



FNAC AS A TOOL TO DECOMPRESS LARGE OKC'S?

Surgery

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ABSTRACT

Odontogenic cysts are classified as cysts that derive from odontogenic epithelium and occur in the jaw's tooth-bearing regions. This pathology is treated with cystectomy, marsupialization or decompression of odontogenic cyst.¹⁰ We present with a case report of a large multilocular OKC which was treated with FNAC followed by enucleation, chemical cauterization with Carnoy's solution and a chin graft. In addition to reducing intraluminal pressure in the pathological cavity, this operation allowed the lesion to gradually decrease volume "with a gradual increase in bone apposition" and maintained the adjacent teeth's integrity.

KEYWORDS

INTRODUCTION

Odontogenic keratocyst (OKC) is a rare, benign but locally aggressive developmental cyst and is also referred to as a keratocystic odontogenic tumor.¹ Odontogenic keratocysts (OKC) are the most aggressive of the odontogenic cysts in the oral cavity and also have elevated recurrence rates, mitotic counts and epithelial turnover rates.³ Because OKC's recurrence rate was reported to be as high as 25 % to 62.5 %, many attempts were made to improve surgical techniques, including resection of adjacent parts of the mandible, Carnoy's solution application, and cryotherapy.⁵ Marsupialization, decompression, enucleation, and curettage are the mild treatment for this disorder. More aggressive approach is focused on osteotomy, resection of wounds, and use of chemical agents such as Carnoy's solution, liquid nitrogen cryotherapy, or peripheral osteotomy.⁶ However, if, irrespective of the histological type, one could stop or even reverse the growth of the cyst with a simple procedure, it would be an alternative to radical operation and would also give time for reflection to surgeons and patients before making further treatment decisions.⁹ Decompression is also considered as one of the less invasive treatment of the odontogenic cysts in which a small window in the lesion is created with the help of various devices (tube, stent) and that device is sutured with the periphery eliminating the intra-mural pressure and activating the bone formation within the lesion.¹⁰ A study has shown that the intracystic fluid pressure in OKC triggers the release of inflammatory cytokines such as IL-1 from the epithelial cells, and the cytokines released cause bone resorption around the lesions by inducing osteoclastogenesis and activation. These findings suggest that the decompression of the intracystic fluid pressure can result in a gradual reduction in bone resorption by the cyst and a reduction in the lumen of the cyst.⁴ Considering the mechanism of decompression, this case report presents a case of OKC where Fine Needle Aspiration Cytology (FNAC) was done in a huge OKC to eliminate the intramural pressure and after a regular monitoring and follow up of patient for three years shrinkage of the cyst was seen and which was later enucleated.

CASE REPORT

A 35 year old male patient came to our hospital with the chief complaint of pain in the lower right back tooth region. History of present illness revealed that the pain was dull, intermittent, aggravates on intake of food and relieves on its own. Patient gave history of endodontically treated tooth on the same region 2 years back. There was no history of swelling and discharge. Past medical history revealed that there was no systemic illness present. On intra oral examination there was no swelling or obliteration in the region with respect to 45, 46 and 47. Crown was present in relation to 45 46 tooth region with no tenderness to percussion. 48 tooth was clinically missing and there was slight pain while palpation on that region. Orthopantomogram was taken which revealed a large irregular unilocular radiolucency of approximately 2* 5 cm in the mandibular body region till the ramus region. The radiolucency extended anteroposteriorly from the 45 tooth region till the ramus of mandible with well-defined corticated borders

