Case Report: A Rare Case of Ossifying Fibroma of the Nasal Cavity

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Abstract: Ossifying fibroma (OF) is a benign fibro-osseous lesion which was first described by Menzel in 1872. It is commonly seen in the head and neck regions and represents an aggressive pattern when the midface and paranasal sinuses are involved. We report a case of 16 year-old girl who presented to the otolaryngology clinic of our hospital with 6 months history of nasal obstruction, nasal deformity and headache. High resolution Computed Tomography (HRCT) scan images showed a mass in the right nasal cavity. The present case is notable because involvement of the nasal cavity is rare.

Keywords: Ossifying fibroma(OF), paranasal sinus(PNS), High resolution Computed Tomography (HRCT)

INTRODUCTION:

Ossifying fibroma (OF) is a rare benign fibro-osseous lesion which was first described by Menzel in 1872. He considered it as a form of Osteoma but the term of “Ossifying Fibroma” was subsequently coined by Montgomery in 1927. The etiology of OF is unknown but odontogenic, developmental and traumatic origins have been suggested. In the head and neck regions it can arise anywhere within the facial skeleton and skull. The most common sites are mandible and maxilla with other sites having been reported sporadically such as parietal, occipital, temporal and sphenoid bone, nasopharynx, sella turcica and nasal cavity. The nasal cavity is one of the rarest sites for this lesion. Women are affected more often than men with a female to male ratio of 2:1. There is no evidence of hereditary predominance. Involvement of the sinonasal tract is extremely rare.

OFs manifest typically as painless slow growing tumors but extramandibular lesions such as those occur in the paranasal sinuses and midface tend to display more aggressive behaviour and rapid growth. Radiologically, such lesions are typically well-defined unilocular radiolucencies with scattered radiopaque foci. Pathologically, they are characteristically sharply demarcated lesions, containing fibrous tissue and trabeculae of osteoid and lamellar bone or basophilic spherules that resemble cementum with no mitotic activity. Here, we present a rare case of OF in the right nasal cavity.

Case description:

A 16 year-old girl presented to the otolaryngology clinic with 6 months history of nasal obstruction, nasal deformity and headache. Examination revealed mild nasal deformity with grossly deviated nasal septum to the left. The right nasal cavity was completely occupied by a firm to hard mass. High resolution CT scan of paranasal sinuses was performed.

IMAGING FINDINGS:

HRCT PNS images revealed a large well circumscribed mixed attenuation mass with areas of internal ossification interspersed with non-ossified low attenuation ground-glass like areas and fluid spaces in the right nasal cavity. The mass caused remodelling the surrounding bony margins with expansion and scalloping of bony septum and lateral nasal wall and bowing of the medial wall of right orbit however no lytic or erosive lesion or cortical breach was noted.

Fig 1. HRCT PNS: Expansile mass in the right nasal cavity with expansion and scalloping of bony septum and lateral nasal wall
Fig 2. Large well circumscribed mixed attenuation mass with a number of fluid density spaces within, with bony remodelling

On the basis of above clinical and imaging findings a diagnosis of ossifying fibroma of nasal cavity was made.

Discussion and Conclusion:

Ossifying fibroma is one of the benign fibroosseous lesions. Although, they are common in the mandible, occurrence in the paranasal sinuses is rare with only few reported cases in the literature.

Currently, the term benign fibro-osseous lesion is used in the literature to describe a spectrum of lesions ranging from fibrous dysplasia to ossifying fibroma, including cementifying or cemento-ossifying dysplasia, ossifying fibroma and juvenile active ossifying fibroma.

As previously mentioned, the etiology of OF is unknown but these lesions are presumed to originate from periodontal ligaments of teeth because of their capacity to produce cementum and osteoid material. Other theories include traumatic and developmental causes. Today, many authorities prefer to designate the cementum-like materials present in ossifying fibroma as a variation of bone. So, the designations ossifying fibroma, cement-ossifying fibroma and cementifying fibroma are the same lesions and classified best as osteogenic neoplasm.

The clinical presentation of these tumors is variable, depending on the site and rate of growth. It ranges from an asymptomatic bone lesion found incidentally on imaging, to symptoms due to mass effect of sinonasal lesions such as nasal obstruction, anosmia, hyposmia, headache or epistaxis. Ocular symptoms include visual loss, diplopia, proptosis and epiphora. Larger tumors may also lead to a painless swelling of the involved bone. Meningitis and pneumocephalus are two rare intracranial complications of ossifying fibroma.

In radiographic studies, the initial lesions may exhibit unilocular radiolucencies and somewhat sclerotic borders with gradual transformation to radioopacity. CT shows well-circumscribed lesions. The central area consists of a nonhomogenous matrix with “ground-glass” opacification representing diffuse calcifications and low attenuation areas containing fibrous tissue with possible contrast enhancement. The walls of the involved sinuses may undergo further remodelling and thickening.

Knowledge of clinical, imaging and histopathological characteristics of OF in this rare location is helpful in differential diagnosis of tumors involving this region of head and neck.

References: