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A Rare Large Residual Cyst of the Mandible

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Abstract

Introduction: A residual cyst is a periapical cyst persisted after its associated tooth had been extracted.

Case Presentation: A 59-year-old Iranian man complaining of a dull pain in his left side of the mandible after falling down one month ago was referred to the department of oral and maxillofacial pathology, Hamadan University of Medical Sciences, Iran. Panoramic film revealed a radiolucent lesion and fracture of the mandible at the right side. An excisional biopsy was obtained. Based on the histopathologic findings, residual cyst was diagnosed.

Conclusions: We reported a rare case of large residual cyst. Dental practitioners should consider this lesion in the differential diagnosis of radiolucent lesions of the jaw bone.

Keywords: Cysts, Tooth, Odontogenic Cyst, Calcifying

1. Introduction

A true cyst is defined as a space-occupying lesion with an outer wall of fibrous connective tissue which is lined by epithelium (1, 2). Radicular cyst develops from epithelial remnants stimulated by an inflammatory process originating from a non-vital tooth (3). When the periapical inflammatory tissue is not curetted after tooth extraction, the periapical lesion remains within the jaw bones as a residual cyst (3,4). With the time the cyst may regress, remain static and grow in size (3, 4). Large odontogenic cysts within the jaw bone are uncommon (3, 4), so the aim of this study was to report a large residual cyst that caused mandible fracture.

2. Case Presentation

A 59-year-old Iranian man was referred to the department of oral and maxillofacial pathology, Hamadan University of Medical Sciences, Iran in 2014, with a chief complaint of a dull pain presenting after falling down one month ago, but at that time, he did not have any pain or paresthesia. He only complained of an Mocusal ulcer in that area from 2-3 years ago, which he thought to be because of the flanges of complete denture. Extraoral examination revealed a swelling in the right side of mandible. The patient was edentulous and had complete denture. The swelling was firm with eggshell crackling on palpation. The patient had no remarkable medical history. Panoramic film revealed a radiolucent lesion and fracture of the mandible at the right side (Figure 1).

Radiolucency extended from the crest of alveolar ridge to the inferior border of mandible. Based on clinical and radiographic findings, a differential diagnosis of odontogenic keratocyst, residual cyst and ameloblastoma was considered. Excisional biopsy was performed (Figure 2). A fine-needle aspiration revealed a yellow colored viscous fluid. The specimen was sent for histopathological evaluation. Histologic examination revealed presence of several sections of a cystic epithelial lining composed of stratified squamous epithelium, which had various thicknesses. Epithelial lining of this cyst showed hyperplasia, exocytosis, spongiosis and linear or arch-shaped calcifications (the Rushton bodies) in some areas of this epithelial lining. Dystrophic calcifications and bleeding were found in the lumen of cyst. Connective tissue wall composed of collagen fibres, fibroblasts, inflammatory cells, blood vessels containing RBC, bleeding and cholesterol clefts together with multinucleated cells (Figure 3). Based on these features, the diagnosis of residual cyst was considered.

3. Discussion

Odontogenic lesions within the jaw are uncommon, especially in elderly and when they are present they are more of odontogenic keratocyst, ameloblastoma or dentigerous cyst (3). Residual cysts are cysts with inflammatory source, which have an indolent growth and are mostly associated with apical area of teeth and comprise 10% of odontogenic cysts (5). Most of the residual cysts are asymptomatic according to pervious reports (3, 5) and are more common

Figure 1. Panoramic view shows a, Radiolucency Extended From Crest of Alveolar Ridge to the Inferior Border of Mandible at Right Side

