

# Differential Diagnosis between Periapical Inflammatory Lesions and Cemental Dysplasia

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**Abstract:** *The diagnosis and the clinical way of treatment the inflammatory periapical lesions is a common issue in the dental office. Instead of the most often seen lesions as periapical granuloma and the radicular cyst there is other non inflammatory pathology that can imitate them. Differentiating them and choosing the right way of treatment is essential for the outcome of the patient. One of these lesions is the periapical cemental dysplasia. It is one of the most common fibro-osseous lesions in the periapical tooth region. It develops asymptotically and has three stages. The first one is a radiolucency forming around the apex of the tooth with a possible loss of lamina dura of the surrounding alveolar bone and in that way it imitates an inflammatory process. The next stage is characterized by a mix of radiolucencies and radiopacities. The next stage is a complete radiopacity of the periapical region of the tooth with a border of radiolucency. We are presenting a case of a periapical cemental dysplasia.*

**Keywords:** Inflammatory periapical lesions, cemental dysplasia, fibro-osseous lesions

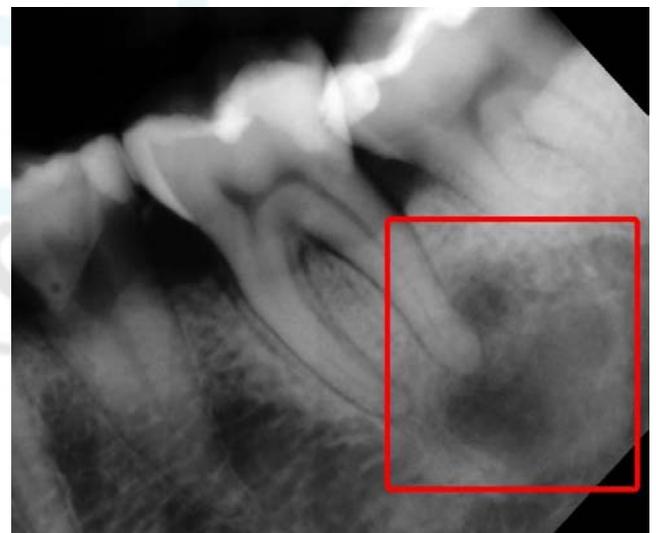
## 1. Introduction

The most common pathologic conditions in the alveolar bone derived from necrotic dental pulp are periapical lesions ([0],[2],[3]). Periapical granuloma and radicular cyst can be considered as the most important lesions, which can be seen in the teeth with necrotic pulp or improper root canal therapy ([3],[4]). The treatment of inflammatory periapical lesions is extraction, root canal therapy, apical surgery, or in some cases, the combination of these.[5] Some lesions with non-inflammatory origin can mimic them. Periapical cemental dysplasia (cementoma) is one of the most common subtypes of the jaw fibrous lesions that often involves the periapical region of the anterior mandible. This lesion is usually asymptomatic ([6]). The histopathologic features show the cellular mesenchymal tissue and collagen fibers with small blood vessels, a mixture of woven or lamellar bones, and cementum-like particles ([6],[7]). It has three stages of maturation based on radiographic features. In early stage, it has well-defined unilocular radiolucency feature rounding the root apex, and there is loss of lamina dura. In this stage, the lesion is similar to some endodontic inflammatory lesion such as dental granuloma or radicular cyst ([6],[7]). The second stage of maturation, also known as mixed stage, can be seen as the radiopaque components within the radiolucent area. In final stage, the lesion may be totally radiopaque with radiolucent border. To differentiate these lesions from endodontic lesions, in addition to the pulpal vitality testing, radiographic follow-up and histopathologic analysis is very important and helpful ([5],[8],[9]).

## Aim

To present two cases of periapical cemental dysplasia and to help the dentists diagnose this condition.

## Clinical Case 1



A healthy female patient was referred to Assoc. Prof. Stanimirov for evaluation of an asymptomatic radiolucency at the apex of the first mandibular molar. Following a clinical evaluation that included pulp testing, a diagnosis of periapical cemental dysplasia was made. No treatment was rendered but follow-up visits were recommended.

## Clinical Case 2



A healthy male patient was referred to prof. Stanimirov for evaluation of an asymptomatic radioopacity surrounded with radiolucency at the apex of the lower right K9. Following a clinical evaluation that included pulp testing, a diagnosis of periapical cemental dysplasia was made. No treatment was rendered but follow-up visits were recommended.

## 2. Results and Discussion

At the time of observation of any periapical lesion, the first probable diagnosis is inflammatory endodontic lesion. Thus, in the first step, medical and dental history as well as intraoral examination including dental and periodontal evaluations should be done. History of any kind of pain or teeth hypersensitivity should be recorded. Most of inflammatory periapical lesions have no symptom until acute inflammatory reaction. Swellings or displacement of the adjacent teeth have been observed only in very large lesions. Radiographic evaluations are very important to differentiate lesions from each other. Lesions of endodontic origin do not separate from root apex by changing the view of x-ray radiation. In the final step, pulpal vitality tests including thermal and electrical tests can be useful for diagnosing vital from nonvital teeth. Although, the results of tests are not always definitive, the teeth with periapical inflammatory lesions most often do not respond to vitality tests

## 3. Conclusion

To avoid any mistreatment, the dentist should know all odontogenic and nonodontogenic lesions that may present in periapical areas. It is recommended to perform paraclinical tests especially vitality tests in addition to clinical and radiographic examinations. In suspicious cases, biopsy of the lesion, referral to the pathologist, and long-term follow-up is required.

## References

[1] Liapatas S, Nakou M, Rontogianni D. Inflammatory infiltrate of chronic periradicular lesions: an

immunohistochemical study. *IntEndod J.* 2003; 36(7):464–71.

- [2] Gusiyska A. Cone Beam Computed Tomography in the Diagnosis of Chronic Apical Periodontitis and Clinical Decisions. *International Journal of Science and Research* 2015;4(2):1655-1659.
- [3] Ricucci D, Mannocci F, Ford TR. A study of periapical lesions correlating the presence of a radiopaque lamina with histological findings. *Oral Surg Oral Med Oral Pathol Oral RadiolEndod.* 2006;101(3):389–94.
- [4] Gusiyska A. Periapical resorptive processes in chronic apical periodontitis: An overview and discussion of the literature. *Journal of IMAB* 2014;20(5):601-605
- [5] Gusiyska A. Some Problems and Decisions in Endodontic Practice. *International Journal of Current Research* 2015;7(06):17374-17378
- [6] Peters E, Lau M. Histopathologic examination to confirm diagnosis of periapical lesions: a review. *J Can Dent Assoc.* 2003;69(9):598–600
- [7] Ortega A, Farina V, Gallardo A, et al. Nonendodontic periapical lesions: a retrospective study in Chile. *IntEndod J.* 2007;40(5):386–90.
- [8] Gallego Romero D, Torres Lagares D, Garcia Calderon M, Romero Ruiz MM, Infante Cossio P, Gutierrez Perez JL. Differential diagnosis and therapeutic approach to periapical cysts in daily dental practice. *Med Oral.* 2002;7(1):54–8.
- [9] Kuc I, Peters E, Pan J. Comparison of clinical and histologic diagnoses in periapical lesions. *Oral Surg Oral Med Oral Pathol Oral RadiolEndod.* 2000;89(3):333–7.