ISSN (print) : 2589-9120
ISSN (online) : 2589-9139

International Journal of Medical Science and Applied Research (IJMSAR)

Available Online at: https://www.ijmsar.com

Volume – 1, Issue – 5, September - October - 2018, Page No. : 09 - 12

Odontogenic Keratocyst With Metaplastic Epithelium. A Case Report

Dr. Neethu Telagi, MDS, Assistant Professor, Department of Oral Pathology & Microbiology, Bapuji Dental College and Hospital, Davanagere

Dr. Ahmed Mujib. B. R, Professor & Head, Department of Oral Pathology & Microbiology, Bapuji Dental College and Hospital, Davanagere

Dr. Sana Pathan, Post Graduate Student, Department of Oral Pathology & Microbiology, Bapuji Dental College and Hospital, Davanagere

Dr. V. N. Ratna Kumari T, , Post Graduate Student, Department of Oral Pathology & Microbiology, Bapuji Dental College and Hospital, Davanager

Corresponding Author: Dr. Neethu Telagi, MDS, Assistant Professor,Department of Oral Pathology & Microbiology, Bapuji Dental College and Hospital, Davanagere, Karnataka.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Abstract:

One lesion mimicking the other posses the diagnostic dilemma.[1] Periapical lesions resulting from necrotic dental pulp are among the most common pathologic conditions within the alveolar bone.[2] Odontogenic cysts of the jaws include various pathological entities. Keratocystic odontogenic tumour (KCOT) is defined 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.” In relation to OKC there are two significant diagnostic issues, firstly, they commonly show active epithelial growth which has prompted the belief that they should perhaps be regarded as neoplasm rather than a cyst. Secondly, they are known to occur in two fashions solitary (or sporadic) and as part of the BCNS.[3] The aggressive clinical behavior and frequent recurrence following curettage has been the focus of several studies, which indicated that the odontogenic keratocyst epithelial lining may have some intrinsic growth potential.[5] In light of the epithelial behavior here we present a case of odontogenic keratocyst with metaplastic epithelium attributed to the presence of inflammation.

Keywords: odontogenic keratocyst, inflammation, Metaplasia, nonkeratinised epithelium

Introduction

Correct treatment begins with the correct diagnosis. Arriving at a correct diagnosis require knowledge, skill and art. One lesion mimicking the other posses the diagnostic dilemma.[1] Periapical lesions resulting from necrotic dental pulp are among the most common pathologic conditions within the alveolar bone.[2] Odontogenic cysts of the jaws include various pathological entities. By definition these are the cysts (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 glands of Serre, the rests of the Malassez and the reduced enamel epithelium. Some type of odontogenic cysts have characteristic epithelial linings and differ in their behavior. [3]

First described by Philipsen in 1956, odontogenic keratocyst (OKC) is now designated by the World Health Organization (WHO) as a keratocystic odontogenic tumour (KCOT) and is defined 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." WHO "recommends the term keratocystic odontogenic tumour as it better reflects its neoplastic nature."[4]

In relation to OKC there are two significant diagnostic issues, firstly, they commonly show active epithelial growth which has prompted the belief that they should perhaps be regarded as neoplasm rather than a cyst. Secondly, they are known to occur in two fashions solitary (or sporadic) and as part of the BCNS.[3]

The aggressive clinical behavior and frequent recurrence following curettage has been the focus of several studies, which indicated that the OKC epithelial lining may have some intrinsic growth potential.[5] In light of the epithelial behavior here we present a case of odontogenic keratocyst with metaplastic epithelium attributed to the presence of inflammation.

Case report

A 40 year old male patient came to the department of oral medicine and radiology with a chief complaint of pain in the lower right back tooth region from 20 days. The pain was insidious in onset, pricking type, moderate in intensity and the pain aggravated following extraction of 47. On radiographic examination a solitary multilocular radiolucency was seen in the right body of the mandible extending to angle and ramus measuring approximately 6x3 cms with scalloped outline and corticated margins. Excisional biopsy was done and sent for histopathological examination.

The soft tissue was routinely processed and stained with hematoxylin and eosin. The stained sections reveal the presence of epithelium lining and connective tissue wall. The epithelial lining was of uneven thickness of 5 to 8 cells exhibiting palisaded cuboidal to tall columnar basal cells in some areas and thicker in other areas with rete ridge formation in few areas. It was parakeratinised stratified with corrugated surface in few areas. Nonkeratinised epithelium exhibits arcading patterns at places. Connective tissue wall was dense fibrous type consisting of dense chronic inflammatory infiltrate, irregular calcifications and numerous blood vessels and hemmorhagic areas. A diagnosis of odontogenic keratocyst was given correlating with radiographic features.

