Case Report

Role of Cytology and Radiology in Diagnosis of Lacrimal Gland Pleomorphic Adenoma

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ABSTRACT

Tumors of the lacrimal gland are rare in fine needle aspiration practice. Amongst all, the most common epithelial tumor in the lacrimal gland is pleomorphic adenoma, which is a benign indolent tumor that usually affects adults in the second to fifth decades of life. The most frequent symptom is a painless palpable mass in the upper external quadrant of the orbit, with slow inferonasal displacement of the globe. We present a case of pleomorphic adenoma of lacrimal gland diagnosed on fine needle aspiration cytology (FNAC) and CT scan demonstrated lobulated heterogeneous enhancing solid mass in the right orbit. We emphasize the importance of FNAC and CT scan in the diagnosis of lacrimal gland tumor.

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Introduction

Tumors of the lacrimal gland are rare in fine needle aspiration practice[1]. Amongst all, the most common epithelial tumor in the lacrimal gland is pleomorphic adenoma[2]. Pleomorphic adenoma is the most common epithelial tumor of the lacrimal gland. Lacrimal gland pleomorphic adenoma (LGPA) occurs commonly in second to fifth decades of life. The most frequent symptom is a painless palpable mass in the upper external quadrant of the orbit, with slow inferonasal displacement of the globe[1]. The most frequent LGPA constitutes 3-5% of all orbital tumors, 25% of all lacrimal gland lesions and 50% of epithelial lacrimal gland tumors[3].

We describe a case of LGPA in a 40 year-old male. This report emphasizes the importance of CT scan and fine needle aspiration cytology (FNAC) in precise localization and characterization of superotemporal mass lesions. FNAC helps to rule out pathologies like lymphoma, pseudotumor and malignancy, and thus helps formulate the appropriate treatment plan. Early diagnosis and treatment helps preserve vision and prevent future recurrences and malignant transformation.

Case Report

A 40 year-old male presented with proptosis of the right eye for the duration of 6 months. The proptosis was painless, progressive and non-pulsatile. No postural variation in the proptosis was observed. There was no history of diminution of vision in the right eye. There was no history of any constitutional symptoms or trauma.

Investigations: Clinical Examination revealed a visual acuity of 6/6 on the snellen chart of both eyes. The right eye was displaced inferiorly and medially. The ocular movement of the right eye was restricted in upgaze. A CT scan of the right orbit demonstrated lobulated heterogeneous enhancing solid space occupying lesion was seen. Lesion was arising from superolateral angle of the right side orbit causing proptosis. No evidence of underlying bone erosion was noted. No evidence of cystic areas were seen within it. No evidence of intracranial extension was noted (Fig. 1). CT scan findings were suggestive of right side lacrimal gland mass may be neoplastic or inflammatory. The differential diagnosis of lymphoma, inflammatory pseudotumor or benign tumor of the lacrimal gland was considered. All other hematological and biochemical investigations were within normal limit. Subsequently, the patient underwent ultrasound-guided FNAC of the right orbital mass. FNAC was performed using 22-gauge needle, which revealed cellular smears mixed with stromal epithelial fragments dispersed singly and in sheets with fibrillar chondromyxoid stroma. The cellular component consists of relatively uniform oval, plasmacytoid or spindle cells. Nuclei were round to oval, eccentric, and have a bland, finely granular chromatin and inconspicuous nucleoli. The cells with plasmacytoid appearance had eccentric nuclei with abundant cytoplasm. Spindle or rounded cells were present within the stromal fragments. The fibrillar chondromyxoid stroma stained intensely red to purple on MGG (Fig. 2,3). The differential diagnosis of other benign lacrimal gland tumor was ruled out and diagnosis of pleomorphic adenoma of lacrimal gland was made. Later on, En bloc excision of the mass was performed by lateral orbitotomy

