UNCOMMON COETANEOUS HISTOPATHOLOGICAL FINDINGS IN RADICULAR CYST: A CASE REPORT

Keshwar S[1], Shrestha A[2], Shrestha S[3], Raut T[4]*

Affiliation

1. *Assitant professor,Department of Oral Pathology, College of Dental Surgery, B.P. Koirala Institute of Health Sciences, Dharan, Nepal.*
2. *Additional professor and Head,Department of Oral Pathology, College of Dental Surgery, B.P. Koirala Institute of Health Sciences, Dharan, Nepal.*
3. *Assistant Professor, Department of Conservative Dentistry, College of Dental Surgery, B.P. Koirala Institute of Health Sciences, Dharan, Nepal.*
4. *Junior resident,Department of Oral Pathology, College of Dental Surgery, B.P. Koirala Institute of Health Sciences, Dharan, Nepal.*

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**** Corresponding Author***
Dr. Shashi Keshwar
Assistant Professor
Department of Oral Pathology
College of Dental Surgery, B.P. Koirala Institute of Health Sciences
Dharan, Nepal
Email: keshwar.shashi@gmail.com
ORCID ID: https://orcid.org/0000-0003-3638-5849

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ABSTRACT

Radicular cyst is the most common inflammatory cyst of jaw. It arises from the epithelial residues in the periodontal ligaments as a result of pulp infection. Histopathologically radicular cyst lining reveals stratified squamous epithelium with arcade like pattern in early cases or quiescent epithelial lining in long standing cases. The wall of the radicular cyst is fibrous with mixed inflammatory cells infiltrate like neutrophils, plasma cells, lymphocytes and macrophages. There are very few reported cases of juxtaepithelial hyalinization of radicular cyst. Here we report a case of radicular cyst of a 28 year old male who presented with pus discharge from anterior right maxillary region. The cyst was associated with atrophic and tenuous epithelial lining with juxtaepithelial hyalinization along with focal Russell bodies. These findings are uncommon *coeval* features of radicular cyst.

KEY WORDS

Atrophic epithelium, juxtaepithelial hyalinization, radicular cyst

INTRODUCTION

The cyst term is originated from the Greek word Kystis meaning sac or bladder.[1] Radicular cyst is the most common inflammatory cysts that is originated from the epithelial residues in the periodontal ligament as a result of death and necrosis of the pulp. It is the most common cystic lesions of the jaws, consisting of about 52.2% to 68% of all jaw cysts. Males in 4th & 5th decades of life are more commonly affected as compare to the females. Radicular cyst formation can occur in tooth bearing areas and more than half of the reported cases were present in maxillary anterior region.[1–3] Mostly radicular cysts are asymptomatic and are discovered on periapical radiographs of non-vital tooth. Radiographic presentation of radicular cyst is round or pear shaped unilocular radiolucent lesions in the periapical region.[2,4] The radicular cysts arises from inflammatory proliferation of epithelial cell rests of Malassez in the inflamed periapical tissues.[1,5] All radicular cysts are lined by stratified squamous epithelium in which nature of lining depends upon intensity of inflammation, age or stage of development of the cyst like arcading pattern in early cysts and quiescent epithelial lining in long standing case. Similarly, there are numerous histopathological morphological variation in radicular cysts like ortho-parakeratinization, vacuolization of epithelium, metaplastic changes like mucous cells and ciliated cells, cholesterol clefts, Rushton bodies, Russel bodies.[2,6,7] There are very few reported case of radicular cyst with juxta-epithelial hyalinization. Here we report a rare case of radicular cyst with juxta-epithelial hyalinization.

CASE PRESENTATION

A 28-year-old male presented with chief complaint of pus discharge from right upper front region of the jaw since one year. Patient had history of trauma eight year back on the same region. The patient has habit of smoking cigarette. The patient's medical, dental and family histories were unremarkable.

On intraoral examination, a fistula was present buccally in relation to maxillary right permanent lateral incisor region. Root canal treatment was done in permanent right maxillary lateral incisor and central incisors. A swelling approximately 2x2 cm was present palatal to right permanent maxillary central and lateral incisors and right canine. Right permanent maxillary central, lateral and canine were tender on percussion.

Cone beam computed tomography (CBCT)evaluation revealed well defined roughly oval shaped radiolucency in relation to right permanent maxillary central and lateral incisors and canine approximately 3x3 cm having well corticated margins with palatal bone loss. (Figure 1A)

Figure 1A : CBCT revealed well defined roughly oval shaped radiolucency in anterior maxillary region approximately 3 x 3 cm having well corticated margins with palatal bone loss.

Surgical exploration and enucleation of the cyst was done under local anaesthesia. The healing was uneventful.

The excised tissue was fixed in 10% neutral buffered formalin. Gross examination revealed creamish brown colour soft tissue specimen measuring approximately 1.7x1.7 cm in greatest dimension, firm in consistency (Figure 1B). Six sections were made after dissection and all the specimens were sent for routine histopathological processing.

Figure 1B- Gross examination revealed creamish brown colour soft tissue specimen measuring approximately 1.7x1.7 cm.

The histopathological features revealed an atrophic stratified squamous epithelium with flat epithelial connective tissue interface. Areas of tenuous epithelial lining with juxta-epithelial hyalinization were evident.The underlying connective tissue is fibrous with inflammatory cells infiltrate predominantly lymphocytes and plasma cells. Focal areas of Russell bodies were also evident (Figure 2A and 2B). Correlating clinically, the histopathological features were suggestive of radicular cyst.

