

Metaplastic Epithelium in an Odontogenic Keratocyte. A Case Report

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Abstract:- The diagnostic dilemma is possessed when one lesion that mimics the other.¹ One of the most prevalent pathologic disorders in the alveolar bone are periapical lesions, which arise from necrotic tooth pulp.² Multiple pathogenic entities are included in odontogenic cysts of the jaws. “A benign uni- or multicystic, intraosseous tumour of odontogenic origin, with a characteristic lining of parakeratinized stratified squamous epithelium and potential for aggressive, infiltrative behaviour,” is the definition of keratocystic odontogenic tumour (KCOT).” There are two important diagnostic problems with OKC. Firstly, they frequently exhibit active epithelial growth, leading some experts to speculate that they would be better classified as neoplasms rather than cysts. Second, two patterns of occurrence are recognized: single (or irregular) and as a part of the BCNS.³ Numerous investigations have focused on the aggressive clinical behavior and frequent recurrence after curettage, suggesting that the OKC epithelial lining may have some intrinsic growth capacity.⁵ This case of an odontogenic keratocyst with changed epithelial activity that mimics a radicular cyst is presented in light of the epithelial behavior.

I. INTRODUCTION

Accurate diagnosis leads to appropriate therapy. Making the right diagnosis takes expertise, talent, and creativity. The diagnostic dilemma arises when one lesion imitates the other. One of the most prevalent pathologic disorders in the alveolar bone is periapical lesions, which arise from necrotic tooth pulp.² The pathologic entities that comprise odontogenic cysts of the jaws are diverse. These are the cysts by definition, (pathological cavities with fluid or semi – fluid contents but excluding pus) with an epithelial lining that derives from the tooth forming organ epithelia; The so-called Serre glands, the cell rests of Malassez, and the reduced enamel epithelium are examples of the tooth-forming organ epithelia with an epithelial lining that comes from them. Certain odontogenic cyst types exhibit distinct behaviors and have distinctive epithelial linings.³

Odontogenic keratocyst (OKC), initially reported by Philipsen in 1956, is now referred to by the World Health Organization (WHO) as a keratocystic odontogenic tumour (KCOT), which is described as “a benign uni- or multicystic, intraosseous tumour of odontogenic origin, with a characteristic lining of parakeratinized stratified squamous epithelium and potential for aggressive, infiltrative behaviour.” The WHO “recommends the term keratocystic odontogenic tumour as it better reflects its neoplastic nature.”⁴

Regarding OKC, there are two noteworthy diagnostic concerns: First of all, there is a widespread observation of active epithelial growth in them, leading some to speculate that they would be better classified as neoplasms than cysts. Second, two forms of occurrence are recognized: solitary (or irregular) and as a component of the BCNS.³

Numerous investigations have focused on the aggressive clinical behavior and frequent recurrence after curettage, suggesting that the OKC epithelial lining may have some intrinsic growth capacity.⁵ This case of an odontogenic keratocyst with changed epithelial activity that mimics a radicular cyst is presented in light of the epithelial behavior.

II. CASE STUDY

A 40-year-old man presented to the oral medicine and radiology department complaining primarily of lower right back tooth pain since 20 days. The pain was mild in strength, pricking in nature, and it became worse after 47 was extracted. Upon radiological evaluation, a single, multilocular radiolucency of roughly 6 by 3 cm with a scalloped contour and corticated edges was observed in the right mandibular body, spreading to the angle and ramus. After an excisional biopsy, the sample was sent for histological analysis.

The soft tissue was routinely processed and stained with hematoxylin and eosin. The connective tissue wall and epithelial lining are visible in the stained sections. The

epithelium lining had an inconsistent thickness of five to eight cells, with some regions showing increased epithelial thickness with rete ridge development and others having palisaded cuboidal to tall columnar basal cells. It had a few areas of corrugated parakeratinized stratified epithelium. Arcading patterns can be seen in nonkeratinized epithelium in certain areas. The dense fibrous connective tissue wall consists of many blood vessels, hemorrhagic regions, irregular calcifications, and a dense chronic inflammatory infiltration. Based on these findings, an odontogenic keratocyst diagnosis was made.