Discussion:

OKC comprises approximately 11% of all cysts of the jaws. They occur most commonly in the mandible, especially in the posterior body and ramus regions.[6] Although OKC is classified as a developmental cyst, inflammation in the connective tissue wall of OKC has been found in almost 75% of the cases reported in the literature. In the present case there was dense inflammation in the cystic wall.[5]

Unlike epithelial cells of an odontogenic keratocyst, which is a neoplastic lesion, the basal cells of an inflammatory apical cyst are not capable of self-proliferation without stimulation by external signals such as inflammatory mediators, proinflammatory cytokines, and growth factors released by innate and adaptive immune cells during apical periodontitis.[1]

Growth of odontogenic keratocyst is chiefly in the anteroposterior dimension and the lesions may attain remarkable size without significantly deforming the jaw skeleton which is evident in the present case. The particular tendency to rapid growth is due to higher activity of the epithelial cells of the cyst lining stimulating

osteolytic activity of prostaglandin substances in the cell population of the cyst lining and higher accumulation of hyperkeratotic scales in the lumen of the cyst with resulting greater difference in hydrostatic pressure.[7]

Odontogenic keratocysts are lined by ortho or parakeratinised epithelium exhibiting corrugated surface and a basal layer of palisaded tall columnar cells. In the present there are features of both radicular cyst and odontogenic keratocyst. The clinical history was negative for carious tooth and replacement of the classic parakeratinized lining of OKC with non-keratinizing squamous epithelium has been reported in cases with inflammation present in the cyst wall, and in cases following decompression treatment where inflammation is always present.

In a study done to assses the correlation of epithelial cell proliferation and inflammation in OKC

metaplastic squamous epithelium was found in 64% of all cases, twice as frequent in cases with high inflammatory scores (90%) than in cases with low scores (44%). [5]

Conclusion

MacDonald and Fletcher found that cytokeratin expression in metaplastic epithelium attributed to the presence of inflammation was focally altered by inflammation. The morphologic alterations in the epithelial lining of metaplastic epithelium attributed to the presence of inflammation may also be associated with changes in the proliferative potential, thus affecting its biologic behavior.[5]

In the present case the presence of severe inflammation has attributed to the metaplastic change in the epithelium from keratinised to nonkeratinised. Proper histopathologic diagnosis is essential for the proper management of the case which affects the betterment of the patient health.

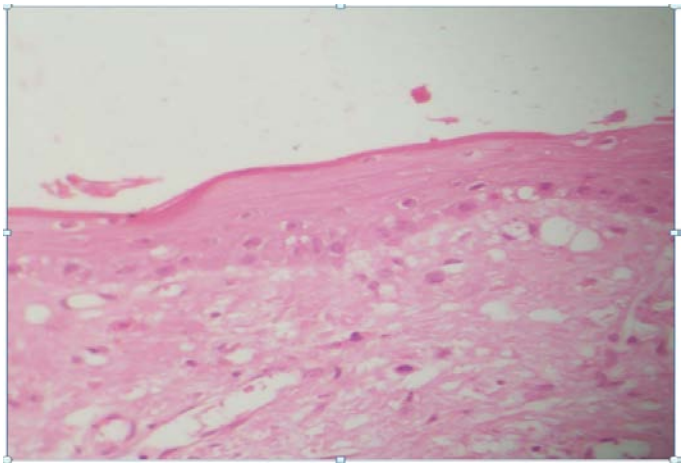
References

1. Rohan Bhede, Shruti Bohra. Radicular cyst or odontogenic keatocyst? A case report. Indian Journal of Multidisciplinary Dentistry, 2013;3: 770-74.
2. Edmund Peters, Monica Lau. Histopathologic Examination to Confirm Diagnosis of Periapical Lesions: A Review. J Can Dent Assoc 2003; 69(9):598–600.
3. Gabriel Landini. Quantitative analysis of the epithelial lining architecture in radicular cysts and odontogenic keratocysts. Head & Face Medicine 2006; 2(4): 1-9.
4. Jonathan Madras, Henry Lapointe. Keratocystic Odontogenic Tumour: Reclassification of the Odontogenic Keratocyst from Cyst to Tumour. J Can Dent Assoc 2008; 74(2):165-165h.
5. Ilana Kaplana, Abraham Hirshberg. The correlation between epithelial cell proliferation and inflammation in odontogenic keratocyst. Oral Oncology (2004) 40, 985–991.
6. S Sudhakar, V Geethika, P Ramaswamy, B Praveen Kumar, P Sreenivasulu. A Rare Presentation of Odontogenic Keratocyst Mimicking an Antral Polyp. Online Journal of Health and Allied Sciences. 2013; 12(4).
7. Jindrich Pazderaa, Zdenek Kolarb, Vitezslav Zborila, Peter Tvrdya, Richard Pinka. Odontogenic keratocysts/keratocystic odontogenic tumours: biological characteristics, clinical manifestation and treatment. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2012; 156:1-5.

