A Rare Case of Giant Cavernous Hemangioma of the Maxillary Sinus

A 32-year-old man had nasal obstruction and intermittent epistaxis for 2 months. Physical examination also revealed facial deformity with enlargement of the nasal base and bulging in the maxillary region on the right. A soft and friable lesion occupying the entire right nasal cavity without bone erosion was observed on computed tomography (CT scan). Before surgery, the patient underwent angiographic evaluation, with evidence of main irrigation of the lesion by the right maxillary artery, which was then embolized. The patient underwent endoscopic nasal surgery. He maintained postoperative follow-up for 18 months, without recurrence of the lesion. Anatomopathological examination confirmed a cavernous hemangioma.

Conclusions:
Cavernous hemangioma is a benign lesion of the paranasal sinuses. Due to non-specific clinical and radiological findings, its preoperative diagnosis is always challenging. The high index of suspicion of the malignancy should only be discarded after complete anatomopathological evaluation. A correct diagnosis is essential to avoid facial anatomical remodeling while excluding the diagnosis of other malignant lesions.

Keywords:
Hemangioma • Hemangioma, Cavernous • Nasal Surgical Procedures

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**Background**

Hemangiomas are benign vascular lesions that are more prevalent in the head and neck regions, which account for 60% of the cases [1]. However, some areas, such as the facial sinuses, are uncommon sites of occurrence [2]. Cases of facial sinus involvement occur more frequently in females and the third decade of life [3]. These lesions typically grow slowly and cause a mass effect on adjacent neurovascular structures, resulting in specific symptomatology [4]. In the central nervous system, cavernous hemangiomas represent 15-25% of vascular malformations and present symptoms of seizures, intracranial hemorrhages, cranial nerve deficits, headache, altered level of consciousness, and fever of unknown origin [5]. The most common symptoms related to paranasal sinuses are nasal obstruction and persistent epistaxis [6].

The radiological findings may reveal alterations in adjacent bone structures and can cause misdiagnosis with malignant lesions [6].

A case with similar symptoms was described in a nasal septum hemangioma, also causing obstruction and recurrent epistaxis, but without leading to deformity of the local structures. [7].

The treatment of cavernous hemangioma, when necessary, is surgical. The nasosinusal endoscopic approach offers the possibility for minimally invasive surgery, with descriptions of procedures to be performed in cases of intercurrence [8]. Performing preoperative vascular studies, such as arteriography and embolization of the lesion, could help better control the bleeding and ensure greater safety in intraoperative management [9].

We present a case of a 32-year-old male patient with recurrent epistaxis, nasal obstruction, and facial deformity due to a giant cavernous hemangioma, completely removed by a nasal endoscopic approach after arterial embolization, without local recurrence after 18 months of follow-up.

**Case Report**

A 32-year-old man who experienced intermittent epistaxis, nasal obstruction, and facial pain for 2 months visited the Emergency Department of a tertiary hospital in Brasilia. Rhinoscopy was performed, and a soft hyperemic lesion was observed with areas of bleeding ulcers that were occupying the entire right nasal fossa and compressing the nasal septum against the left lateral nasal wall. Computed tomography of the facial sinuses showed a mass of soft tissue consistency, with no signs of invasion of the orbital bones and base of the anterior skull (Figure 1).

Preoperative angiography revealed a predominance of tumor vascularization by the right internal maxillary artery, and its embolization was performed 24 h before the surgical procedure (Figure 2). Although the possibility of a malignant lesion was considered, an incisional biopsy was not performed due to the risk of massive incoercible bleeding [7]. Thus, the nasal endoscopic surgical technique was performed under general anesthesia with total excision of the lesion in 4 fragments, without the need for incisions on the facial skin or gums and preserving orbits and the base of the anterior skull.

**Figure 1.** Computed tomography (CT) of maxillary sinus hemangioma. Mass of heterogeneous contrast enhancement, occupying the whole right nasal fossa with a widening of the right maxillary sinus opening and bone remodeling of the orbits and ethmoid bone on CT scans of the paranasal sinuses in coronal and axial slices.
The postoperative course of the patient was uneventful, without recurrence of the lesion after 18 months of postoperative follow-up.

The anatomopathological examination revealed multiple dilated vessels of various calibers, containing blood and fibrin, limited by a flattened endothelium in the sub-epithelial tissue, stained by hematoxylin and eosin (H & E; ×20), confirming cavernous hemangioma (Figure 3).

Discussion

Epistaxis and facial deformity are symptoms that should lead to screening for local disease of the paranasal sinuses, as they may be related to benign or malignant diseases, and the size of the lesion is a limiting factor for the type of approach. The type of lesion, whether vascular or not, requires specific preoperative preparation to allow complete resection of the lesion.
Hemangioma is considered a common lesion in the head and neck, and this regional topography is common (60% of cases) [1]. Of the cases that involve the head and neck region, 55% affect the face and only 5% the cervical region [10], and it is rarely found in the paranasal sinuses [6]. Hemangiomas are more common in women and in the third decade of life in cases of facial sinus involvement [10].

When these lesions affect the nose and paranasal sinuses, in 80% of the cases the septal region, especially the Kiesselbach’s area, is the most common location, and in 15% of the cases the lateral wall of the nasal cavity is involved [10]. Hemangiomas may be the cavernous or capillary type. The former occurs less frequently, and often originates from the turbinate bone and rarely originates from the maxillary sinus wall [10]. Capillary hemangiomas are found mainly in the vestibule and nasal septum, occasionally associated with pyogenic granuloma lesions. In cases of facial sinus involvement, cavernous hemangiomas are more common [11].

Although cavernous hemangiomas are benign, the lesion can cause bone destruction and local remodeling in addition to episodes of repeated acute rhinosinusitis due to interference with the natural drainage of the facial sinuses [11]. The differential diagnosis is unilateral lesions of the facial sinuses, such as cysts, mucoceles, papillomas, and malignant neoplasms [12,13].

Hemangiomatous lesions are vascular malformations that can involve the entire body; however, the prevalence in paranasal regions is low [14]. The histology of cavernous hemangioma comprises irregular vessels with thin collagen walls [15]. The vessels vary in size and have a sinuousoidal characteristic.

The investigation of unilateral lesions of the nasal fossa ranges from physical examination, nasal endoscopy, and imaging examinations, such as computed tomography, preferably contrast-enhanced, and magnetic resonance imaging (MRI). In cases of vascular lesions, MRI is the examination of choice for delimitation of the lesion and better diagnostic definition. Regarding preoperative preparation, computed tomography is the examination of choice for better definition of surrounding bone structures [16,17].

Cavernous hemangiomas are commonly found as heterogeneous hypodense lesions with little contrast uptake on computed tomography scans. An arteriographic study can also be used as a complement in scheduling the surgical procedure, aiming at cauteryization or intraoperative ligature to control bleeding and planning for preoperative embolization [16,17]. In our case, preoperative embolization had a positive effect on the partial regression of the lesion and ease of manipulation due to the low volume of bleeding, which also facilitated postoperative management.

Conclusions

Although common in the head and neck, cavernous hemangioma is uncommon in paranasal sinuses. Due to the tendency of rapid growth and severe episodes of epistaxis, early investigation and management are necessary. In case of vascular injury, the preoperative endovascular approach with embolization, followed by endoscopic resection, can allow complete resection of the lesion, with a lower rate of intraoperative bleeding.

Declaration of Figures’ Authenticity

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