III. DISCUSSION

Eleven percent of all jaw cysts are composed of OKC. They most frequently appear in the jaw, particularly in the ramus and posterior body areas.⁶ Despite the fact that OKC is categorized as a developing cyst, about 75% of the cases that have been published in the literature have inflammation in the connective tissue wall of OKC. The cystic wall was heavily inflamed in the current instance.⁵ The basal cells of an inflammatory apical cyst cannot proliferate on their own without stimulation from external signals, such as inflammatory mediators, proinflammatory cytokines, and growth factors released by innate and adaptive immune cells during apical periodontitis. This is in contrast to the epithelial cells of an odontogenic keratocyst, which is a neoplastic lesion.¹

The distinctive alveolar bulge brought on by expansive growth distinguishes OKC from radicular both clinically and radiographically. In contrast, the developing odontogenic keratocysts in OKC are lengthy and covert, frequently presenting no clinical signs until they are identified during an incidental X-ray scan. Growth primarily occurs in the anteroposterior direction, and as this case shows, lesions can grow to impressive sizes without appreciably altering the structure of the jaw. The specific propensity for rapid growth is brought on by increased osteolytic activity of prostaglandin substances in the cell population lining the cyst, increased activity of the cyst's epithelial cells stimulating this activity, and increased accumulation of hyperkeratotic scales in the cyst lumen, which results in a greater hydrostatic pressure differential.⁷

Histologically, radicular cysts have stratified squamous epithelium that is nonkeratinized and exhibits arcading patterns. This is thought to be caused by inflammation within the connective tissue wall. The ortho- or parakeratinized epithelium surrounding odontogenic keratocysts has a basal layer of palisaded tall columnar cells and a corrugated surface. Both radicular cyst and OKC characteristics are present at this time. There was no indication of carious teeth in the clinical history. In cases where there was persistent inflammation in the cyst wall or after decompression treatment, non-keratinizing squamous epithelium replaced the traditional parakeratinized lining of the OKC.

Metaplastic squamous epithelium was detected in 64% of cases in a study to evaluate the relationship between inflammation and epithelial cell proliferation in OKC. This finding was twice as common in cases with high inflammatory scores (90%) as it was in those with low scores (44%).⁵

MacDonald and Fletcher discovered that inflammation focally changed the expression of cytokeratin in OKC.

The morphologic changes that occur in the epithelial lining of OKC when inflammation is present may also be linked to modifications in the proliferative potential, which could impact the cell's biological function.⁵

IV. CONCLUSION

In summary, the metaplastic transformation of the epithelium from keratinized to nonkeratinized has been linked to the severe inflammation observed in this instance. In contrast to odontogenic keratocysts, which are developing cysts with a higher recurrence rate and requiring intensive management, radicular cysts are inflammatory odontogenic cysts that do not require substantial treatment.

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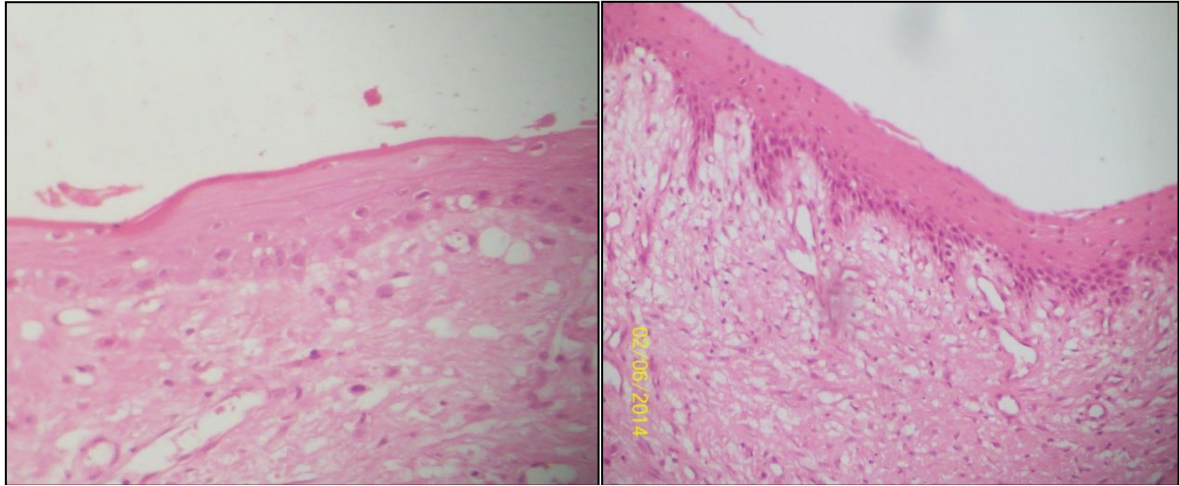


