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| **Name:** |
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| **Pathology Question:** |
| What are periapical abscesses, granulomas and cysts? How do you tell the difference between them? |
| **Report:** |
| All three of these lesions are “periapical” lesions meaning they affect the apical portion of teeth that they are affecting.  A periapical granuloma is caused by pulp nercrosis of the tooth. The tooth can die from trauma or infection, either way this lesion is associated with a non-vital tooth. This necrotic pulp causes inflammation reaction at the apex of the tooth. This forms granulation tissue, which is a combination of fibroblasts, lymphocytes, blood vessles, connective tissue, and scar tissue. This inflamed tissue is continuous with the PDL, and this inflammation is considered to be chornic. Around 20% of periapical granulomas progress to periapical cysts. These lesions are often painless as well, so patients are often asymptomatic.The name is a misnomer, as this is not technically granuloma but rather just granulation tissue.  This chronic inflammation from a periapical granuloma has the potential to stimulate a periapical cyst formation, which originates from the epithileal rests of Malassez in the alveolus. The epithileal rest of Malassez are triggered to proliferate into a mass of cells within the granuloma. The rest cells in the center of this are broken down, thus creating the liquid central portion of the cyst, and an epithileal layer of cells lining this cavity. This epithileal layer of cells of the cyst is what distinguishes it from a periapical granuloma. This cyst is a pathologic cavity with fluid in it, that may also cotain Cholesterol crystals, with an epithileal lining, and a connective tissue capsule surrounding all of it. This cyst can be further broken down into two more distinct cys: a true cyst and a pocket cyst. A pocket cyst is an epithelium contained cavtity that is open towards the root canal of the affected tooth. A true cyst is is completely enclosed by epithleal lining and independent of the affected tooth. Periapical cysts are more common in the anterior maxilla, which supports the theory that trauma may trigger the proliferation of these cells as well. These lesions are slow growing, don’t exhibit large sizes, and patients often feel no pain except for acute instances of inflammation. Cysts and granulomas are usually found during routine radiographic examinations.  Periapical granulomas and periapical cysts are not distinguishable on a radiograph, as both are root associated, well-defined radiolucencies, with scerlotic margins of the lesion.  Periapical abscess are caused too caused by infection of the pulp that pulp from bacteria, trauma, or can even be caused by periodontal insult from endo treatment. This kind of infection results in pus filling a cavity (abscess), that can train intraorally or extraorally. This pus is made up of dead WBCs, and blood leaked out due to vasodilation from the inflammation process, and necrotic tissue from proteolytic enzymes trying to protect the body from the bacterial infection. This pus leaks into the apex of the tooth into the PDL space after pulpal necrosis when your body is trying to fight off the infection. Histologically this lesion presents with many leukocytes and dilated blood vessels. This lesion is often painful, due to the pus accumulation at the apex that presses on surrounding structures and nerve tissue. There can be chronic periapical abscess which tend to progress slower, and acute periapical abscess that progress rapidly.  When trying to differentiate between these lesions, it is nearly impossible to do radiographically. They all present as a radiolucency near the apex of the tooth. The method for differentiating between these 3 lesions is histologically. This histo section is usually done post operatively, though this is not always done because these lesions normally often resolve with RCT. The two methods for treating this periapical pathologies is a RCT or extraction. Choosing between these two is not based on the lesion present, but rather the restorability of the tooth, and the patient’s desires. |
| **References:** |
| [Endodontic Periapical Lesion: An Overview on the Etiology, Diagnosis and Current Treatment Modalities](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7398993/)  Kasra Karamifar, Afsoon Tondari, Mohammad Ali Saghiri  Eur Endod J. 2020; 5(2): 54–67. Published online 2020 Jul 14. doi: 10.14744/eej.2020.42714  PMCID: PMC7398993  Modern Surgical Pathology: Second Edition.  Noel Weidner, Richard Cote, Saul Suster, Lawrence Weiss  Published on 2009 June 29  Current Therpay in Oral And Maxillofacial Surgery  Shelly Abramowicz, Bonnie Padwa  Published in 2012 Comparative evaluation of immunochemistry, histopathology, and conventional radiography in differentiatin periapical lesions Journal of Conservative Dentistry  Prahlad Saraf, Sharad Kamat  Published in March 2014 |