticosteroids and, when it reduces its size, they make its surgical excision. In conclusion, the present report describes a rare case of peripheral brown tumour associated with secondary HPT simulating a peripheral giant cell lesion of the jaws. The lesion was surgically treated.

Acknowledgements

Dr. R.S. Gomez and R.A. Mesquita are research fellows of CNPq.
References