

ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY IN ODONTOGENIC CYST-A CASE REPORT

Dentistry

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ABSTRACT

A 32 year old male patient presented with a single, painless, tense and firm to hard swelling almost fixed with underlying tissues over right side of the mandible for last 6 months with a provisional clinical diagnosis of a cystic swelling. Fine needle aspiration cytology (FNAC) was performed & approximately 2 ml gelatinous brownish fluid obtained with subsequently significant reduction of size of the swelling. FNA smears showed epithelial like cells along with giant cell & inflammatory cells in the background. Hence a diagnosis of odontogenic cyst was suggested. Histopathological examination of the resected specimen reassured the diagnosis. We reported this case highlighting the role of FNAC as a tool for early & preoperative diagnosis of odontogenic cyst.

KEYWORDS

Odontogenic cyst, FNAC, Giant cell.

INTRODUCTION

Odontogenic cysts are a group of jaw cyst, which are formed from cells and tissues involved in tooth development (Odontogenesis) and are lined by epithelial cells. Intra bony odontogenic cysts are more common in maxilla and mandible, because they are the only jaw bones having epithelial components. These cysts are closed sacs, may contain fluids, air or semi solid materials. All oral cysts are not odontogenic cysts and most of the odontogenic cysts are benign in nature.

Odontogenic cysts have peak incidence in second & third decade with slight male preponderance. These cysts cause displacement of adjacent teeth with bone expansion. Many lesions occurring in the mandible has a cyst like appearance in the radiograph. Mandibular lesions may be odontogenic or nonodontogenic. Odontogenic cysts appear as a well-defined, unilocular, well-corticated, lucent lesions that are often associated with the crowns of impacted or unerupted teeth.¹ Pathologic analysis of the epithelial lining and contents and clinical and radiographic findings are generally required to achieve a definitive diagnosis.² Histopathologic examination remains the gold standard investigation for the final confirmation. FNAC diagnosis helps to recognize the lesion early and referred to oral surgery to minimize the extent of jaw bone destruction & other complications.

Cytology also can be utilized as cost effective diagnostic tool in such cases. However, there are only few case reports in this regard. Aspiration cytology has an added advantage that it helps in early and preoperative diagnosis and can be performed at outpatient department without any serious complications. We report a clinically suspected case in a 32-year-old patient. The initial clinical suspicion being a cystic swelling.

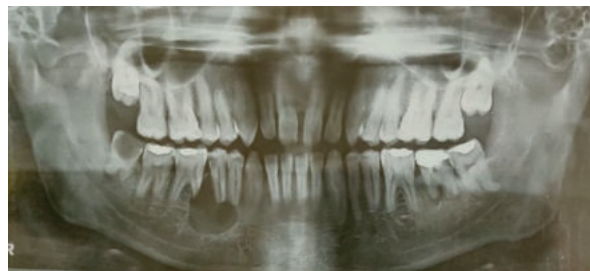
Case Presentation

A 32-year-old male patient presented in the outpatient clinic with a single and painless swelling for last 6 months. There was no prior history of trauma, inflammation, or any other known significant disease. Local examination revealed single, painless, tense and firm to hard swelling ranging in size from 3 to 4 cm in diameter almost fixed with underlying tissues over right side of the mandible. On clinical examination oral cavity, head and neck region did not reveal any other significant abnormality. A dental X-ray of the jaw (OPG) was done and showed well-defined, unilocular lucent lesions that was associated with the displacement of the adjacent tooth (Fig. 1). A provisional clinical diagnosis of cystic swelling was made and a FNAC of the lesion was planned.