Fig 1 and 2 ; (10x) Showing Orthokeratinised Stratitified Squamous Epithelial Lining

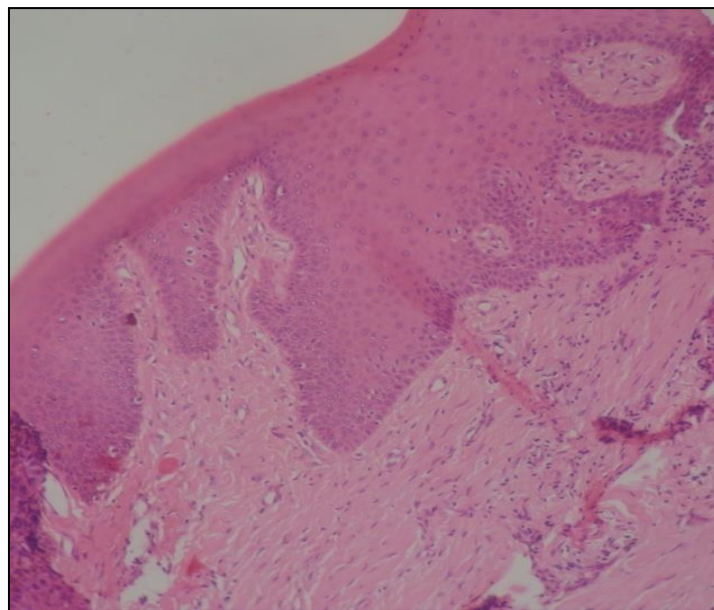


Fig 3 ; (10x) Showing Proliferating Orthokeratinised Stratitified Squamous Epithelial Lining with Broad and Long Rete Ridge.

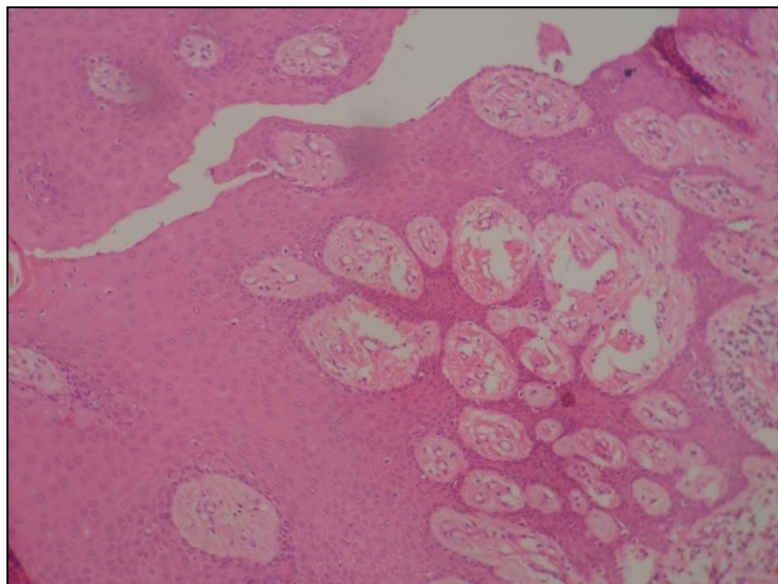


Fig 4 ; (10x) Showing Orthokeratinised Stratitified Squamous Epithelial Lining Showing Arcading Pattern