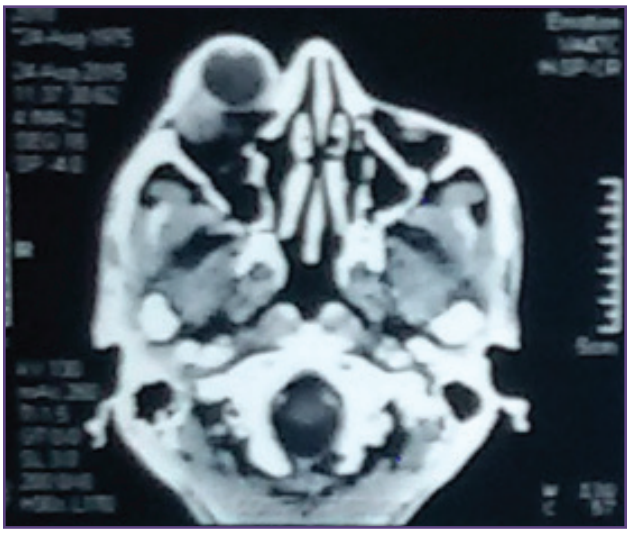

Figure 1: A CT scan of the right orbit showing lobulated heterogeneous enhancing solid space occupying lesion, arising from superolateral angle causing proptosis. No evidence of underlying bone erosion or cystic areas and intracranial extension is noted.

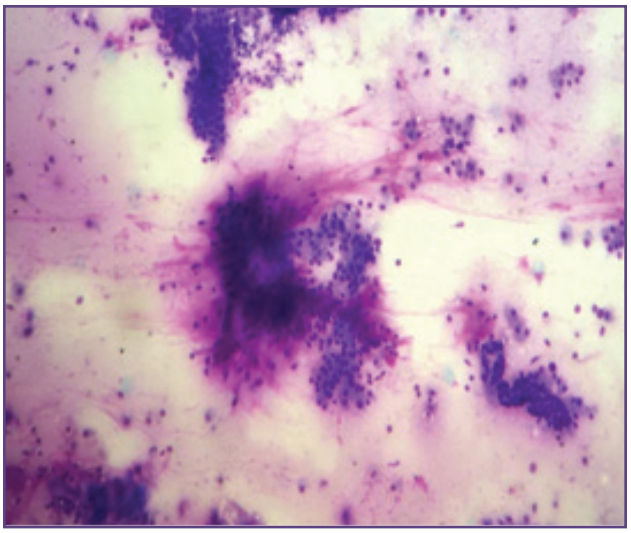

Fig. 2: Typical low-power pattern of poorly cohesive epithelial-like cells associated with fibrillar chondromyxoid stroma staining brightly red/magenta (MGG, LP).

approach. Histopathological examination showed cystic structures lined by benign epithelial cells and surrounding myoepithelial cells melting in chondromyxoid stroma (Fig. 4). On histopathological examination, we confirmed the diagnosis of pleomorphic adenoma. No feature of malignant transformation was seen.

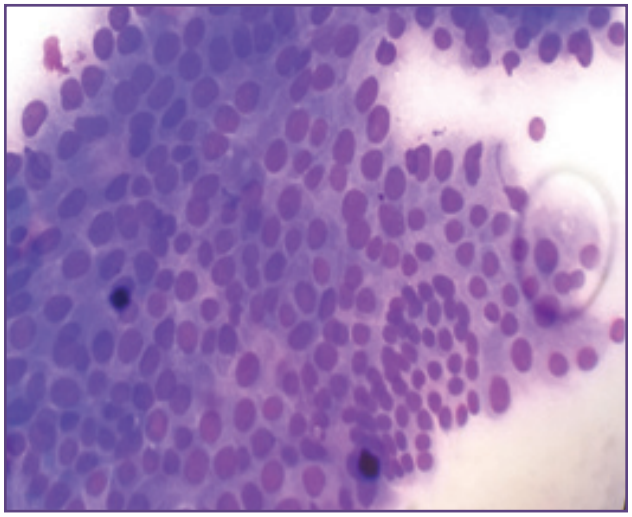

Fig. 3 : High-power view showing epithelial cells present in sheets and singly with plasmacytoid appearance (MGG, HP).

