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INTERIM AND CONVENTIONAL OBTURATORS PROSTHESES IN THE COMPLEX TREATMENT OF OSSIFYING FIBROMA: A CASE REPORT

PRÓTESES OBTURATORAS PROVISÓRIAS E CONVENCIONAIS NO TRATAMENTO COMPLEXO DO FIBROMA OSSIFICANTE: RELATO DE CASO

PRÓTESIS OBTURADORAS PROVISIONALES Y CONVENCIONALES EN EL TRATAMIENTO COMPLEJO DEL FIBROMA OSIFICANTE: REPORTE DE UN CASO

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ABSTRACT

Extensive and complex maxillary defects represent a significant rehabilitation challenge. Prosthetic rehabilitation is an option available to restore esthetics and function. This clinical case report describes the highly specialized method of the prosthetic rehabilitation of a total maxillary resection in a patient who had undergone surgery to remove the ossifying fibroma of the maxilla. Oral rehabilitation was planned, and the proposed treatment was carried out in two stages. The first stage involved fabricating an interim obturator prosthesis (IOP). The IOP played a crucial role in tamponade of the oronasal communication, eliminating the nasogastric feeding tube and improving swallowing and speech. After excellent response and adaptation, were confirmed for the fabrication of a definitive and conventional obturator prosthesis (COP). This approach effectively contributes to psychological recovery, eliminating the nasogastric feeding tube and improving the patient's swallowing, eating ability, speech intelligibility, facial profile and esthetics. Successful rehabilitation requires a multidisciplinary approach, including prosthetic planning and immediate IOP-based rehabilitation, to achieve optimal functional, physical, psychological and enhancing quality of life.

Keywords: Ossifying fibroma. Maxillectomy. Palatal obturator. Maxillofacial prosthesis.

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RESUMO
Defeitos maxilares extensos e complexos representam um desafio significativo na reabilitação. A reabilitação protética é uma opção disponível para restaurar a estética e a função. Este relato de caso clínico descreve o método altamente especializado de reabilitação protética de uma ressecção maxilar total em um paciente submetido à cirurgia para remoção de fibroma ossificante da maxila. A reabilitação oral foi planejada e o tratamento proposto foi realizado em duas etapas. A primeira etapa envolveu a confecção de uma prótese obturadora provisória (PIO). A PIO desempenhou um papel crucial no tamponamento da comunicação oronasal, eliminando a sonda nasogástrica para alimentação e melhorando a deglutição e a fala. Após excelente resposta e adaptação, foi confirmada a possibilidade de confecção de uma prótese obturadora definitiva e convencional (POC). Essa abordagem contribui efetivamente para a recuperação psicológica, eliminando a sonda nasogástrica para alimentação e melhorando a deglutição, a capacidade de alimentação, a inteligibilidade da fala, o perfil facial e a estética do paciente. Uma reabilitação bem-sucedida requer uma abordagem multidisciplinar, incluindo planejamento protético e reabilitação imediata baseada na PIO, para alcançar a qualidade funcional, física e psicológica ideal, além de melhorar a qualidade de vida.

Palavras-chave: Fibroma ossificante. Maxilectomia. Obturador palatino. Prótese maxilofacial.

RESUMEN
Los defectos maxilares extensos y complejos representan un desafío significativo para la rehabilitación. La rehabilitación protésica es una opción disponible para restaurar la estética y la función. Este caso clínico describe el método altamente especializado de rehabilitación protésica de una resección maxilar total en un paciente sometido a cirugía para extirpar un fibroma osificante maxilar. Se planificó la rehabilitación oral y el tratamiento propuesto se llevó a cabo en dos etapas. La primera etapa consistió en la fabricación de una prótesis obturatriz provisional (PIO). La PIO desempeñó un papel crucial en el taponamiento de la comunicación oronasal, eliminando la sonda de alimentación nasogástrica y mejorando la deglución y el habla. Tras una excelente respuesta y adaptación, se confirmó la necesidad de fabricar una prótesis obturatriz definitiva y convencional (PCO). Este enfoque contribuye eficazmente a la recuperación psicológica, eliminando la sonda de alimentación nasogástrica y mejorando la deglución, la capacidad de comer, la inteligibilidad del habla, el perfil facial y la estética del paciente. Una rehabilitación exitosa requiere un enfoque multidisciplinario, que incluye la planificación protésica y la rehabilitación inmediata basada en la PIO, para lograr un óptimo estado funcional, físico y psicológico, y mejorar la calidad de vida.

