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CLINICAL RECORD

Fibro-hyaline extensions from the bony nasal aperture, causing nasal obstruction

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Abstract

Objective: We report a rare case of fibro-hyaline anterior extensions of the bony nasal pyramid.

Method: The clinical, radiological, intra-operative and histological findings are presented.

Results: A 34-year-old man presented with bilateral nasal obstruction due to enlarged lateral walls of the nasal vestibule. Radiology showed normal bony structures. Surgery revealed three histologically identical, non-malignant, fibrous masses, one in the nasal septum and one in each of the vestibular walls. The latter were attached to the bony pyramid, protruding anteriorly and converging medially.

Conclusion: The location and symmetry of the fibro-hyaline projections indicated that they constituted a malformation mimicking congenital bony nasal pyriform aperture stenosis. Histological analysis showed that the masses were not neoplastic.

Key words: Nose Deformities, Pathology; Therapeutics

Introduction

The cause of nasal obstruction can be located within the nasal cavity, posterior to it, or in the external nose. In most cases, obstructions are intranasal. Protracted obstruction of the external nose is usually due to trauma, and appears either as a deflection of skeletal structures or as a stricture resulting from scarring. Congenital malformations and benign neoplasms are very infrequent causes.[1,2]

We present an unusual case of symmetrical fibro-hyaline masses causing nasal inlet obstruction.

Case report

A 34-year-old man complained of progressive nasal obstruction in the anterior part of the nose over many years.

On examination, the nasal inlet was slit-like due to enlarged lateral vestibular walls. Hard masses could be palpated within them. The caudal part of the septum was also thicker than normal.

A computed tomography scan showed a normal bony pyriform aperture.

The patient had no other anomalies. He had no memory of nasal trauma, nor did any of his close relatives have nasal complaints.

At surgery, an incision was made vertically in the lateral wall of the nasal vestibulum, bilaterally. Well defined, flat, rectangular, fibrous masses were identified and dissected free from the surrounding soft tissue. These structures were attached to the lateral part of the bony pyramid. After freeing them from this bone, we found that a thin segment still adhered to the periosteum on the inside of the bony pyramid, and continued into the nasal cavity for one to two millimetres. These structures were symmetrically located and they converged medially (Figure 1). They were not adherent to the upper lateral cartilages. A similar fibrous mass was removed from the right side of the anterior part of the septal cartilage. The fibrous masses were 4 mm thick and varied in size from 1.5×1.5 cm to 2×2 cm.

The patient's post-operative course was uneventful.

Histological examination of the tissues showed the same morphology in all three masses. This consisted of a compact, fibro-hyaline ground structure with some fibrocytes (Figure 2). There were very few mitoses and no evidence of malignancy. Vessels were distributed in all parts of the tissue, but peripheral nerves and lymphocytes were only seen in a few areas. There was no cartilage or bone.

The tissue was examined with immunohistochemical markers. Testing for the epithelial marker cytokeratin was negative. Testing for cluster of differentiation 68 glycoprotein, smooth muscle actin, S-100 and actin was only focally positive. Testing for β-catenin was negative. Testing for cluster of differentiation 31 and 34 glycoproteins was only positive in vessels. Finally, positivity for the proliferation marker Ki67 was below 1 per cent.

Discussion

The usual cause of nasal inlet obstruction is trauma. In the presented case, there were no deviations of the bony or cartilaginous structures. The patient's fibro-hyaline masses showed no signs of scar tissue or residual haematoma. Thus, trauma was excluded as a cause of the patient's nasal obstruction.

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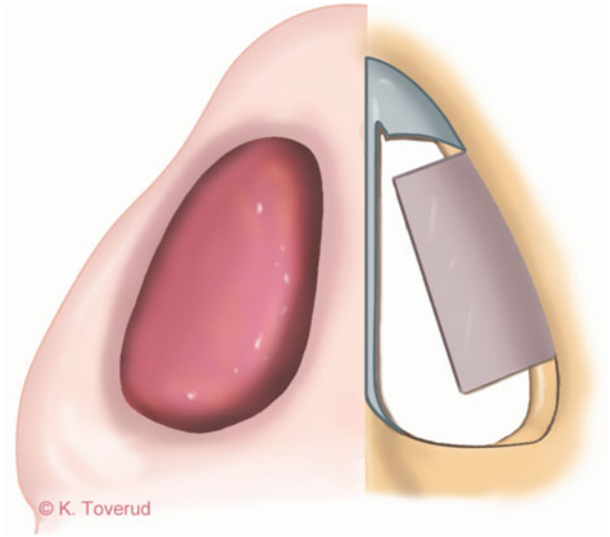