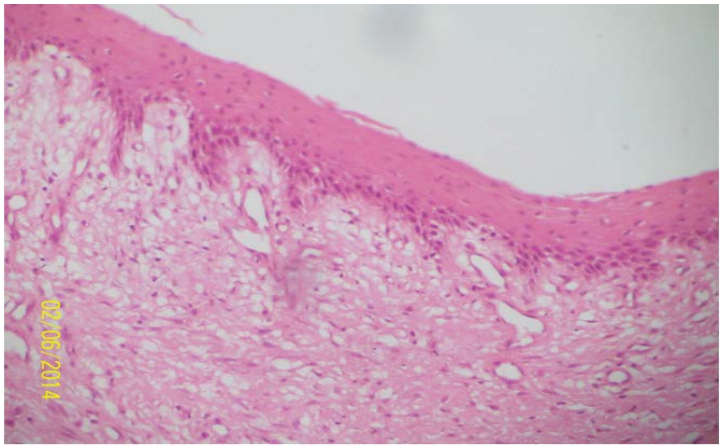
Figure Legends

1. Figure 1: photomicrograph (10x) showing parakeratinisd stratified squamous epithelial lining and connective tissue wall with loss of typical palisaded basal cell layer and tombstone appearnace.
2. Figure 2: photomicrograph (10x) showing keratinised stratified sqamous epithlium with budding.

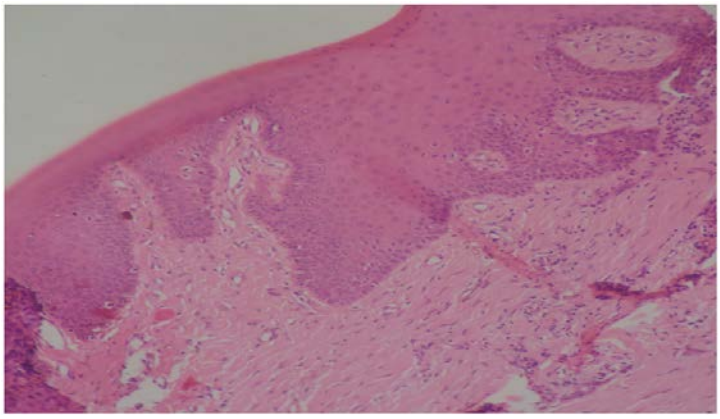
3. Figure 3: Photomicrograph (10x) showing proliferated nonkeratinised epithelium with chronic inflammatory infiltrate in the connective tissue wall.
4. Figure 4: Photomicrograph (10x) showing arcading epithelium with chronic inflammatory infiltrate in the connective tissue.



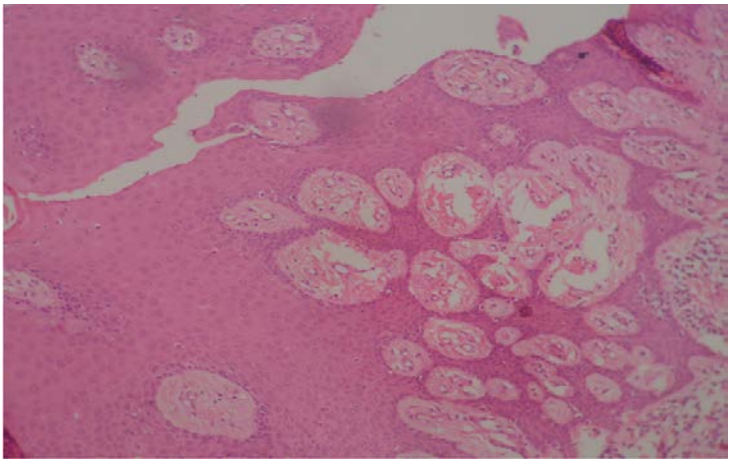
5. Figure 1: photomicrograph (10x) showing parakeratinisd stratified squamous epithelial lining and connective tissue wall with loss of typical palisaded basal cell layer and tombstone appearnace.



6 Figure 2: photomicrograph (10x) showing keratinised stratified sqamous epithlium with budding.



7 Figure 3: Photomicrograph (10x) showing proliferated nonkeratinised epithelium with chronic inflammatory infiltrate in the connective tissue wall.



8. Figure 4: Photomicrograph (10x) showing arcading epithelium with chronic inflammatory infiltrate in the connective tissue.