Case report

Pediatric intranasal lobular capillary hemangioma: Report of two new cases and review of the literature

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ABSTRACT

Background: Lobular capillary hemangioma (LCH) is an acquired benign vascular tumor of unknown origin. It usually affects skin and mucous membranes of the oropharynx. It rarely involves the nasal cavity which most commonly manifests as epistaxis. To our knowledge, only fifteen pediatric intranasal LCH cases have been reported in the literature. None of these occurred in the inferior turbinate. We report two new pediatric cases of LCH, one of them on the inferior turbinate and the other one on the anterior nasal septum. Our principal aim was to highlight the importance of considering this lesion as a differential diagnosis for pediatric unilateral nasal obstruction and epistaxis.

Methods: Retrospective case series and review of current literature regarding the possible causes, diagnosis, and treatment of nasal LCH.

Description of cases: Two adolescents presented with symptoms of unilateral nasal obstruction and epistaxis. Plain and contrast enhanced computed tomography revealed a well-defined intensely enhancing lesion in both cases. Patients underwent transnasal endoscopic excision and bipolar electrocautery at the base of the tumor for hemostasis. Histopathological examination confirmed the diagnosis of LCH.

Discussion: Current epidemiological and pathophysiological data suggests that the development of LCH may be associated to previous nasal trauma or endocrine disorders. LCH should be considered in the differential diagnosis of all pediatric endonasal masses associated with unilateral epistaxis and nasal obstruction. Endoscopic total excision with bipolar electrocautery for hemostasis is an appropriate treatment.

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1. Introduction

Lobular capillary hemangioma (LCH), formerly known as pyogenic granuloma, is an acquired benign vascular proliferation of unknown origin, with a characteristic lobular architecture on microscopy [1]. It usually affects skin of the head and neck, and mucous membranes of the oral cavity. It is rare in the nasal cavity of children [2].

To the best of our knowledge, only fifteen pediatric intranasal LCH cases have been reported in the literature (Table 1). None of these occurred in the inferior turbinate.

We report two new pediatric cases of LCH, one of them on the inferior turbinate and the other one on the anterior nasal septum. Our principal aim was to highlight the importance of considering this lesion as a differential diagnosis for pediatric unilateral nasal obstruction and epistaxis.

2. Description of cases

2.1. Case 1

A 13-year-old male presented to us with complete obstruction of the right nasal cavity, on a 2 months background of recurrent anterior epistaxis and purulent discharge, after nasal trauma (accidental contusion while nose picking).

Nasal endoscopy revealed a big red smooth surfaced mass with abundant purulent rhinorrhea filling the right nasal cavity (Fig. 1A). The mass was mobile and appeared pedunculated with its base...
tion was done under general anesthesia and the specimen was sent 

One 12-year-old female came to our institution with a 4-months history of right-sided nasal epistaxis. She had no other medical history and was not on medication. There was no family history of nasal tumors in children. Nearly 75% of cases seen in children occur in this region with the gingiva, lips, and tongue being the most common sites [3]. The nasal cavity is a rare location for LCH, mostly seen in women between 3rd and 5th decade of life [4,5].

Pathogenesis of LCH remains unclear, though some evidence support nasal trauma [1], endocrine disorders [1,2], viral onco-genes, arteriovenous malformations, and angiogenic growth factors [6].

The relative frequent location of LCH at the anterior nasal septum (Kiesselbach’s area) in recurrent nose pickers or patients with a history of nasal packing lends to belief that local trauma may precede the genesis of LCH [7]. In our first case, localization of the mass and previous history of nasal trauma would support this theory. However, a retrospective study of 112 patients by Pagliai and Cohen found a history of trauma in only 4% of patients with clinically diagnosed LCH [8].

On the other hand, increased levels of estrogen and progesterone have been associated to the pathogenesis of a specific form of LCH of the mucosa, called “the pregnancy tumor,” which occurs during pregnancy more commonly on the gingiva and, less commonly, in the nasal cavity [9]. These lesions generally regress 

attached to the inferior turbinate.

Plain and contrast enhanced computed tomography (CT) of the paranasal sinuses revealed an intensely enhancing big vascular lesion with liquid content, well-circumscribed, in the right nasal cavity (anterior area of middle and inferior meatus) with no obvious bony remodeling or destruction (Fig. 2).

The differential diagnosis included a turbinate abscess, hemangiopericytoma, a turbinal hematoma, and juvenile nasopharyngeal angiofibroma which are more common in this population.

The lesion was completely resected endoscopically using cold dissection and bipolar coagulation, with no complications. Histological analysis confirmed the diagnosis of LCH with surgical margins free of disease (Fig. 1C).

The patient made a successful recovery and remains on follow-up with no recurrence two years after surgery.

2.2. Case 2

A 12-year-old female came to our institution with a 4-months history of right-sided nasal epistaxis. She had no other medical history and was not on medication. There was no family history of note. Anterior rhinoscopic examination showed a bilobulated dark-red mass arising from the anterior septum of the right nasal cavity which bled easily when the lesion was touched by a telescope.

CT scan showed a well-defined soft tissue density lesion in the anterior aspect of left nasal cavity without bony erosions (Fig. 3).

Endoscopic excision with cold dissection and bipolar coagulation was done under general anesthesia and the specimen was sent for histopathological examination, which confirmed the diagnosis of LCH.

