

Post-Traumatic Haematoma and Abscess in the Nasal Septa of Children

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Septal haematoma following nasal trauma is a complication that, if not diagnosed and treated early, may evolve into a nasal septal abscess. We present the case of a 10-year-old male who suffered nasal trauma with fracture and an undiagnosed septal haematoma that evolved into a septal abscess. During drainage of the abscess, necrosis of the quadrangular cartilage was noted. The patient later presented collapse of the nasal dorsum and deviation of the nasal septum. This sequela was corrected by means of an osteochondral costal graft. In the presence of any nasal trauma, it is important to explore the nasal septum correctly to discard the presence of a haematoma which, if not drained early, may evolve into an abscess due to compression of the quadrangular cartilage, leading to its necrosis in a few days, and later collapse of the nasal dorsum as the child grows.

Key words: Nasal trauma. Septal abscess. Surgical treatment.

Hematoma y absceso de tabique nasal postraumático en niño

El hematoma septal tras traumatismo nasal es una complicación que de no ser diagnosticada y tratada precozmente puede evolucionar a un absceso septal. Presentamos el caso de un varón de 10 años que sufrió traumatismo nasal con fractura de huesos propios y un hematoma septal que no fue diagnosticado, y cuya evolución fue un absceso septal. Durante el drenaje de este absceso se evidenció una necrosis del cartílago cuadrangular. Posteriormente el paciente presentó un hundimiento del dorso nasal y una desviación del tabique nasal. Esta secuela se corrigió mediante la utilización de un injerto osteocondral costal. Ante cualquier traumatismo nasal es importante explorar correctamente el tabique nasal para descartar un hematoma, que si no se drena de forma precoz, puede evolucionar a un absceso por compresión del cartílago cuadrangular, cuyas consecuencias son su necrosis en pocos días y posterior hundimiento del dorso nasal en el curso del desarrollo del niño.

Palabras clave: Traumatismo nasal. Absceso septal. Tratamiento quirúrgico.

INTRODUCTION

Nasal trauma is extremely common during childhood. A small percentage of patients with nasal trauma go on to develop septal haematoma.¹ An association between fracture of the nasal bones and septal haematoma has been reported in 15% of cases.² A septal haematoma that goes unnoticed and does not drain can produce an abscess ending in severe functional and aesthetic sequelae.

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The first reported case of septal abscess is attributed to Cloquet and dates from 1810; treatment consisted of incision and drainage.³

Most septal abscesses are the result of an infected haematoma. Rupture of the small vessels supplying the nasal septum causes blood to accumulate that dissects the cartilage from the mucoperichondrium.⁴ Ischaemia and increased tissue pressure destroy the cartilage. The necrosis and accumulation of blood provide an ideal culture medium for growth of saprophytic bacteria from the nasal mucosa,⁴ and infection can develop in as little as 4 days.⁵ A painstaking examination of the intranasal structures in the face of nasal trauma is therefore, paramount.

Clinically, septal haematomas are suspected on the basis of external signs of nasal trauma (deformity, epistaxis, oedema), as well as the presence of significant mucosal oedema and changes in colouring (bluish or purplish) during intranasal inspection.⁶⁻⁸ It can be difficult to distinguish between haematoma and septal abscess. Generally speaking,

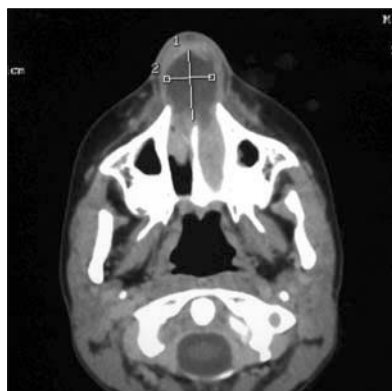


Figure 1. Computerized tomography of the head revealing occupation of the nasal airway and an abscessed collection of pus in the anterior region of the nasal septum.



Figure 2. Sequelae of the septal abscess: the patient presents collapse of the nasal dorsum and cranial retraction of the tip and columella.

an abscess is larger, more painful, and the underlying mucosa may be inflamed and covered with exudate.^{4,9} It is usually accompanied by fever and leukocytosis.

Septal abscess treatment is always surgical. The treatment options present in the medical literature are simple drainage^{2,4,9,10} and drainage plus immediate reconstruction.^{3,10-14}

CASE STUDY

A 10-year-old male with epistaxis 8 days after suffering nasal trauma comes to the emergency room with palpebral, nasal, and maxillary oedema. On examination, he displayed oedema of both nasal fossae with complete occupation of both nostrils, fluctuation and a grossly enlarged nasal septum with foetid seropurulent discharge.

The patient presented a poor overall status with fever. The blood test revealed signs of infection with leukocytosis and increased sedimentation rate.

The nasosinusual computerized tomography revealed occupation of the nasal airway with abscessed purulent accumulation in the anterior region of the nasal septum (Figure 1). The patient was admitted for emergency surgical drainage under general anaesthesia. A right, vertical hemitransfixation incision was made. After drainage of some 3 mL of purulent material, necrosis of the quadrangular cartilage was detected in the anteroinferior area. Intravenous antibiotic treatment with 750 mg of ceftriaxone every 24 h for 7 days was prescribed.

The patient later presented sequelae due to collapse of the nasal dorsum and deviation of the nasal septum with cranial retraction of the tip and columella (Figure 2).

The plastic surgery department performed surgical reconstruction by means of open rhinoplasty and costochondral graft shaped for the dorsum and columella. The graft was harvested from the seventh rib using the conventional technique through a minimal subcostal incision and secured by means of sutures.

There were no post-operative complications. During follow-up (2 months after surgery), the graft was partially reabsorbed. Despite this, the cosmetic and functional outcomes were favourable.

DISCUSSION

In the face of any nasal trauma, it is important for the nasal septum to be properly examined in order to rule out haematoma which, if not drained immediately, can evolve into an abscess due to pressure of the quadrangular cartilage, leading to necrosis in just a few days and subsequent collapse of the nasal dorsum during the child's development.

A previous study has shown that only 20% of the children treated in the emergency room for nasal trauma had undergone examination of the nasal septum.¹⁴

When, in the course of time, the haematoma becomes abscessed, antibiotic treatment will not prevent necrosis of the septal cartilage; the only way of avoiding this complication is with early drainage.

Good long-term outcomes have been reported with various treatments proposed to correct the sequelae.^{3,11,12,15,16}

Reconstruction of this type of injury can be carried out immediately at the time of drainage or it can be deferred.^{2,4,8,10-13} Cottle et al¹⁶ propose putting reconstruction off for 8 to 12 weeks to ensure the success of the grafts. Huizing¹⁰ recommends septal reconstruction at the time of drainage.

Delayed reconstruction with autologous osteochondral grafts harvested from the rib provides good reconstructive possibilities. This is a good donor site for large osteocartilaginous reconstructions of the dorsum and columella.

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