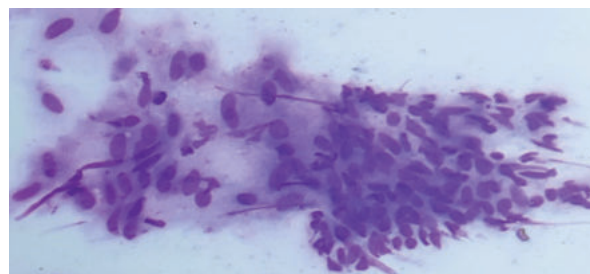
Fine needle aspiration cytology (FNAC) was performed using a 23-gauge needle with 10 ml syringe and approximately 2 ml gelatinous brownish fluid was aspirated with subsequently significant reduction in size of the cystic swelling. Five smears were prepared, air dried and

fixed with methanol. Now these fixed smears were stained with Giemsa stain. FNA smears showed epithelial like cells along with giant cell and inflammatory cells in the background (Fig. 2). Hence a diagnosis of odontogenic cyst was suggested.

Later on, surgical excision was performed for confirmation. Histopathological examination of the resected specimen reassured the diagnosis. We report this case highlighting the role of FNAC as a tool for early, cost effective & preoperative diagnosis of odontogenic cyst.



(Figure-1)



(Figure-2)

DISCUSSION

The use of fine-needle aspiration biopsy in cystic lesions of the maxillofacial region is found as successful as in the solid lesions.³ FNAC is particularly helpful in the diagnosis of clinically non-characteristic lesions and has practically no contraindication. It is known as a useful technique for the diagnosis of the head and neck masses but the use of this technique for the diagnosis of cystic lesions of oral and maxillofacial region is not widely accepted and there are a few studies on this subject.^{4,7} The aspirates taken from cystic lesions have more material quantitatively but they are cellularity poor that makes the diagnosis difficult with FNAC.⁶ The first aim of FNAC is to detect if the lesion is malignant or benign. At the same time, it is possible to diagnose the lesions specifically by examining their cellular properties on the cytological specimen.⁸

The exact histogenesis of dentigerous cysts remains unknown, but most of the authors favor a developmental origin from the tooth follicle sometimes associated with inflammatory origin. The pathogenesis of the odontogenic cyst is concluded that it is due to the proliferation of epithelial rests of Malassez in a focus of inflammation and is stimulated by the pulpal necrosis of the involved tooth. The cyst which is derived from the obstruction of follicular veins of an unerupted tooth, then accumulates between the reduced enamel epithelium and the crown of the tooth. The odontogenic keratocyst arises by residual proliferation of the dental lamina, most likely as a hamartomatous abnormality. It enlarges by both multicentric expansion, which may be due to the proliferation of localized groups of epithelial cells in the lining and by unicentric expansion which arises from the hydrostatic pressure of its contents.⁹ The inflammatory dentigerous cysts commonly occurs in the first and early part of the second decades of life. Males were affected more frequently without any racial discrimination and involved permanent teeth. The mandible was affected twice as frequently as maxilla¹⁰

The systematic review has found that the odontogenic cysts are about 2.25 times more frequent than the odontogenic tumors. The most common odontogenic cyst and tumor were the radicular cyst and ameloblastoma respectively¹¹ The cytomorphological findings observed in these case reports were identical to our case and correlated well with the histopathological findings.

The fine needle aspiration technique is a simple, rapid outpatient procedure and does not require sophisticated instruments. Cytological diagnosis shows concordance in most of the studies and can be used routinely as an adjunct to histopathology and can be done as a preoperative outpatient procedure.

CONCLUSION

Fine needle aspiration cytology (FNAC) is a technique that has been proved as an easy, non-traumatic, safe and without any serious complications especially in differentiation of benign and malignant lesions in the oral and maxillofacial region. According to the result of this study, FNAC of cystic lesions in the maxillofacial region can be used for preoperative diagnosis as in solid lesions.

This case report highlights the significant role of cytology in the quick diagnosis of the uncommon entity of odontogenic cyst. The simplicity, cost-effectiveness, outpatient department procedure, rapid and reliable results are the further criteria promoting it to be a better option when compared with other expensive and time taking techniques.

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Conflict of Interest: None

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