on all aspects. On Computed Tomography a multilocular thin walled expansile radiolucency was seen within the body of mandible on right side. The cortex appeared thinned out giving the impression of Odontogenic Keratocyst. The patient was recalled after the investigations and was counselled about the treatment that was biopsy followed by enucleation and iliac bone grafting, to which the patient denied. After discussions with senior doctors and the patient consent a Fine Needle Aspiration was done which revealed a cheesy white colored aspirate and the patient was under regular follow up for three years after which an OPG was taken which revealed the size of the cyst was dramatically reduced to 2*2 cm in size. Enucleation of the small cyst was done followed by the application of Carnoy's solution. The sample was sent for pathologic examination which revealed Para keratinized stratified squamous cystic lining supported by a fibro cellular capsule. The cystic lining shows columnar basal cells with hyperchromatic and palisaded nuclei. The superficial layer shows corrugated Para keratinized surface with focal areas showing orthokeratinization with prominent stratum granulosum. The underlying connective tissue capsule is composed of dense collagen fibers with dense chronic inflammatory infiltrate predominantly lymphocytes. Blood vessels of varying shapes and sizes are seen in the stroma which is suggestive of *Odontogenic Keratocyst*.

Immediately, chin grafting was performed to aid in bone formation at the site of enucleation. After six months, the patient was followed up and the healing was found to be satisfactory without any recurrence tendency.

DISCUSSION

The Odontogenic Keratocyst (OKC) is a well-known pathological jaw lesion resulting from dental lamina rests.³ There may be symptoms such as pain, swelling, and drainage, particularly with major lesions. Nevertheless, as incidental radiographic results, at least half of all lesions were found just like our case. Radiographically, the OKC portrays thin corticated margins as a well-defined radiolucency. Most of these are unilocular, but may be multilocular with larger lesions.³ In the above case it was a large lesion and was multilocular. The aim of marsupialization and decompression is to alleviate the pressure in the cystic cavity and allow new bones to fill the defect. Therefore, it is possible to save adjacent structures such as tooth roots, the maxillary sinus or the lower alveolar canal from surgical injury.⁵ Taking the above statement into consideration FNAC was performed as it also relieves the intra-mural pressure of OKC and a study done by *Y Kubota et al* also showed that the larger lesions shrink faster in patients in OKC by marsupialization.⁴ In our case massive reduction of the cyst was noticed post FNAC which can be considered as a treatment option for shrinkage of large OKC's. There are many studies which had shown that the size of the OKC has been reduced by marsupialization. Here in the above case we have chosen a more conservative treatment by means of FNAC due to the size of the lesion, age of the patient, teeth involvement and proximity of mandibular alveolar canal which could be damaged if more aggressive surgical procedure were performed.

CONCLUSION

The use of the FNAC accompanied by enucleation for the treatment of OKCs was an efficient and cautious approach to the management of OKC, allowing the reduction of the initial lesion, the protection of anatomical structures and teeth, enabling a quicker return to action. No signs of recurrence after 6 months have been observed and the patient is still under follow-up. This was done in one case and the results were above expectations so more cases can be done to prove the efficacy of the method used.

PICTURES



Figure 1 showing large OKC in the right body and ramus of mandible.

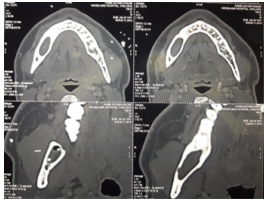


Figure 2 showing cyst in the axial section of CT.



Figure 3 showing the FNAC of the lesion.



Figure 4 showing the reduced size of the cyst after FNAC.



Figure 5 showing the enucleation of the shrunken OKC.

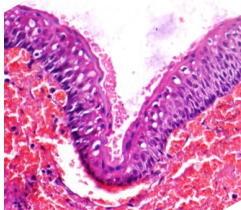


Figure 6 showing histopathologic slide of OKC



Figure 7 showing the chin graft placement with titanium screws.

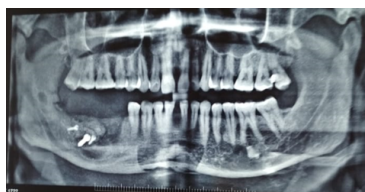


Figure 8 showing the OPG after chin grafting with titanium screws.

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