

Exostose of the frontal bone : A case report

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Case Report

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ABSTRACT

Introduction Exostoses are benign, calcified bony protuberances that typically arise in the cortical region of bones, with an etiology that is still not well defined. However, some authors correlate them with genetic factors, local traumas, and systemic diseases such as Gardner's syndrome and cherubism. Clinically, they present as sessile, fixed lesions that are easily detectable, asymptomatic, painless, and slow-growing, and can be found in various regions of the body.

CASE REPORT A young female of 21 years old attended the Oral and Maxillofacial Surgery consultation complaining of a hardened nodular lesion in the frontal region.

The patient reported a local trauma in her childhood.

A CT scan was performed and showed a delineated bony lesion was observed only in the outer table of the frontal bone, without invasion of the frontal sinus.

To correct the defect, an osteotomy was performed using a surgical chisel, followed by osteoplasty with a Maxicute bur.

Discussion Frontal bone exostosis is a rare lesion of the facial skeleton and typically does not require surgical intervention, although it can lead to aesthetic concerns and emotional discomfort. Therefore, it is often recommended to correct the existing asymmetry, preferably through an approach that allows good visualization of the lesion and provides better aesthetic outcomes.

Key Words: Exostose, bone, frontal .

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INTRODUCTION

Exostoses are benign, calcified bony protuberances that typically arise in the cortical region of bones, with an etiology that is still not well defined. However, some authors correlate them with genetic factors, local traumas, and systemic diseases such as Gardner's syndrome and cherubism. Clinically, they present as sessile, fixed lesions that are easily detectable, asymptomatic, painless, and slow-growing, and can be found in various regions of the body. ^[1]

In other areas, such as the upper third of the face, exostosis is uncommon ^[2], and its treatment is more challenging. Generally, no treatment for frontal exostosis is suggested, except in cases of functional or aesthetic impairment, or when the patient's socialization is affected due to the disharmonious appearance and social prejudice. In these cases, excision of the lesion is recommended through the safest and most aesthetic access possible, providing the necessary visibility to correct the asymmetry in the best way.

This article aims to report the clinical case of a patient

with exostosis in the frontal region, resulting from facial trauma, which negatively affected the aesthetics of the upper third of the face and was treated through osteoplasty via the hemicoronal approach.

CASE REPORT :

A young female of 21 years old attended the Oral and Maxillofacial Surgery consultation complaining of a hardened nodular lesion in the frontal region. The lesion was asymptomatic, is developing since the age of 5, and had increased in size in recent months.

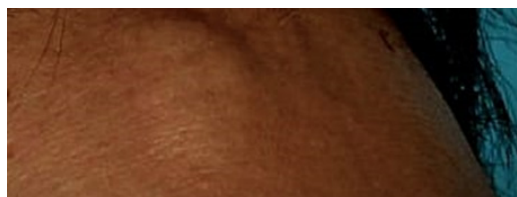


Figure 1: Preoperative image of the frontal exostose in our patient

The patient reported a local trauma in her childhood, but no systemic disease neither similar cases in her family. Due to the facial aesthetic deficiency caused by the lesion, which had a "horn-like" appearance, and its progression, pre operative exams were taken then the planning of the surgery began.

A CT scan was performed and showed a delineated bony lesion was observed only in the outer table of the frontal bone, without invasion of the frontal sinus.

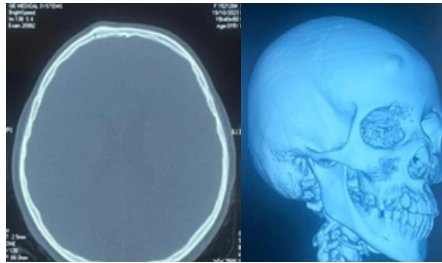


Figure 2: CT scan showing thickening of the outer cortex on the right side of the frontal bone.

To correct the defect, the patient underwent general anesthesia with orotracheal intubation and the frontal region was aseptically prepared using Povidone-Iodine Topical Solution (PVPI), and the frontal hairline being marked with a dermatographic pencil.