Palabras clave: Fibroma osificante. Maxilectomía. Obturador palatino. Prótesis maxilofacial.

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INTRODUCTION

Maxillary defects, the majority, result from surgical resection of benign and malignant neoplasms (1,2). Benign fibro-osseous lesions are rare pathologies and comprise a diverse group of lesions with neoplastic, reactive or dysplastic development that can affect the craniofacial bones (3). Among benign neoplasms, ossifying fibroma (OF), a fibro-osseous tumor, asymptomatic and slow-growing. Although it can grow to a massive size, causing significant bone and tissue structure loss (4). Most cases are diagnosed in patients younger than 20 years (4,5), helping to differentiate the lesion from periapical cemental dysplasia which occurs more commonly in females in the 4th and 5th decades (6). Although larger lesions are painless, they cause a significant increase in bone volume, generating facial asymmetry and, in some cases, extensive facial deformities (5). In these cases, a graft and surgical resection are often necessary. Microvascularized flaps are used to close defects (7), but they cause increased hospitalization and high morbidity in the flap donor area and sometimes intraoral prosthetic rehabilitation is impossible (8).

The conventional obturator prosthesis (COP) was already the first indication for rehabilitating patients with maxillary defects (9,10) and the most common approach for functional, aesthetic and psychological support (1,8). The quality of life of maxillectomized patients who have been rehabilitated with OP is equivalent to even better than other chronically ill populations (11-13). Prosthetics enable individuals to reintegrate into their social and family environments, promoting greater happiness and confidence (12).

The greater the loss of structure, the more difficult prosthetic rehabilitation becomes. The lack of dental or bone support for anchoring prostheses or even implants make the process extremely challenging since this decrease is directly related to the retention and stability of the prostheses (8,10). This clinical report describes the steps of a complex prosthetic rehabilitation following a total maxillary resection using an COP for a patient with an unusual massive size presentation of OF.

CASE REPORT

A 42-year-old black woman with a medical history of resection of o ossifying fibroma of the complete maxilla and nasogastric feeding tube. The patient received treatment from the Oral and Maxillofacial Prosthesis Clinic at the Federal University of Minas Gerais (UFMG) and University of São Paulo (USP) in Brazil for oral prosthetic rehabilitation. Due to surgical treatment, the patient presented with an extensive maxillary and facial defect, Brown Class

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IIId,2 involving bilateral maxilla and the absence of the hard palate, the left zygomatic and infraorbital areas were need used a titanium plate for reconstruction. Only the preservation of the soft palate was noted **(Fig. 1)**.

