Case report

Marginal resection of solitary plasmacytoma in the anterior region of the mandible and dental implant rehabilitation: Report of an unusual case

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ABSTRACT

Introduction: Plasmacytoma describes a neoplastic proliferation of plasma cells affecting different groups of patients according to location, and may demonstrate heterogeneous tumor progression and survival rate. The present article describes a case of solitary plasmacytoma in the mandible.

Presentation of case: A 57-year-old male smoker was referred to the oral and maxillofacial service for evaluation of a previous injury, approximately 4–5 cm in size, involving the anterior inferior region of mandible. After confirming diagnosis of plasmacytoma through incisional biopsy, because it was a recurrent lesion, excision of the lesion was performed through marginal resection of the mandible under general anesthesia. During the same surgical procedure, a 2.4-mm system fixation plate was placed to mitigate the risk for pathological fracture of the mandible. In a second surgery, a region in the base of the mandible was rehabilitated using implants and prosthesis.

Conclusion: The patient is currently undergoing clinical and radiological follow-up of 2 years with success.

1. Introduction

Plasmacytoma is a pathological condition involving neoplastic proliferation of monoclonal plasma cells that commonly involves bone tissue [1,2]. This peculiar disease is usually classified according to its location and is termed solitary plasmacytoma (SP) when it has a single bone involvement, or multiple myeloma when it is polyostotic. Although rare, there is some evidence that may be found an extramedullary plasmacytoma when this pathological condition involvement exclusively affects the soft tissue [3]. It is noteworthy that when localized monoclonal proliferations of plasma cells occur, its progression to multifocal disseminated disease and multiple myeloma appears to be a common event—approximately 80% of cases—and, under these circumstances, the disease represents the most important, most severe and common plasma cell dyscrasia [4,5].

SPs of the bone usually arise in the vertebrae, ribs, pelvis and pectoral girdle [3]. Oral manifestations of SP include localized pain, paresthesia, swelling, soft tissue masses, mobility and migration of teeth, hemorrhage, and pathological fracture [6,7]. When present in the craniofacial bones, it exhibits radiographic characteristics represented by well-defined areas, with unilocular radiolucency or “punched-out” appearance, similar to multiple myeloma, to ill-defined destructive radiolucencies with ragged borders [8]. Radiation therapy, radical extensive surgery, or a combination of both, is recommended as primary treatment. Surgical treatment is recommended for situations in which the entire tumor must be removed to minimize esthetic or functional deficits, or in cases in which pathological fracture is anticipated [9]. The present case report describes the diagnosis and full treatment of SP in the mandible based on clinical, radiographic and histological characteristics.

2. Presentation of case

This report adheres to the SCARE Statement [10]. A 57-year-old male patient, smoker, and eventual alcoholic, was referred to the oral and maxillofacial surgery service for evaluation of a previous...
radiographic lesion found in the mandibular symphysis observed during a routine examination. There is no relevant psychosocial or family history. During anamnesis and physical examination, the patient reported pain in the anterior region of the mandible and spontaneous drainage of a purulent secretion. In addition, intraoral examination revealed unstable occlusion and precarious oral hygiene. The patient used a lower adhesive denture and exhibited a gingival deformity in the anterior region of the mandible (Fig. 1A). The patient perspective was only functional. After clinical examination, computed tomography was performed after an initial panoramic examination. In this imaging examination, an extensive unilocular radiolucent lesion was verified, measuring approximately 4–5 cm, with evident loss of cortical bone plate and resorption involving the inferior anterior teeth (Fig. 1B and C).

Under local anesthesia, an incisional biopsy was performed by senior surgeons (LEK and RS) and a surgical fragment was sent for anatomopathological analysis. The surgical fragment exhibited a fibro-elastic consistency, with brownish coloration, measuring 4 × 3 × 3 mm. The fragment was hemisected and embedded in paraffin. Sections were obtained and stained with hematoxylin and eosin. In histopathological analysis, moderate to intense staining of plasma cells exhibiting eccentric nuclei and coarse chromatin condensed at the periphery was verified. These cells were permeated by fibrous and dense connective tissue. Thus, in view of the anatomopathological frame, a diagnosis of SP was established (Fig. 2A and B).

