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A Case Report of Crystalloids in Salivary Gland Cystic Lesion.

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Abstract : Fine-needle aspiration cytology (FNAC) of salivary glands may reveal tyrosine, collagenous, intraluminal, and amylase crystalloids, among other forms of crystalloids. Both benign and malignant salivary gland lesions have been documented to contain them. The majority of benign salivary gland lesions contain amylase crystalloids. The crystalloids are identified under a microscope based on structural appearance differences. Given that it can be useful in differentiating between benign and malignant salivary gland lesions requires knowledge of the types of crystalloids present. In a 55-year-old female is described in this report as having a painless tumor in his left parotid gland. ultrasonography assessment revealed a well-defined, hypoechoic lesion in the left parotid. Numerous non-birefringent, rectangular, rhomboid shaped crystalloids with parallel sides and pointed ends were found when smears were examined under a microscope. Hematoxylin & Eosin (H&E) stained crystalloids pink; and May Grunwald Giemsa (MGG) stained them deep blue. On a proteinaceous backdrop, inflammatory cells were seen. According to the cytopathological diagnosis, the lesion was benign cystic lesion with suppurative inflammatory reaction, and had amylase crystalloids. Because amylase crystalloids are only observed in benign salivary gland lesions, it's critical to differentiate amylase from the other crystalloids.

Keywords: crystalloids , salivary , rhomboid

INTRODUCTION

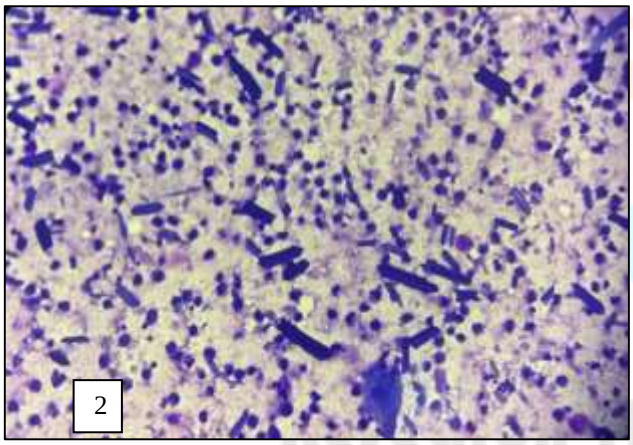
In the major salivary glands, non-neoplastic cysts are rather rare. Retention cysts which are associated with sialolithiasis, salivary duct cysts, and lymphoepithelial cysts are among the several varieties. Although there aren't many cells in aspirated fluid, there might be few histiocytes, inflammatory cells, and some degenerate epithelial cells. Occasionally, the fluid will contain a large number of non-tyrosine crystalloids. These have been associated with an oncocytic epithelial lining and can also be seen in neoplastic cysts, but their presence indicates a benign lesion. Many salivary gland lesions can contain crystalloids. They can occur in malignant lesions; however they are more common in non-neoplastic salivary gland lesions. The crystalline structures tyrosine, amylase, oxalate, collagenase, and intramural crystalloids have all been reported in both neoplastic and non-neoplastic salivary gland diseases [1]. The crystalloids are identified under a microscope based on structural differences. Therefore, it is crucial to determine the type of crystalloid since it can help distinguish between benign and malignant lesions. We report a case of rhomboid shaped crystalloid-containing cystic lesion in the parotid gland.

CASE REPORT: A 55 year old female presented with tender swelling at the angle of the mandible on the left side to Pathology Dept in SCMCH Channaptna, Karnataka. There was no history of fever, hearing loss or weight loss. On clinical examination firm tender swelling measuring 3.5x3cms is present at the left parotid region. Ultrasonography revealed homogeneous hypoechoic lesion in the left parotid gland suggesting benign cystic lesion. Fine needle aspiration was performed using 22 gauge needle and 2ml of grey-white blood mixed fluid was aspirated. After aspiration swelling subsided bit. Fine needle aspiration smears were prepared and stained with Haematoxylin & Eosin and Giemsa. Smears studied showed numerous rhomboid & rectangular shaped crystalloids with parallel sides (Figure2, 3). Some of them showed pointed ends. Smears are highly cellular composed of diffuse sheets of mixed inflammatory cells neutrophils, lymphocytes, and foamy macrophages. No atypical cells were seen. Background showed eosinophilic proteinaceous material. Few clusters of acinar and ductal epithelial cells were seen. Cytological diagnosis of benign cystic lesion with suppurative inflammatory reaction was made.