Subsequently, a linear pre-capillary incision, parallel to the hair follicles, of 3 centimeters was performed. Dissection of the anterior belly of the occipitofrontal muscle and subperiosteal dissection provided good visual exposure of the bony lesion. After exposing the lesion, osteotomy was performed using a surgical chisel, followed by osteoplasty with a Maxicute bur.



Figure 3: Intraoperative image showing the exposure of the exostosis.

The incision was sutured using 3-0 Vicryl® for the pericranium and musculature, and 3-0 nylon® for the skin.

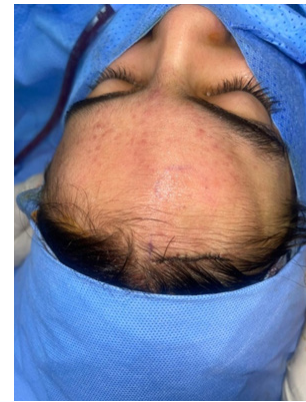


Figure 4: At the end of the surgery, the incision was barely seen.

The removed fragments were sent for histopathological examination, which confirmed the diagnosis of exostosis of the frontal bone. The analyzed material showed rich cortical bone tissue with minimal presence of medullary and lipidic bone tissue.

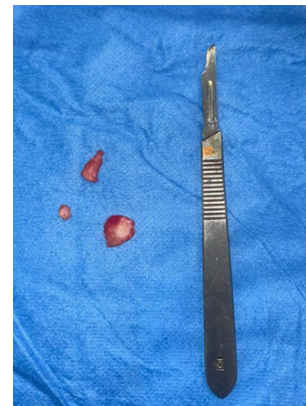


Figure 5: The removed fragments.

The compressive dressings with Micropore tape on the frontal region, aimed at reducing the formed edema, were removed 2 days postoperatively, along with the cessation of thermal therapy with ice on the frontal region.

The sutures were removed at 7 days postoperatively, revealing excellent healing and no signs of infection. The patient remained under clinical follow-up for 6 months after surgery without signs of recurrence.

DISCUSSION

Exostoses are benign bony protrusions, typically observed in the distal femur, proximal tibia, fibula, and humerus, bones that develop from cartilage, being the etiology of these lesions, considered variations of normality, is still unknown, but the reviewed literature suggests that factors such as heredity, traumas, and hormonal and environmental influences, at the very least, contribute to their development. are in flat bones such as the frontal bone.^[1]

Our study aligns with these findings, as in the presented case, the patient reported a frontal trauma in her childhood. The literature advocates for surgery for exostosis when it affects function, aesthetics, the fabrication of prosthetic devices, and/or the installation of orthoses [3]. In our case, aesthetic changes and low self-esteem were the main reasons that led the patient to seek treatment.

The diagnosis of frontal exostosis should be complemented with computed tomography to obtain an adequate three-dimensional image and facilitate planning. In the present report, an axial cut of the computed tomography^[4] revealed thickening of the outer cortex on the right side of the frontal bone, with no signs of alteration in bone density, suggesting the diagnosis of exostosis. After excision, it is important that samples are sent to histopathological analysis to confirm the definitive diagnosis and differentiate it from other lesions, such as osteoma.

The removal of frontal exostosis can be accomplished through various access routes, such as the coronal, hemi-coronal, "gull-wing," "open sky," and "butterfly" approaches. The selection of the appropriate access route depends on factors like the location and size of the lesion. The primary goal is to ensure optimal exposure of the lesion while minimizing any damage to facial structures and reducing aesthetic concerns related to scarring^[5]

Our approach was via an incision that aligns with a facial expression line at the intersection of scalp and skin in the frontal region, which allows concealing the scar within the patient's hairline. Cases observed in various studies involving the excision of the lesion have shown satisfactory outcomes, with favorable aesthetic repercussions, no complications during the procedure, and a good prognosis, mainly due to the uncommon recurrence of exostosis.^[6]

CONCLUSION

Frontal bone exostosis is a rare lesion of the facial skeleton and typically does not require surgical intervention, although it can lead to aesthetic concerns and emotional discomfort. Therefore, it is often recommended to correct the existing asymmetry, preferably through an approach that allows good visualization of the lesion and provides better aesthetic outcomes.

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CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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