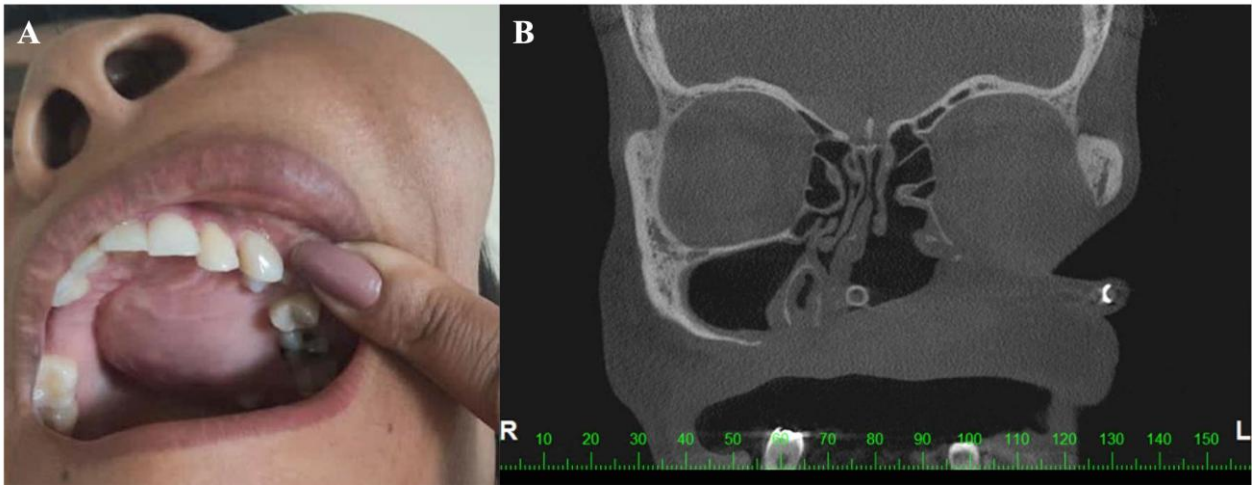

Figure 1: A: Clinical aspect of ossifying fibroma. B: Computerized tomography image after maxillary resection.

Following the three surgical procedures for complete OF removal, the patient faced a range of post-surgery challenges. These included the need for a nasogastric tube, loss of speech, chewing and swallowing abilities, and significant depression and socialization difficulties. The titanium plate, almost exposed and covered only by the epidermal layer, further impacted the patient's aesthetics. These challenges collectively had a negative impact on the patient's quality of life. The patient underwent an unsuccessful attempt to cover the titanium plate in the left infraorbital region with an anterolateral thigh cutaneous microvascular free flap.

Given all previous treatment attempts, oral rehabilitation was planned, and the proposed treatment was carried out in two stages. The first stage involved fabricating an interim maxillary obturator (IOP) to reestablish the oral intake and thus enable the removal of the nasogastric tube. An anatomic impression of the maxilla defect was obtained using a child`s customized metal tray lined with thermoplastic wax and irreversible hydrocolloid (Jeltrate Plus; Dentsply Sirona). The impression was poured with type III dental stone (Herodent; Coltene). The IOP was fabricated from heat-polymerized acrylic resin (Clássico; Clássico) and repeatedly coated with a resilient denture liner (Coe-Soft; GC America In). The

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objective was to construct parallel vertical walls extending to the nasal and palatine regions for retention, stability, and comfort. After achieving retention, the IOP was duplicated in thermopolymerized acrylic resin, eliminating the resilient material. The IOP was meticulously adapted, and monitoring and adjustments were made **(Fig. 2)**.