The treatment plan involved marginal resection of the mandible for complete removal of the lesion with a safety margin under general anesthesia, performed by the same surgeons. Stable internal fixation in the base of the mandible was performed using reconstruction plates and 2.4-mm system screws to mitigate the risk for mandible fracture (Fig. 3 A and B). One week later, the patient underwent postoperative panoramic radiography, which confirmed removal of the lesion and satisfactory positioning of the plaque (Fig. 3 C). In this period, the patient continued use of a temporary removable prosthesis. Eight months post-surgery, the patient underwent rehabilitation with four implants (Straumann, Basel, Switzerland) in the base of the mandible (Fig. 4 A). Due to the height of the pillars and the distance between the bases of these pillars and the occlusal line, an acrylic “mini-protocol” was used to rehabilitate the patient. Acrylic was chosen so that it would not overwhelm the remaining bone (Fig. 4B and C). The patient was advised to sanitize the prosthesis with interdental brushes and devices that have air or water pressure. Follow up was performed every six months. The patient is undergoing 2 years of follow-up.

3. Discussion

Plasmacytoma is the result of uncontrolled monoclonal proliferation of B cells, without distant spread, which is capable of progressing to the stage of plasma cells [11]. SP is frequently diagnosed as a benign lesion, inflammatory disease or, less frequently, a malignant tumor. The most common clinical symptoms of SP are localized pain in the jaws and teeth, which could also be associated with other jaw lesions [12]. Moreover, paresthesia, swelling, mobility and migration of teeth, hemorrhage, and pathological fracture could also be clinical signs. Fatigue and fever are the most common systemic symptoms [6,7]. Canger et al.
complicated. In these circumstances, it should be emphasized to histological features, distinguishing between SP and myeloma can be immunophenotypically similar to myeloma cells [13]. Considering only occur due to clonal plasma cell proliferation that is cytologically and

hyperuricemia, hypercalciuria, and signs of dehydration should be part considered the gold standard to diagnose multiple myeloma, as well as renal biopsy to verify the presence of Bence-Jones protein, which is

thargy, polyuria, constipation, nausea, or vomiting. Furthermore, a renal biopsy to verify the presence of Bence-Jones protein, which is

considered the gold standard to diagnose multiple myeloma, as well as hyperuricemia, hypercalciuria, and signs of dehydration should be part of routine practice.

Treatment of SP consists of surgery, radiotherapy or a combination of both. There is, however, some controversy in relation to the sole use of surgery or radiotherapy [17]. In a previous study, radical radiotherapy yielded 80% control of local disease. Nevertheless, a first surgery may be advantageous in relation to the exclusive use of radiotherapy, depending on the size and the location of the lesion [18]. In the present case, the patient was a smoker with an extensive lesion in the anterior region of the mandible. Because there were no systemic symptoms or signs of the lesion, surgical excision was performed without radiotherapy. Rehabilitation involving implants was chosen to provide stability and quality of life. We preferred not to perform a re-

construction using bone graft in the resected area due to the patient’s harmful habits and the lack of cooperation, being this, one of the pec-

cular point of our approach. All patients with plasmacytoma require follow-up for at least 5 years after treatment has concluded. The course of SP in bone is relatively benign; its 5-year survival rate is 60%; however, it falls to 5.7% when progression to multiple lesions occurs [8].

4. Conclusion

Based on the above considerations, an accurate diagnosis of SP is essential, and treatment varies according to each case. In this study, marginal resection of the mandible and excision of the lesion proved to be an effective alternative treatment option.

Ethical approval

There is no ethical approval because it is not research study. We have the written consent of patient to published this case report.

Sources of funding for your research

None of the author.

Conflicts of interest

None of the author.

Guarantor

Rafaela Scarlott.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Registration of research studies

This paper is only case report.

Provenance and peer review

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Kathleen Miranda dos Santos: Writing – original draft, Writing - review & editing. Jennifer Tsi Gerber: Data curation, Methodology, Writing - review & editing. Pedro Teruo Mendes Okazaki: Data curation, Methodology, Writing - review & editing. Cibele Cândida de Almeida Kintopp: Conceptualization, Data curation, Writing - review & editing. Leandro Eduardo Klüppel: Conceptualization, Data curation, Writing - review & editing. Allan Fernando Giovanini: Formal analysis, Methodology, Writing - review & editing. Rafaela Scariot: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Visualization, Writing – original draft, Writing - review & editing.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2018.10.028.

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