A Case of Ameloblastoma Diagnosed by Fine-needle Aspiration Cytology

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Abstract

A preoperative presumptive diagnosis of ameloblastoma is sometimes made in the light of available clinical and radiological data, which are generally not very characteristic. The final diagnosis can only be made on the basis of histologic features. In this paper, a case of ameloblastoma diagnosed preoperatively by fine-needle aspiration cytology is presented and the potential value of this technique for diagnosing oral lesions is discussed.

Introduction

In the last two decades, aspiration cytology has become an indispensable tool for the diagnosis of abnormal masses[1]. The thyroid gland, lymph nodes and salivary glands are the major areas of concern in the head and neck area[2]. Although the sensitivity and specificity of the method vary according to the type of facility and experience of the cytologist, its use is increasing rapidly[2]. The main advantage of the method is its simplicity, requiring no surgical procedure and having no associated complications. Its disadvantages include the relatively small sample size and the need for interpretation by an expert cytologist.

Along with collaborating dental clinics, our department has started a study on cystic or radiolucent oral lesions using fine-needle aspiration cytology (FNAC). The case presented here was the first neoplastic lesion in our series diagnosed preoperatively by this technique.

Case Report

A 17-year-old boy was referred to the dental clinic with a painful right mandibular mass, which had been present for one year and had increased in size gradually. He had no other complaints and the results of routine laboratory tests were within normal limits.

X-ray films showed a unilocular radiolucent area in the right ascending ramus of the mandible distal to the second molar. The lesion was 3 cm in greatest...
diameter and was associated with an impacted third molar. The overlying mucosa was normal. On the basis of clinical and radiological data, a presumptive diagnosis of dentigerous cyst was made. Aspiration was done with an ordinary disposable syringe and a 21-gauge needle from the oral aspect of the lesion, passing through the thinned cortical bone with ease.

Cytologically, epithelial islands were observed on a contaminated background containing histiocytes, granulocytes and erythrocytes. The constituent cells of the islands showed good cellular cohesion and individual cells were rarely detected. In some of the clusters, the peripheral cells exhibited some palisading (Figs. 1, 2). The slightly eccentric nuclei of these cells contained finely distributed chromatin with occasional V-shaped indentations of the nuclear membrane. The cytoplasm was homogeneous and basophilic with Papanicolaou stain. The cytoplasmic borders were generally indistinct except in some groups which showed anastomosing projections (Fig. 3). A cytologic diagnosis of “benign tumorous lesion, suggestive of ameloblastoma” was made. After wide local excision the lesion was examined histologically and proved to be a cystic ameloblastoma (Fig. 4).

Fig. 1. Epithelial island includes palisading cell (Papanicolaou stain x 500).
Fig. 2. Good cellular cohesion is a prominent feature (Papanicolaou stain x 500).

Fig. 3. Epithelial cells with anastomosing projections (Papanicolaou stain x 500)
Discussion

Ameloblastoma is best treated by wide local excision. A preoperative presumptive diagnosis can sometimes be made in the light of clinical and radiological data. However, this is often impossible since such data are generally not very characteristic. Several much more common entities such as residual and dentigerous cysts can be easily confused with ameloblastoma[3,4]. Therefore, the presence of a firm preoperative diagnosis helps to prevent less-than-optimal surgery.

There are two ways of establishing the biological nature of lesions preoperatively, i.e., histopathologic or cytologic investigations. The use of the former for diagnosing lesions such as the present one cannot be advocated on a routine basis, since essentially it involves surgery. The use of cytology, on the other hand, can be compared with frozen sectioning. It is true that the cytology of unusual lesions is more difficult to diagnose than their histopathology. However, in experienced hands it gives results comparable to those obtained by other approaches such as frozen sectioning[5].

Clinically, FNAC takes less time than frozen sectioning, causes little discomfort to the patient, requires no special equipment and no operating room. If sufficient material is aspirated, the method provides valuable data for the management of the patient[2].

Whether FNAC is of any value for diagnosing odontogenic tumors and cysts is not known clearly at present. Although the palisading arrangement of the cells (ameloblasts?) partially encircling the digitated (stellate reticulum-like?) cells

Fig. 4. Histologic appearance of ameloblastoma (H. and E. x 500)
necessitated tentative diagnosis of the case as “suggestive of ameloblastoma”, we
do not yet have a wide knowledge of odontogenic lesions, as studied using FNAC.
Since we have not yet found any previous reports on the cytology of odontogenic
lesions, we are cautious about making strong recommendations for the use of
FNAC. However, it seems reasonable to attempt aspiration of cystic oral lesions,
irrespective of whether the diagnosis is obvious or not, to learn more about the
efficacy of this procedure and to decide whether it is of potential value for routine
diagnostic work-ups.

**Conclusion**

A case of ameloblastoma diagnosed preoperatively as “benign tumoral lesion,
suggestive of ameloblastoma” using fine-needle aspiration cytology has been
presented. Although it is not yet known whether fine-needle aspiration cytology is
of value for diagnosing odontogenic tumors and cysts, it seems reasonable to try
this method for oral lesions irrespective of whether the diagnosis is obvious or not,
in order to learn more about its efficacy.

**References**

Monographs in Clinical Cytology, Vol. 4, S. Karger, New York, 1974
Maxillofac. Surg., 42, 161-166, 1984
stone, Edinburgh, London, 1984