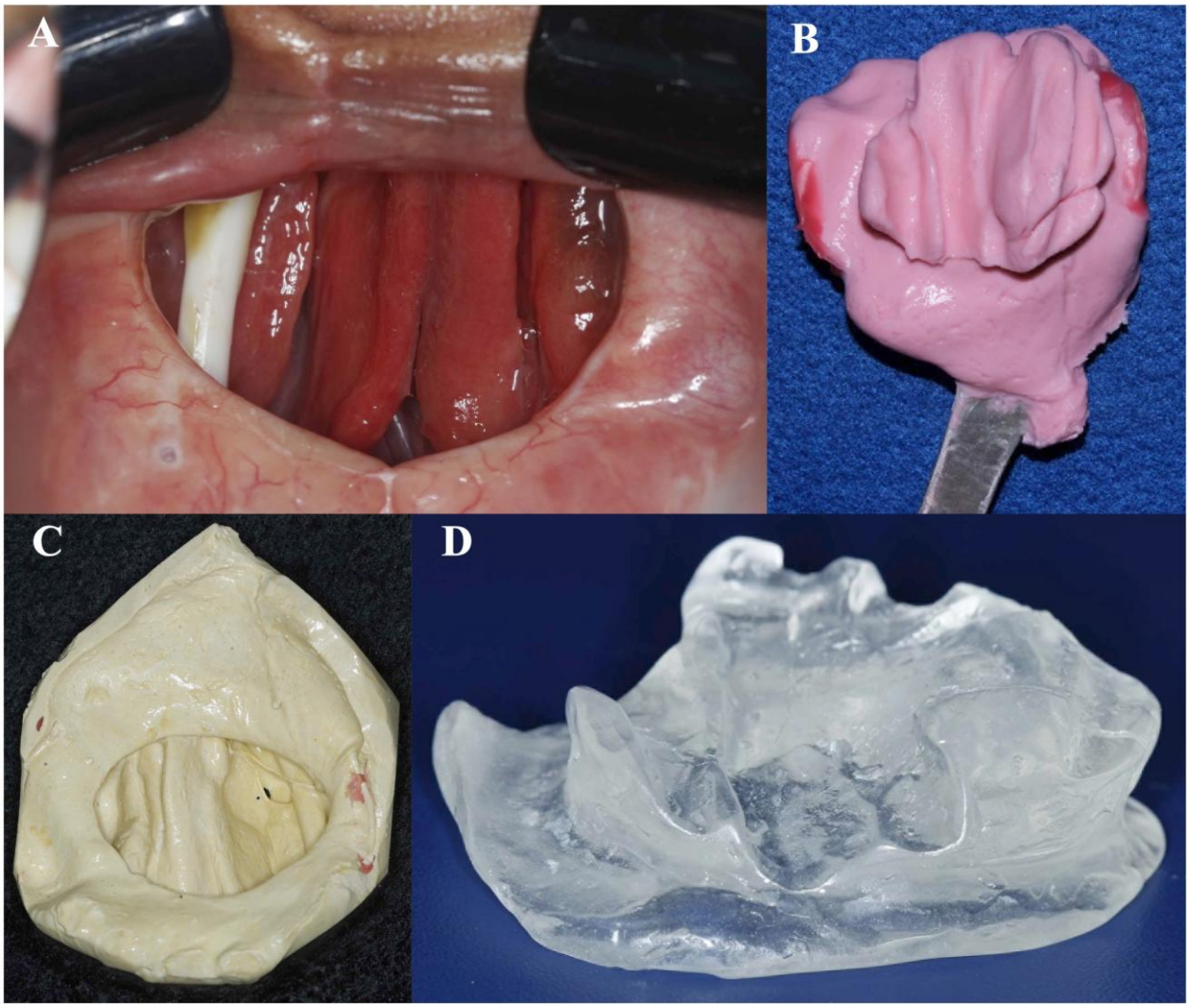

Figure 2: A: An initial clinical examination of the patient with bilateral maxillary resection and nasal septum was performed on the medline. B: Irreversible hydrocolloid impression of maxilla defect. C: Maxillary cast. D: The interim obturator prosthesis is fabricated from heat-polymerized acrylic resin.

The IOP was duplicated in the second rehabilitation stage to fabricate a conventional obturator prosthesis (COP). The jaw relation was recorded at the vertical dimension of occlusion. At the same time, the patient was gently guided into centric occlusion using softened rolls of modelling wax adapted to the duplicate IOP. The tooth arrangement was

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made with the anterior and posterior crossbite due to the sizeable horizontal discrepancy between the mandible and the projection of the future maxilla. Occlusal contact was possible only with posterior teeth due to tissue collapse and atrophy in the upper lip region caused by post-surgery scarring. The acrylization of the COP was performed after the tooth arrangement. Monitoring and adjustments were done until the patient wholly adapted to the prosthesis **(Fig. 3)**.