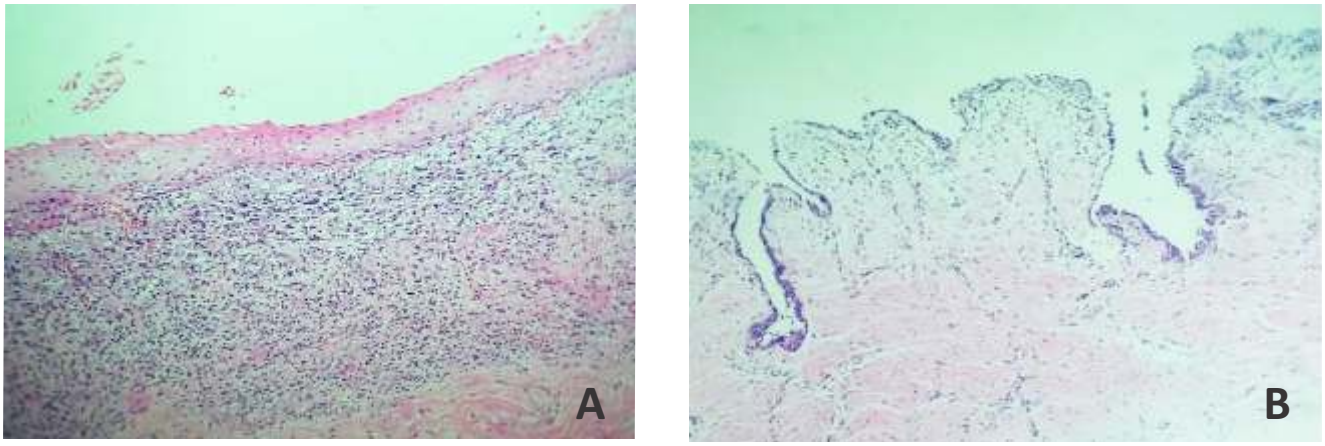

Figure 2- (A) Atrophic stratified squamous epithelium with flat epithelial connective tissue interface (10X), (B) Areas of tenuous epithelial lining with juxta-epithelial hyalinization with fibrous connective tissue capsule along with sparse inflammatory cells infiltrate (10X).

DISCUSSION

Radicular cysts are described as most common inflammatory odontogenic cysts of endodontic origin. It is developed from inflamed granulation tissue and enclosed by a fibrous capsule.[8] Gross examination of intact radicular cyst generally display a thick wall encompassing the cystic lumen but frequently multiple fragments of tissue are submitted for gross examination as these radicular cysts are friable and incompletely formed at the time of excision or curettage that controvert the cystic nature of the lesion.[6] Brownish color fluid may be present in intact radicular cysts because of the breakdown of blood.[6] On aspiration shimmering crystals of cholesterol may also be present in the lumen.[6,9]

Histopathologically, the radicular cysts are lined by stratified squamous epithelium which is generally proliferative, irregular with arcade like pattern. Epithelium may exhibits area of ulceration with polymorphonuclear leukocytes migration. Mucous cell differentiation has also been identified in radicular cyst. Occasionally epithelium may exhibits hyaline bodies called as Rushton bodies. The wall of the radicular cyst is composed of fibrous connective tissue having variable inflammatory cells infiltrate like neutrophils, lymphocytes, histiocytes, mast cells, plasma cells and Russell bodies. The cystic wall may also contain cholesterol cleft along with foreign body giant cells.[2,6] When inflammation intensity is less and as the cyst enlarges the epithelium becomes quiescent and fairly regular with a certain degree of differentiation resembling simple stratified squamous epithelium.[2] Absence of inflammation can lead to thinning of epithelium lining and there may be more or less juxta-epithelial hyalinization, extensive hyalinization leads to degenerated and tenuous epithelium.[10] As the cyst enlarges distant site from the apex gets less antigenic stimulus leading to less inflammation causing cystic lining to become quiescent and fairly regular.[2] Our findings in present case also correlates with this features. There are very few reported cases of juxtaepithelial hyalinization in the radicular cyst.

Occasionally metaplastic changes in the form of mucous cells and ciliated cells were observed in the past.[2] There are very few reported cases of squamous cell carcinoma arising from epithelial lining of the radicular or residual cyst. The exact mechanism of the malignant transformation of the odontogenic cystic lining is unknown but long standing chronic inflammation can be taken into consideration. The relation between chronic inflammation and malignant transformation is proved.[11] So it is mandatory to evaluate every radicular cyst carefully and look for any discrepancy in the lining epithelium and it must be reported to the clinician for regular follow up of the patient to avoid future intricacy.

CONCLUSION

As radicular cyst is the most common cyst of the oral cavity and it is uncommon to find radicular cyst with atrophic and tenuous epithelium with juxtaepithelial hyalinization. It can cause a diagnostic dilemma with other cyst having similar histopathological features like dentigerous cyst. Moreover it is mandatory to evaluate the cystic lining of radicular and other odontogenic cysts for any malignant changes into epithelium.

PATIENT CONSENT

The written consent was obtained from the patient.

CONFLICTS OF INTEREST

None

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