The patient presented no complications and remains asymptomatic on follow-up with no recurrence one year after surgery.

3. Discussion

Capillary hemangiomas constitute 7% of all benign head and neck tumors in children. Nearly 75% of cases seen in children occur in this region with the gingiva, lips, and tongue being the most common sites [3]. The nasal cavity is a rare location for LCH, mostly seen in women between 3rd and 5th decade of life [4,5].

Pathogenesis of LHC remains unclear, though some evidence support nasal trauma [1], endocrine disorders [1,2], viral onco-genes, arteriovenous malformations, and angiogenic growth factors [6].

The relative frequent location of LCH at the anterior nasal septum (Kiesselbach’s area) in recurrent nose pickers or patients with a history of nasal packing lends to belief that local trauma may precede the genesis of LCH [7]. In our first case, localization of the mass and previous history of nasal trauma would support this theory. However, a retrospective study of 112 patients by Pagliai and Cohen found a history of trauma in only 4% of patients with clinically diagnosed LCH [8].

On the other hand, increased levels of estrogen and progesterone have been associated to the pathogenesis of a specific form of LCH of the mucosa, called “the pregnancy tumor,” which occurs during pregnancy more commonly on the gingiva and, less commonly, in the nasal cavity [9]. These lesions generally regress

Table 1
Pediatric intranasal lobular capillary hemangioma in the literature.

| Study                  | Age  | Gender | Origin in the nasal cavity | Imaging study | Treatment                           |
|------------------------|------|--------|----------------------------|---------------|-------------------------------------|
| Mills et al., 1980     | 10   | Female | Septum                     | None          | Endoscopic excision                 |
| Simo et al., 1998      | 7    | Male   | Right lateral wall         | NR            | Endoscopic excision                 |
| Kapella et al., 2001   | 7    | Female | Left vestibule             | CT            | Endoscopic excision                 |
| Ogunleye and Nwaorgu, | 45   | Male   | Roof of the left nasal cavity | CT            | Endoscopic excision                 |
| Karagama et al., 2002  | 8    | Male   | Left floor                 | None          | Elliptical incision + 4/0 Vicryl stitches |
| Ozcan et al., 2004     | 6    | Female | Right floor                | CT            | Antibiotic and decongestant 20 days prior to endoscopic excision |
| Katori and Tsukuda,    | 11   | Male   | Right lateral wall         | CT and MRI    | Elliptical incision with Nd Yag Laser |
| Puxeddu et al., 2006   | NR   | NR     | NR                         | CT            | Endoscopic excision                 |
| Puxeddu et al., 2006   | NR   | NR     | NR                         | CT            | Endoscopic excision                 |
| Benoit et al., 2010    | 5    | Male   | Right Septum               | Imaging studies | Endoscopic excision               |
| Burriuchi et al., 2010 | 5   | months | Left Septum                | MRI           | Endoscopic excision                 |
| Ifeacho and Caulfield, 2011 | 14 | years | Right middle turbinate     | MRI           | Endoscopic excision                 |
| Virbalas et al., 2012  | 12   | Female | Left middle meatus         | CT            | Endoscopic excision                 |
| Virbalas et al., 2012  | 16   | Female | Right middle Turbinate     | CT            | Endoscopic excision                 |
| Vijaya et al., 2015    | 14   | Male   | Left septum                | CT            | Endoscopic excision                 |
| Case 1                 | 13   | Male   | Right inferior turbinate   | CT            | Endoscopic excision                 |
| Case 2                 | 12   | Female | Right septum               | CT            | Endoscopic excision                 |

NR – Not reported; CT – Computed tomography; MRI – Magnetic resonance imaging.
after delivery. Furthermore, a higher incidence of LHC has been linked to oral contraceptives with greater progestinic activity [10].

Presenting symptoms usually include unilateral nasal obstruction, purulent rhinorrhea and a rapidly growing pedunculated mass with intermittent epistaxis [7].

In children, foreign bodies, hemangiopericytoma, juvenile nasopharyngeal angiofibroma meningocoele, dermoid cysts, angiomatous polyp, schwannoma, and gliomas should be considered in the differential diagnosis [11].

Imaging studies are frequently used to evaluate the differential diagnosis and surgical possibilities. CT imaging is the modality of choice in investigating LCH. It has the non-specific features of a well-defined soft tissue density mass with a hypoattenuating cap of variable thickness. The T2-weighted MRI would reveal a vascular tissue with multiple flow voids surrounding an inner matrix of hyperintense mass [12].

Characteristic histological findings of LCH are a polypoid, circumscribed, lobular proliferation of large vessels and surrounding aggregates of small-size capillaries in a fibromyxoid stroma [6].

The conservative endoscopic excision is the preferred treatment for LCH of the nasal cavity. The surgical methods used include electrocoagulation, cryotherapy, LASER, excisional surgery, and excisional surgery following angiography with embolization [7]. The recurrence rate for hemangioma ranges from 0% to 42.0% [7,13]. In our series, both patients underwent endoscopic excision with cold dissection and bipolar electrocautery at the base of the tumor for hemostasis. This technique is associated with low rates of recurrence [7].

4. Conclusions

LCH should be considered in the differential diagnosis of all pediatric endonasal masses associated with unilateral epistaxis and nasal obstruction. Endoscopic total excision with bipolar electrocautery for hemostasis is an appropriate treatment.

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