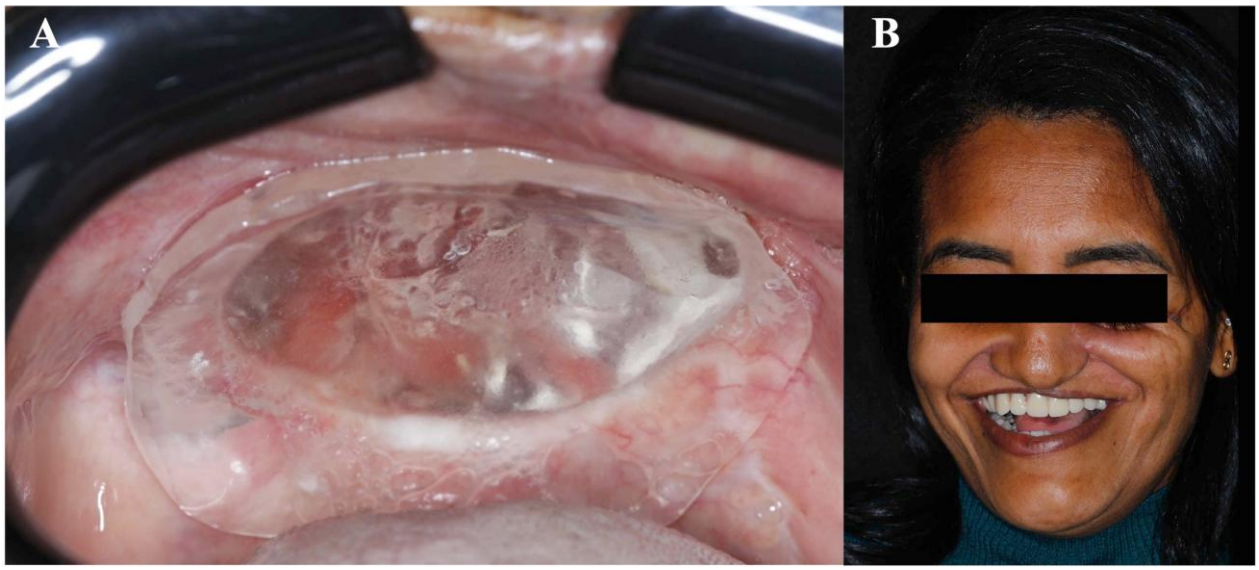

Figure 3: A: Interim obturator prosthesis in situ. B: Overall effect of prosthetic rehabilitation with conventional obturator prosthesis in situ.

DISCUSSION

This report is an unusual case of total maxillectomy resulting from ossifying fibroma. In this case, maxillary resection causes problems such as intelligible speech, leakage of liquids into the nasal cavities, difficulties in chewing and aesthetic complications due to insufficient or modified support of the soft tissues of the orofacial region. The patient's quality of life worsened immediately after surgery and was not fully restored, corroborating other studies (7). The OF rehabilitation following tumor resection can be achieved through either prosthetic devices or reconstructive surgery (4,14).

In addition to the intraoral resections, the patient presented aesthetic damage in the region of the reconstruction with the titanium mesh. As a standard option in facial reconstructive surgery, the microsurgical procedure was performed using an anterolateral cutaneous microvascular flap from the left thigh. However, the procedure did not achieve its goal. The surgical technique has disadvantages, such as the need for multiple interventions,

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fenestration and necrosis of the flap, as occurred in this reported case. In addition, high cost and the possibility of fibrosis can result in a reduction in the mouth opening and an irregular or inadequate extension area for installing the prosthesis. Nonetheless, prosthetic rehabilitation appears to be the preferred treatment modality for many patients, which generally improves masticatory performance (10).

The rehabilitation and reconstruction of the maxilla through prosthetic devices is challenging for specialists in oral and maxillofacial prosthetics (8,10), and classifications have been proposed to characterize better the defects (9) and communication between professionals. They were characterized by the nature of the procedure performed or the resulting tissue loss (2,9). The prognosis of obturator prostheses is influenced by the size of the defect, quantity and quality of remaining tissue, number of teeth, exposure to radiotherapy and the patient's ability to accept prosthetic treatment (8,10,14). Although, in this case, there was a significant loss of the maxilla and adjacent tissues, characterized by an unfavorable prognosis, the obturator prosthesis achieved its rehabilitative objective. The prosthetic rehabilitation achieved the patient's acceptance and adaptation.

This report rehabilitated a significant maxillary defect involving the absence of the hard palate and bilateral maxilla in two distinct stages. The resection is the critical factor that can affect speech, chewing, swallowing, aesthetics, and the retention and stability of the prosthesis (10,12). The first stage focuses on temporary and immediate functional rehabilitation, which involves removing the nasogastric tube. Once the first stage was completed, functional and aesthetic rehabilitation was improved with the conventional maxillary obturator. The treatment realized does not prevent the patient from undergoing future treatments with customized prostheses, which are currently inaccessible due to the high cost.

Patients with poorly functioning and aesthetics report significant psychological distress while improving interim and conventional obturator function reverses the impact (10). Nevertheless, the poor function and aesthetics were solutions to total maxillary rehabilitation. The association between the interim and conventional maxillary obturator improves the quality of life.

CONFLICT OF INTEREST STATEMENT

The authors do not have any conflicts of interest in regards to the current study.

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