Figure 2. Gross Examination Showing Cystic Lesion

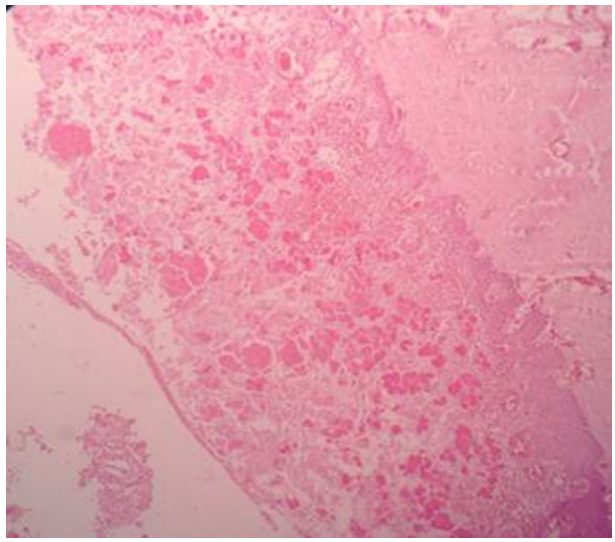

Figure 3. Histologic Examination Revealed Presence of Several Sections of a Cystic Epithelial Lining Composed of Stratified Squamous Epithelium With Various Thicknesses. Epithelial Lining of This Cyst Showed Hyperplasia, Exocytosis and Spongiosis

in Maxilla than Mandible and occur more often in men than women and the average year of diagnosis is 52 years old (5). The presented case in this study was a 59-year-old man. The case reported here, had indolent growth and caused mandibular fracture. Radiographic examination of residual cyst showed a well-defined radiolucency with sclerotic border in edentulous area (5). Our case had same radiographic features and panoramic film revealed a radiolucent lesion and fracture of the mandible at the right side. Residual cysts commonly occur in the alveolar ridge and body of the mandible and maxilla and the maxilla is more commonly involved than the mandible (5-9). Our case occurred in the alveolar ridge of mandible. In histologic examination of our case, dystrophic calcifications were seen. Cholesterol crystals in our case were similar to report of Sridevi et al. (5). High et al. reported cholesterol crystals in the cystic fluid (10). They reported that the major source of cholesterol could be due to disintegrating red blood cells which were crystallized in the tissues and accumulation of serum in the tissues, because of inability of normal lymphatic drainage to get access to this extravasated serum (10). Also, disintegration of plasma cell, lymphocytes, macrophages and circulating plasma lipids were another reason (5). Upon deposits of cholesterol crystals within fibrous capsule, they would be recognized as foreign bodies, which causes foreign body giant cell reaction (5). These crystals become dissolved and clefts become surrounded by multinucleated giant cells (5). Although odontogenic keratocyst and ameloblastoma were in differential diagnosis, when the residual cyst shows calcifications as our case, other lesions with mixed radiopaque-radiolucent appearance should be considered in differential diagnosis, such as odontoma, periapical cemento-osseous dysplasia, adenomatoid odontogenic tumor and pindborg tumor (5). Odontogenic keratocyst has a distinct histologic appearance comprising of epithelial lining of 6-8 layer thickness, which has corrugated parakeratinized surface and palisaded basal layer (4). Ameloblastoma has a well-recognized microscopic appearance consisting of ameloblastin epithelium, in which the basal cells are cuboidal or columnar with hyperchromatic nuclei that shows reverse polarity (away from basement membrane) and superficial epithelial cells are loosely cohesive and resemble stellate reticulum (4). Odontomas include calcified material of enamel or den-

