

Case report

Ossification of a post-traumatic low frontal subcutaneous haematoma by trans-orbital, clinical case and review of the literature

Abstract

Background: Post-traumatic hematomas can be subcutaneous or subperiosteal, with the latter being rare outside the neonatal period. These hematomas typically resorb spontaneously but can occasionally ossify. Ossification is extremely rare and may occur in the context of carcinosis.

Case Presentation: We report a case of a 13-year-old child who sustained a head injury in November 2022. The injury occurred when the child was accidentally struck on the head by a neighbor while watching a football match. The initial symptoms included a painful swelling in the right periorbital region, rated 8/10 on the visual analogue scale, with no loss of consciousness. The pain resolved within two weeks without treatment, but the swelling persisted and progressively increased in size. Six months later, the swelling was treated with warm water massage and local ointments, but due to the persistence of the mass, the patient was referred to neurosurgery. Examination revealed a hard, bony swelling in the right fronto-naso-orbital region. A CT scan showed a calcified formation measuring 20x36x41 mm.

Discussion: Post-traumatic orbitofrontonasal swellings result from lesions of the vessels, either subcutaneous, muscular, or subperiosteal, likely with an associated hematoma. These hematomas generally evolve towards resorption. However, in rare cases, unresorbed hematomas may calcify after 11 months. This phenomenon is often associated with subperiosteal hematomas. The case presented highlights the rare progression of a subperiosteal hematoma to ossification, emphasizing the need for careful monitoring and timely intervention.

Conclusion: This case underscores the importance of monitoring post-traumatic hematomas for potential complications such as calcification, even in pediatric patients. Early recognition and appropriate management are crucial to prevent long-term sequelae.

Key words: Post-traumatic hematomas, Subcutaneous hematomas, Ossification, Head injury

Introduction

A hematic post-traumatic skin swelling, following fine puncture-aspiration, may be subcutaneous or subperiosteal. A post-traumatic subcutaneous haematoma is an accumulation of blood

between the skin and the periosteum. It generally evolves towards spontaneous resorption and ossification. The latter is extremely rare and may occur in the context of carcinosis (1). Subperiosteal haematoma is the accumulation of blood between the periosteum (pericranium) and the bone. It can occur during the neonatal period, but rarely at other ages. It can be self-absorbed in most cases and can sometimes cause ossification (2, 3). We report a case of post-traumatic low frontal swelling of the right periorbital region, which progressed to ossification when operated on via the transorbital approach.

Clinical case

A 13-year-old child was the victim of an accidental blow in November 2022. He was hit on the head by his neighbour while falling from a height. He was watching a football match on television. The painful swelling was assessed at 8/10 on the visual analogue scale. There was no initial loss of consciousness. The pain disappeared completely without any treatment two weeks later, but a progressive increase in the size of the tumour was noted. The tumour was treated with warm water massage and local ointments six months later, due to the progressive persistence of the mass. The patient was then referred to neurosurgery. Examination of the patient revealed a hard, bony, right fronto-naso-orbital swelling. A CT scan revealed a calcified formation measuring 20x36x41mm.

Discussions

Post-traumatic orbitofrontonasal swellings result from lesions of the vessels, either subcutaneous, muscular or subperiosteal, probably with an associated hematoma. The evolution of this hematoma is generally towards resorption(3), after 11 months unresorbed post-traumatic hematomas may calcify(2), It is found in calcinosis (1), and only subperiosteal haematomas have

been described, evolving exceptionally towards ossification. These haematomas mainly affect the skull, the maxillofacial region, the orbit and the iliac wing (2-5 ,6,7). They occur in children and young adults [2] and are mainly due to closed trauma; they are acute lesions occurring in the aftermath of direct, violent trauma (8, 9, 10). A calcified haematoma can (11) still be absorbed slowly and often disappears over 3 to 6 months (4,11), exceptionally post-traumatic haematomas evolving into aneurysmal bone cysts have been described in haematomas under the iliac periosteum (9).

The haematoma described in our patient evolved towards ossification. Osteogenesis is probably due to the combined action of certain factors active in the blood and a certain tension of the haematoma on the local periosteum(1) , osteogenic progenitor cells in the periosteum, cytokines and growth factors in the haematoma play a role in the ossification process, similar to events occurring at the healing fracture site (2,4,5) . The occurrence of ossification of the haematoma suggests that the periosteum of a 13-year-old adolescent has great potential for osteogenesis. 1) This suggests that a subperiosteal haematoma that has not been absorbed after 1 month should be treated rapidly to avoid ossification. The potential for periosteal osteogenesis is great, which may give a new idea to cranioplasty(1).

Ossification of the haematoma in the orbitofrontonasal region creates an unsightly swelling on the face, especially when it is lateralized, as in the case of our patient. Once ossification has occurred, the haematoma must be treated surgically(2). Two surgical approaches are indicated: The bicoronal incision, which is more invasive, especially when the hair implantation is high, and the transsouciferous incision, which is minimally invasive and more aesthetic, as the scars must be covered by the eyebrows. Given the size of the swelling, we opted for the bilateral transsouciferous approach. Intraoperatively, an ossified mass of

Almost 5cm³ was found, attached to the joint between the nasal spine of the frontal bone and the clean bone of the nose, confirming the subperiosteal origin of the initial haematoma. Assessment of the incision two years later appeared discreet and unnoticed through the worry.

CONCLUSION,

A trivial trauma can lead to a haemorrhagic swelling creating a haematoma. This haematoma can evolve, independently of its size, towards ossification, which can be treated surgically. It is aesthetic, with the scar completely covered by the eyebrows.



FIG1 : tumefaction fronto-orbito-nasale ,
Fig2 et 3 : TDM en fenêtre osseuse montrant calcification



Fig4 : insition tra,ns soucilleire mbilateral, FIG5 osteome fronto naso orbitaire extrait, fig6 : cicatrisation
 figure 7 TDM de contrôle post op

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