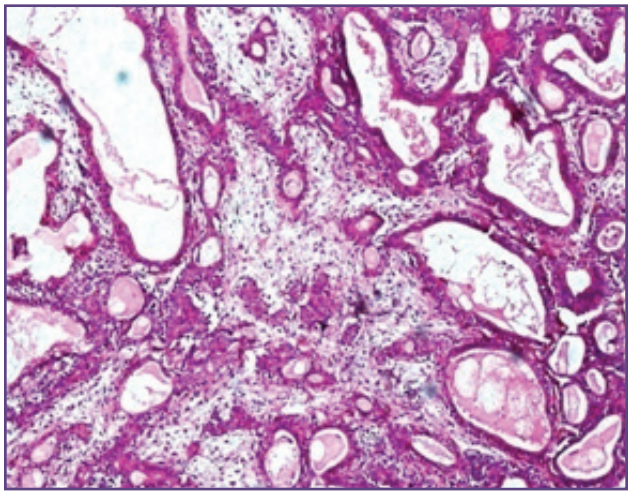

Fig. 4: Histopathological examination showed cystic structures lined by benign epithelial cells and surrounding myoepithelial cells melting in chondromyxoid stroma (H&E, HP).

Disscusion

Tumors of the lacrimal gland are a rare condition in FNA practice, constituting 7-9% of all orbital tumors[1]. Amongst all, the most frequent LGPA constitutes 3-5% of all orbital tumors, 25% of all lacrimal gland lesions and 50% of epithelial lacrimal gland tumors[3].

LGPA is a benign indolent tumor consisting of a very firm mass that leads to compression atrophy of the normal gland, displacement of residual lacrimal tissues, and is surrounded by a 'pseudocapsule' into which small sprouts of adenoma may be projected[6]. Most cases (90%) involve the orbital lobe of the lacrimal gland[4].

LGPA is most frequent in adults[4], with no gender preponderance[1]. The clinical presentation is usually characterized by a painless palpable mass in the upper external quadrant of the orbit, with slow growth and inferonasal displacement of the globe[1]. There may also be an increased lacrimation and intrabulbar pressure, visual impairment and diplopia[2].

Radiological investigations may be done either by CT or MRI, as in our case. Both are similar in terms of providing information regarding extent, configuration, margins, and angulation features of a lacrimal gland fossa mass. However, CT scan provides more details about bone destruction and presence of calcification, while MRI provides better intralesional features and intracranial extension[2].

The safety of FNAC for the diagnosis of lacrimal gland tumors has been questioned due to potential risk of tumor recurrence caused by disruption of the lacrimal gland tumor pseudocapsule which leads to tumor seeding along the needle track[5]. However, there have been no reports of recurrence due to the use of FNAC[6] or evidence of tumor seeding upon serially sectioning the needle track. Lai *et al* [7] demonstrated that FNAC differentiates between various lacrimal gland pathologies and helps in definitive management; it prevents incomplete excision of a malignant lesion and future recurrence. Verma and kapila[8] demonstrated FNAC to have a specificity of 98.2% and positive predictive value of 96.7%. Vagefi *et al*[9] recommended a complete surgical excision of the tumor to prevent future recurrence and malignant transformation. Thus, a preoperative FNAC is prudent in diagnosing and tailoring the management of each individual case. The recurrence can further be prevented by excision of the biopsy track. On the basis of the cytological features, we differentiated pleomorphic adenoma from adenoid cystic carcinoma, monomorphic adenoma, mucoepidermoid carcinoma. In others tumors, there were no chondromyxoid ground substance present.

Conclusion

LGPA is a common differential of superotemporal mass, especially in adults. LGPA should be kept in mind when dealing with superotemporal masses in adults. FNAC and CT scan helps in ruling out other possible causes, each having diverse treatment approaches, for example, lymphoma validates an early institution of chemotherapy.

This highlights the importance of FNAC and CT scan in achieving the accurate preoperative diagnosis and inducting the appropriate treatment without delay.

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Competing Interests
None declared.

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