Radicular cyst- a case report

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A 21 Year old Male Patient came to our Department of Oral Medicine, Diagnosis and Radiology, Vinayaka Missions sankarachariyar Dental college with a Chief complaint of Pain in decayed broken Upper front tooth region for the Past 1 Year. Patient gives history of frequent food lodgement in upper front tooth region for past 2 years, which he neglected to do the dental treatment so his upper front tooth gradually progressed to cavitation (decayed) and the tooth got broken accidentally during mastication of food (due to weakening of the tooth structure due to demineralization of inorganic and organic substances in tooth caused by dental caries) following
which pain started in upper front tooth region for the past 6 months which was chronic in onset, dull, intermittent, non-radiating in nature in upper front tooth region and so he came to our Out Patient Department for Treatment.

On intraoral examination- Grossly decayed tooth in 12. No Expansion of buccal and Lingual cortical Bone in relation to 12. IOPA (Intraoral Periapical Radiograph) reveals a well defined radiolucency greater than 1.5 cm in diameter bordered by a radiopaque sclerotic border in relation to 12 suggestive of a Radicular cyst in relation to 12.

**INTRAORAL EXAMINATION**

![IOPA](image_url)

**IOPA**
Treatment:

The root stump 12 is extracted and Analgesic Ketorolac 10 mg twice daily for 5 days and Lincosamide Antibiotic Clindamycin 300 mg Twice daily was prescribed for 1 week. Patient got relieved of his tooth Pain and healing appears satisfactory.

**EXTRACTED ROOT STUMP 12 WITH PERiapICAL CYST**

![Extracted Root Stump](image)

Discussion:

Radicular cyst is the most common odontogenic cyst occurring in the Jaws\(^1\). The periapical cyst is usually initiated by Dental caries or Trauma or Periodontally diseased tooth which causes the necrosis (death) of the Pulp tissue. This necrotic pulp stimulates the rests of malassez\(^2\) within the Periodontal Ligament that results in the formation of epithelial lining in a Radicular cyst. Radicular cyst (Periapical cyst or Root-end cyst) develops from a pre-existing Periapical granuloma, which is a focus of chronically inflamed granulation tissue formed in bone due to the presence of chronic low grade inflammation located at the apex of a non-vital tooth. The cells of central portion of mass become separated further and further from nutrition in comparison with basal layer due to which they fail to obtain sufficient nutrition, they eventually degenerate, become necrotic and liquify. This creates an epithelium lined cavity filled with fluid.\(^3\)
Breakdown of cellular debris. Presence of Hyaluronic acid within the cystic lumen raises its protein concentration causing an increase in osmotic pressure inside the cystic lumen which results in fluid transport into the cystic lumen, which causes outward growth of the cyst.

With osteoclastic bone resorbing factors, resorption of the surrounding alveolar bone occurs and the cyst expands. Other bone resorbing factors such as Prostaglandins, Interleukins from inflammatory cells in the peripheral portion of the cyst permit additional enlargement of Radicular cyst.

Radicular cyst is common in the third to sixth decade. Most Radicular cysts are located in the anterior maxillary region. Radicular (root-end or Periapical cyst) is usually painless and asymptomatic but becomes painful when infected and are often discovered accidentally during routine dental radiographic examination. Untreated large Periapical cyst can cause external root resorption of involved tooth and pathological migration of tooth. Untreated Radicular cyst causes expansion of the cortical plate. In Maxillary jaw, Radicular cyst may cause buccal and palatal cortical plate expansion. Whereas in mandible it is usually causes labial or buccal cortical plate expansion and only rarely lingual cortical plate expansion.

Recent evidence suggests that the development of Periapical cyst are mediated by immunocompetent cells in the cystic fluid of Periapical cyst and the discontinuity in the epithelial linings of most Periapical cysts. Activated epithelial cell rests of Malassez can obtain antigenicity or become recognized as antigens and consequently elicit immunological reactions.

References: