

Case Report

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Jaw Avascular Osteonecrosis after Treatment of Post-menopausal Osteoporosis with Residronate: A Case Report

Ben Abdelghani Kaouther, Dhahri Rim*, Souabni Leila, Laatar Ahmed and Zakraoui Leith

Department of Rheumatology, Mongi Slim Hospital, La Marsa, University of Tunis El Manar, Tunis Medical School, Tunisia

Abstract

Bisphosphonates-induced avascular osteonecrosis of the jaw is rarely reported after osteoporosis' treatment. We report a case of Jaw avascular osteonecrosis associated with a residronate oral treatment for post menopausal osteoporosis in a 49-year-old woman. She presented with jaw pain, difficulty in masticating following teeth avulsions. The clinical appearance simulated dental abscesses. The radiological exam showed a large osteolysis of the left posterior region of right mandible. The diagnosis of avascular necrosis of the jaw was retained. She was treated by ablation of bone sequestrum associated to an antibiotic treatment associated with hyperbaric oxygen treatment. Currently, the recommended treatment for this osteonecrosis is essentially symptomatic and conservative. The preventive treatment consists on a complete dental evaluation performed before starting bisphosphonate treatment.

Keywords: Bisphosphonates; Osteoporosis; Osteonecrosis; Jaw

Introduction

Osteonecrosis of the jaw is defined as an injury that does not heal or harm, for 6 weeks. It is located at the jaw (mandible or maxilla). This injury can be painful or not. The majority of cases have occurred in people who have undergone or undergoing treatment with intravenous bisphosphonates in large doses to treat cancer. Few cases have been associated with taking oral bisphosphonates for osteoporosis treatment. We report a new case.

Case Report

A 49 years old man, with a history of early menopause and low energy fracture of the upper end of the right humerus. Bone densitometry showed osteoporosis profile with a T-score -2.9 SD at the lumbar spine and -0.6 at the proximal femur. She was put under Ostenel 35 mg weekly in July 2012. Five months later, she consulted for a worsening jaw pain with a progressively growing, unilateral swelling of the jaw and an open release of the corresponding alveolar bone. Symptoms started a week after a dental removal. A panoramic X-ray bone necrosis aspect of the left lower jaw with extensive osteolysis in the posterior region of the horizontal branch of the left maxillary bone and sequestration (Figure 1). This diagnosis was confirmed by CT features in favor.

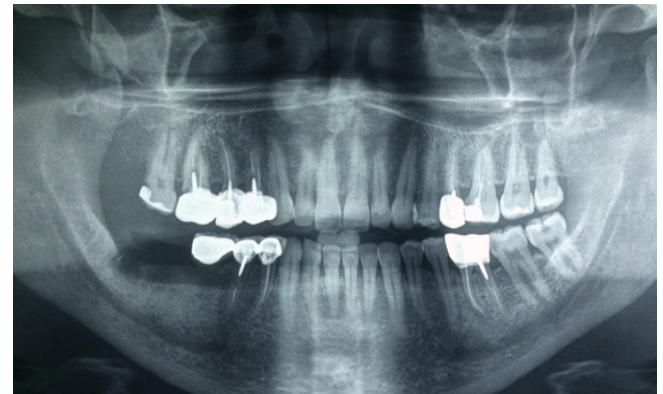


Figure 2: Panoramic radiography (Eight months after): Ad integrum restitution of radiological lesions.

The treatment included surgical removal of the sequestrum, intensive antibiotic therapy with hyperbaric oxygen sessions. The outcome was favorable with an ad integrum restitution of radiological lesions after eight months (Figure 2). The Ostenel has not been stopped.

Discussion

The majority of osteonecrosis of the jaw is observed in patients with malignant tumor especially metastases or myeloma. Thus, the first three cases described by Wang [1] were diagnosed among women with metastatic breast cancer treated with high doses of intravenous bisphosphonates. The reported observations of necrosis of the jaw when treating osteoporosis with oral bisphosphonates, are exceptional: a case risedronate [2] and seven cases with alendronate [2,3].

Risk factors have not been identified in patients receiving oral

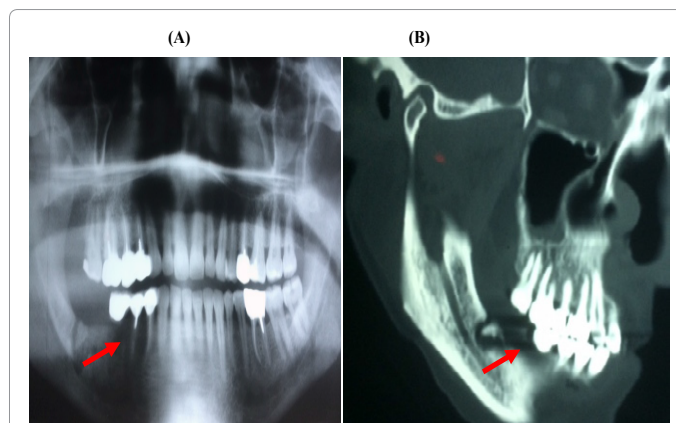


Figure 1: Panoramic radiography (A) CT (B): an osteonecrosis aspect of the left lower jaw with extensive osteolysis in the posterior region of the horizontal branch of the left maxillary bone and bone sequestrum (Arrow).

*Corresponding author: Dhahri Rim, Department of Rheumatology, Mongi Slim Hospital, La Marsa, University of Tunis El Manar, Tunis Medical School, Tunisia, Tel: 216 71 562 305, E-mail: rimdhahri@gmail.com

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bisphosphonates for postmenopausal osteoporosis without cancer due to the very small number of published cases.

The main risk factors identified to date include cancer, frequent infusions of intravenous nitrogen-containing bisphosphonates, and dentoalveolar trauma [4]. Lesions occur most frequently in the mandible (80% of cases for Marx) than in the maxilla. Clinical signs evoke a dental abscess with spontaneous pain or a worsening pain during mastication or teeth brushing. Sometimes purulent fistula, or an extension to a sinus may be described [2]. On examination, the alveolar bone is exposed as a necrotic bone with receivers and pus. In 80% of cases these signs occur in the aftermath of a tooth extraction [2,4]. Radiographs show transparency with hyper regional bone condensations balled corresponding to the necrotic bone receivers.

Often, extraction of a tooth seems to favor the onset of this condition. In fact the usual rapid healing of the gums and the bone does not occur, promoting infection.

Thanks to a recent study using the Internet, Durie et al. [5] have sought different aetiologic factors of osteonecrosis of the jaws associated with bisphosphonates' use. It confirms that tooth extraction or maxillofacial surgical procedures greatly increase the risk of osteonecrosis.

Treatment of this condition is particularly difficult. Prolonged antibiotic therapy and local irrigation is sometimes sufficient [6]. Hyperbaric oxygen has been tried successfully in some cases [7]. Surgical treatment is difficult. The removal of painful tooth has a transient analgesic effect but increases the bone surface exposed, and therefore the risk of infection. The excision of the necrotic bone is effective only if it is complete, which may require large deformities, [8] and a delicate reconstructive surgery. As for the judgment of the

offending bisphosphonate, it seems logical but its effect has not been studied.

Conclusion

Although the risk of jaw necrosis is minimal, it seems wise to recommend preventive measures before and during treatment with bisphosphonates, including regular oral hygiene, frequent consultation with the dentist and treatment of problems involved.

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