tine, which can be amorphous as complex odontoma or tooth like structures (compound odontoma) (5, 11). Periapical cemento-osseous dysplasia seen in edentulous patient intend to have circular or ovoid radiolucency with central radiopaque mass crescent in shape (12). Adenomatoid odontogenic tumor is more common in maxilla, especially in anterior region than mandible and it is most of the time associated with impacted tooth and upon microscopic observation, one can see odontogenic epithelium which form duct-like structures (4). The calcifying odontogenic cyst has distinctive microscopic appearance consisting of 4-10 layers of odontogenic epithelium, similar to what seen in ameloblastoma and the basal cells are cuboidal to columnar and the superficial cells are loosely arranged and resemble stellate reticulum (13). However, the most characteristic histopathologic feature is presence of eosinophilic ghost cells, which are believed to be altered epithelial cells characterized by loss of nuclei and preservative of cell outline (13). Although the radiographic appearance is radiolucent cavity containing radiopaque foci, these cysts are more common on maxillary anterior region and associated with impacted tooth and cause root resorption (13). Calcifying epithelial odontogenic tumor has specific microscopic features and radiographic appearance. Although it is a mix radiolucent-radiopaque, the appearance of radiopaque foci is distinctive and termed as driven-snow appearance (4). Histopathologic examination of the present case showed presence of cystic epithelial lining composed of stratified squamous epithelium with various thicknesses. Epithelial lining of this cyst showed hyperplasia, exocytosis, spongiosis and linear or arch-shaped calcifications (Rushton bodies); there were dystrophic calcifications and bleeding inside the cystic lumen. Connective tissue wall composed of collagen fibres, fibroblasts, blood vessels and cholesterol clefts and corresponding multinucleated giant cells. The treatment of choice for residual cyst is surgical enucleation (5) and as in our case mandibular resection because of large size fracture. While it is rare and uncommon, residual cysts should be considered in differential diagnosis of jaw swellings that have radiolucent or radiolucent-radiopaque appearance in radiographic examinations in the edentulous areas. Dental practitioners should keep in mind that small and asymptomatic radiolucencies can be enlarged with time and cause such complications for patient.

Footnote

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References

1. Kramer IR. Changing views on oral disease. *Proc R Soc Med.* 1974;**67**(4):271–6. [PubMed: 4616250].
2. Kadam NS, Ataide Ide N, Raghava P, Fernandes M, Hede R. Management of large radicular cyst by conservative surgical approach: a case report. *J Clin Diagn Res.* 2014;**8**(2):239–41. doi: 10.7860/JCDR/2014/5763.4069. [PubMed: 24701544].
3. Dimitroulis G, Curtin J. Massive residual dental cyst: case report. *Aust Dent J.* 1998;**43**(4):234–7. [PubMed: 9775468].
4. Neville B, Damm DD, Allen CM, Bouquot J. Oral and Maxillofacial Pathology. 3rd ed. St. Louis: Saunders; 2009.
5. Sridevi K, Nandan SR, Ratnakar P, Srikrishna K, Vamsi Pavani B. Residual cyst associated with calcifications in an elderly patient. *J Clin Diagn Res.* 2014;**8**(2):246–9. doi: 10.7860/JCDR/2014/7593.4072. [PubMed: 24701547].
6. Lovestedt SA, Bruce KW. Cysts of the incisive canal with concrements. *J Oral Surg (Chic).* 1954;**12**(1):48–53. [PubMed: 13118416].
7. Browne RM, Rowles SL, Smith AJ. Mineralized deposits in odontogenic cysts. *IRCS Med Sci-Biochem.* 1984;**12**(7):642–3.
8. Krithika C, Kota S, Gopal KS, Koteeswaran D. Mixed periapical lesion: differential diagnosis of a case. *Dentomaxillofac Radiol.* 2011;**40**(3):191–4. doi: 10.1259/dmfr/89370676. [PubMed: 21346087].
9. Cabrini RL, Barros RE, Albano H. Cysts of the jaws: a statistical analysis. *J Oral Surg.* 1970;**28**(7):485–9. [PubMed: 5269210].
10. High AS, Hirschmann PN. Age changes in residual radicular cysts. *J Oral Pathol.* 1986;**15**(10):524–8. [PubMed: 2435872].
11. Stavrou E, Tosios KI, Stavrou IE. Globular radiopacity around the apex of an impacted maxillary third molar. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2007;**103**(5):594–8. doi: 10.1016/j.tripleo.2006.11.050. [PubMed: 17331757].
12. Summerlin DJ, Tomich CE. Focal cemento-osseous dysplasia: a clinicopathologic study of 221 cases. *Oral Surg Oral Med Oral Pathol.* 1994;**78**(5):611–20. [PubMed: 7838469].
13. Shojaei S, Jamalpour R, Modabbernia S, Jamshidi S. Ameloblastomatous Calcifying Odontogenic Cyst: A Rare Lesion. *Avicenna J Dent Res.* 2014;**6**(1):ee21216. .