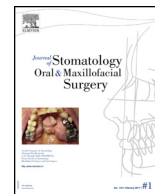




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Case Report

Fibrous condylar dysplasia: Resection and reconstruction with a custom-made TMJ prosthesis using virtual surgical planning

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ABSTRACT

The main objective of this article is to describe the indications for custom-made alloplastic reconstruction of the temporomandibular joint (TMJ) using the new techniques of virtual surgical planning and computer-aided design/computer-aided manufacturing (CAD/CAM) technology through the study of a clinical case and an updated review of the literature. The patient was a 45-year-old male with a fast-growing condylar dysplasia that produced a progressive facial deformity with limited mandibular mobility, which required a radical resection. Predictable, satisfactory, and stable results over time are described from the aesthetic, functional, and symptomatic points of view, through a comprehensive approach to all the aspects of this case by following an appropriate line of development and using the most current techniques.

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1. Introduction

Fibrous dysplasia is a benign lesion of the bone that can affect the craniofacial skeleton [1]. It constitutes approximately 5–10% of benign lesions of the bone. A monostotic form is the most common, as observed in up to 70% of cases [1,2]. In the maxillofacial area, fibrous dysplasia usually affects the mandibular body or the posterior region of the maxilla; the condyle is a very rare location [1,2]. It is characterized clinically by an expansive, slow, and painless growth, which causes the patient to consult a doctor after the deformity is evident [2].

Histologically, it is defined by the replacement of healthy bone by immature fibro-osseous tissue composed mainly of collagen and fibroblasts [3]. Radiologically, bone expansion and a ground-glass opacity appearance are the most common characteristics, and expansive lytic forms are the least common [1].

Because this is a benign bone disease with little potential for malignancy, the treatment will depend on several factors, including the location and size of the lesion and the functional and aesthetic alterations caused by the lesion [2,4]. Fibrous dysplasia can be treated by partial resection with reshaping of the bone contour or by radical resection [4]. When the lesion affects the mandibular condyle and its radical resection is indicated, multiple reconstructive techniques can be used, such as autologous grafts [2] or different alloplastic devices [5,6].

In this clinical case the indications of using a custom-made alloplastic prosthesis together with the current CAD/CAM technology are analyzed and described in order to achieve the maximum anatomical and biomechanical adaptability in the reconstruction of the temporomandibular joint.

2. Case report

The patient was a 45-year-old man who visited our service for evaluation of a right preauricular tumor of approximately 6 months of evolution (Fig. 1).

He was healthy, with no medical history of interest regarding the progressive and painless hemifacial growth that had occurred in recent months and did not affect chewing but aesthetically generated an evident deformity. Upon physical examination, it was a solid mass consisting of right preauricular bone, not attached to the skin. No signs of facial paralysis or sensory disturbance were present. No occlusal alterations were observed, and the oral opening was mostly preserved, although limitations of lateral and protrusive mobility were present. The study was conducted using computed tomography (CT) in which a lytic and expansive lesion of the entire condyle was observed with some aggressive radiological characteristics, such as cortical rupture, but without infiltration of adjacent tissues or reaction of the periosteum (Fig. 2).

A biopsy was performed, which revealed that it was a benign fibro-osseous lesion with predominance of the fibromatous component compatible with a diagnosis of fibrous dysplasia. After completing and evaluating the clinical case study and considering

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Fig. 1. Preoperative image of the right preauricular tumor.

the aesthetic and functional aspects, a radical resection with immediate reconstruction was proposed as the treatment of choice.

Virtual planning of the surgical procedure and subsequent reconstruction with a custom-made Biomet allopathic prosthesis (Biomet-Microfixation TMJ Replacement System, FL USA, distrib-



Fig. 2. Image from CT showing the right lytic and expansive condylar lesion.

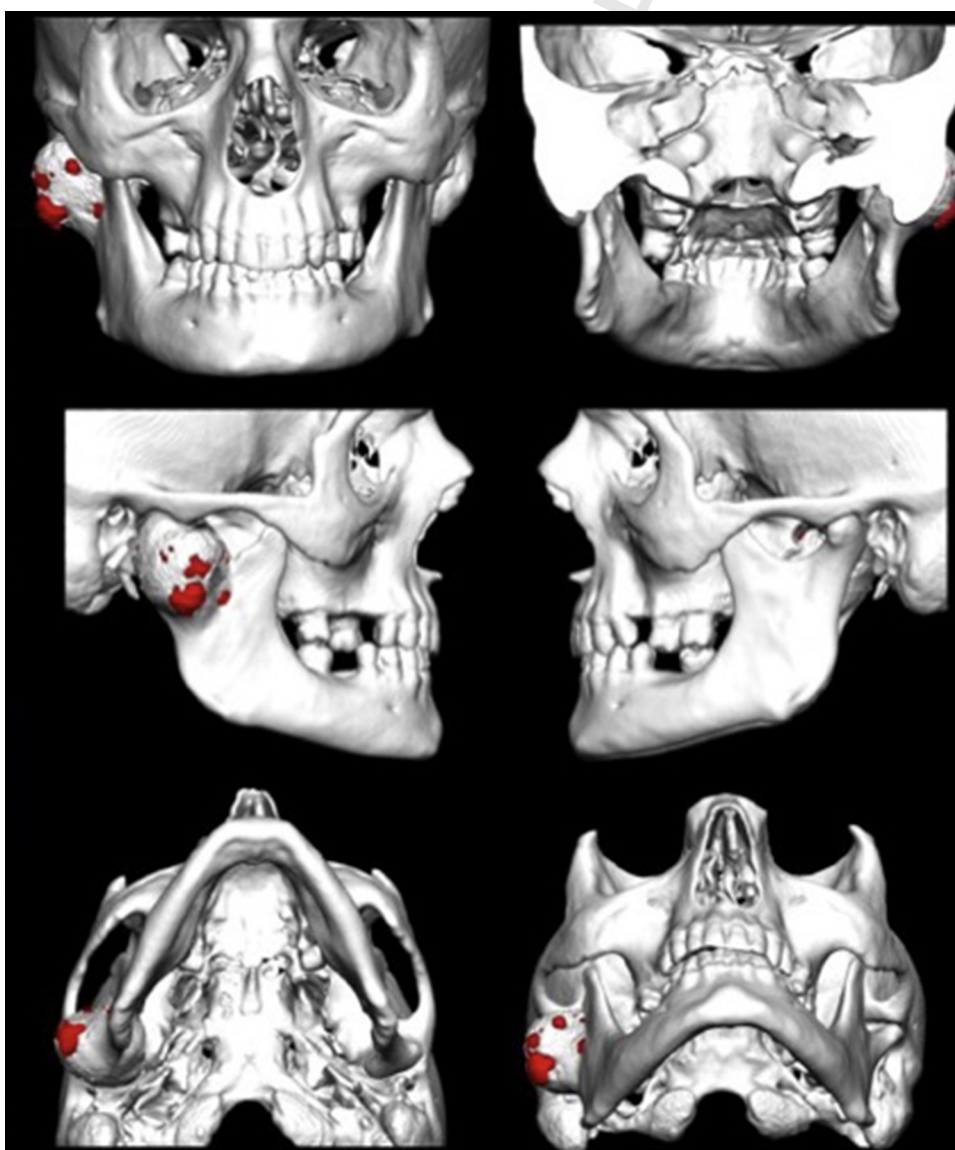


Fig. 3. Detail of the three-dimensional reconstruction of the facial skeleton.

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