DISCUSSION: A range of lesions from salivary gland contain crystalloids. Despite their rarity, they have been observed in both benign and malignant lesions. Numerous crystalline structures, including tyrosine, amylase, collagenous, oxalate, and intraluminal

crystalloids, have been identified in salivary gland lesions that are either malignant or non-neoplastic.[1] Knowing the morphological content , type of crystalloid is crucial since it can assist distinguish between neoplastic and non-neoplastic tumors. The morphology of tyrosine-rich crystalloids is petal- or sun-shaped, with blunt ends. They are rare in malignant salivary gland tumors and most commonly present in pleomorphic adenomas. Collagenous crystalloids appear as collagen fibers with a needle-like form organized radially. They have been found in myoepitheliomas and pleomorphic adenomas. In malignant salivary gland tumors, intraluminal crystalloids consisting of thick, amorphous eosinophilic material have been reported. Alpha-amylase (α-amylase) crystalloids are rhomboid-shaped, non-birefringent structures with pointy ends that stain brilliant orange when stained with Pap, deep blue when stained with May-Grunwald-Giemsa, and pink when stained with hematoxylin-eosin. Their sizes vary from 5 µm to 500 µm. So far, only benign illnesses such as lymphoepithelial cysts, unilocular cysts, and chronic sialadenitis have been linked to α-amylase crystalloids.[2] The crystalloids observed in our instance share morphological similarities with the literature-described α-amylase. Takeda and Ishikawa discovered the α-amylase crystalloids in a salivary duct cyst in 1983.[3] They came to the conclusion that these crystalloids, which resemble crystallized amylase, were produced when saliva was supersaturated. The discovery of these crystalloids in FNA cytology (FNAC) of a benign cystic lesion of the parotid glands was initially reported by Jayaram et al. in 1993[4]. Boutonnat et al. employed mass spectrometry, transmission electron microscopy, and amylase activity measurement in addition to morphology to describe the characteristics of amylase crystalloids. [5]

Conflict of Interest: None



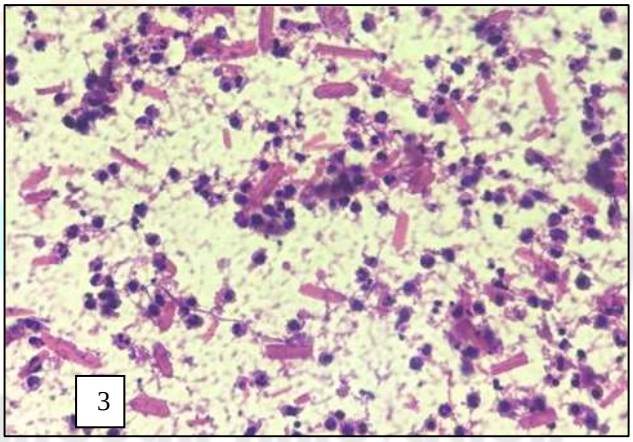


Figure 1- A diffuse swelling noted below left ear lobule near parotid region measuring approx 3.5 cm × 3 cm
Figure 2-FNAC smear showing deep blue rectangular crystalloids with pointed ends, inflammatory cells (MGG, ×100)
Figure 3- FNAC smear showing numerous pink crystalloids accompanied with numerous inflammatory cells.(H&E x 100).

Reference:

1. Paker I, Anlar M, Genel N, Alper M. Amylase crystalloids on fine-needle aspiration of salivary gland. Turk J Pathol. 2010;26:153–5.
2. López-Ríos F, Ballestín C, Martínez-González MA, Serrano R, de Agustín PP. Lymphoepithelial cyst with crystalloid formation. Cytologic features of two cases. Acta Cytol. 1999;43:277–80.
3. Takeda Y, Ishikawa G. Crystalloids in salivary duct cysts of the human parotid gland. Scanning electron microscopical study with electron probe X-ray microanalysis. Virchows Arch A Pathol Anat Histopathol. 1983;399:41–8.
4. Jayaram G, Khurana N, Basu S. Crystalloids in a cystic lesion of parotid salivary gland: Diagnosis by fine-needle aspiration. Diagn Cytopathol. 1993;9:70–1.
5. Boutonnat J, Ducros V, Pinel C, Kieffer S, Favier A, Garin J, et al. Identification of amylase crystalloids in cystic lesions of the parotid gland. Acta Cytol. 2000;44:51–6.