FIG. 1
Diagrammatic, caudal view of the nose, with the nasal tip removed on the patient's left side to illustrate the position of the fibro-hyaline extension (purple-grey) in relation to the nasal skeletal structures (i.e. the upper lateral cartilage above and the bony aperture lateral). The fibro-hyaline extension is based at the bony aperture and extends forward and medially. The patient's right nostril is depicted as seen at the first clinical examination, with bulging of the lateral wall of the vestibulum. Illustration © Kari C. Toverud 2011

Rare cases of mesenchymal neoplasm have been reported in the external nose, such as myxoma, myopericytoma, fibrolipoma, neurofibroma, sclerotic fibroma and juvenile hyaline fibromatosis.[3–8] Solitary fibrous neoplasm has been reported only in the nasal cavity.[1] These neoplasms are usually solitary and non-symmetrical. They can be identified by specific staining techniques. The fibrous tissue in our case appeared at three different locations in the external nose but nowhere else in the body. Histological and immunohistochemical evaluation showed that the fibrous masses (i.e. the intranasal projections) were different from any of the above-mentioned neoplasms.

In this case, it was the particular location of the tissue structures in relation to the nasal aperture that pointed to the diagnosis of malformation. Two of these structures appeared symmetrically within the nasal vestibule. They were anchored to the bony nasal pyramid and protruded into the nasal vestibule, where they converged symmetrically. The third piece of tissue was seen in the anterior part of the septum, sharing part of the septal perichondrium with the nasal septum.

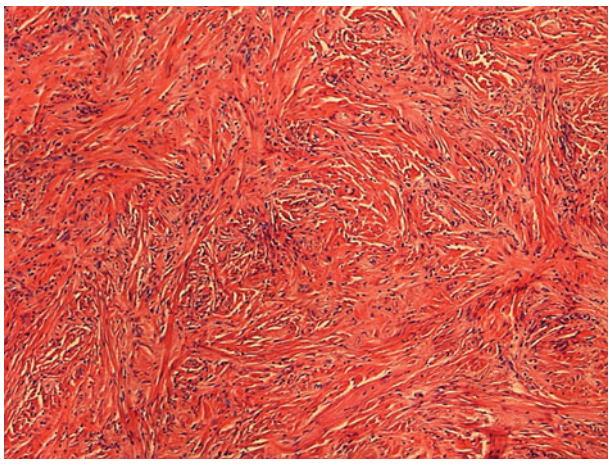

FIG. 2
Photomicrograph of the fibro-hyaline tissue, showing a cell-rich area of the tissue. (H&E; ×100)

- **External nasal obstructions are usually due to trauma**
- **External nasal malformations due to neoplasm are rare**
- **The presented case had fibro-hyaline plaques anchored to and extending from the bony nasal pyramid into the nasal vestibulum**
- **Clinically, this case mimicked congenital bony nasal pyriform aperture stenosis, although symptoms occurred later in life**

Rare cases of congenital nasal pyriform aperture stenosis have been reported, causing respiratory distress at birth.[9] The condition is caused by excessive growth of the bony nasal processes of the maxilla during fetal life. The bony protrusions are symmetrical and converge medially, leaving only slit-like openings to the nasal cavity. This overgrowth has been reported as being bony rather than fibrous.

The clinical findings in our case are identical to those of reported cases of congenital nasal pyriform aperture stenosis. However, in our patient the condition was not apparent at birth; rather, it revealed itself with slowly increasing symptoms of obstruction over very many years. It is possible that small, symmetrical, fibrous tissue niduses were present at birth, which grew very slowly over the years. We found no signs of cartilage or bone, which might have indicated whether the tissue structures originated from the nasal capsule or the growing maxilla.

We present this case to increase awareness of this particular malformation. The condition was conveniently treated, with surgery.

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