

## Clinical and radiographic evaluation of overfillings during endodontic treatment.

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**Abstract**

Traditional endodontic teaching defines overfills as extending the endodontic filling material either laterally or vertically into the attachment apparatus. It could be either a surplus after three-dimensional obturation, which is accepted; or an overextension of gutta-percha, which is related as one of the cause of endodontic failure. The aim of this study was to evaluate clinically and radiographically the periapical status of the cases of overfilling during the endodontic treatment performed by undergraduate students of the Piracicaba Dental School. The mean time between the date of root-filling and the follow-up appointment was  $9.48 \pm 2.40$  months, and complete resorption of the endodontic sealing was observed in 55.5% (11/18) of the cases, occurring in  $9.69 \pm 2.58$  months. It was concluded that clinical and radiographic periapical healing also occurs in teeth with overfilling.

**Key words:**

Root canal filling, Follow-up, Endodontics

Traditional endodontic teaching defines overfills as an extending of the endodontic filling material either laterally or vertically into the periodontal ligament. It could happen as a overobturation after three-dimensional obturation, which is accepted; or an overextension of gutta-percha, which is related as one of the cause of endodontic failure. The aim of this study was to evaluate clinically and radiographically the periapical status of the cases of overfilling during the endodontic treatment performed by undergraduate students of the Piracicaba Dental School - UNICAMP.

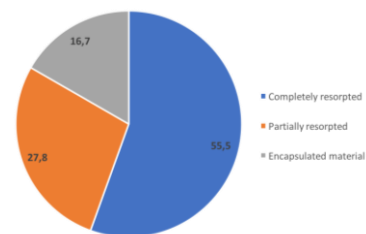
**Results and Discussion**

A single operator performed the clinic and radiographic examination, who evaluated the regression of the periapical lesion, encapsulation and/ or resorption of the endodontic sealer. Among 185 endodontic treatment performed during the first semester of 2017, 72 presented overfilling and 18/72 patients attended their scheduled follow-up appointment, which consisted of clinical and radiographic examination. As a result, there was a prevalence of adequate restoration (11/18), periodontal health (16/18), normal response to the vertical percussion (16/18) and normal response to the palpation test (13/18). Abscess was absent in all cases. The mean time between the date of root-filling and the follow-up appointment was  $9.48 \pm 2.40$  months, and complete resorption of the endodontic sealing was observed in 55.5% (11/18) of the cases, occurring in  $9.69 \pm 2.58$  months.

**Table 1. Dental group with overfilling**

Maxillary Central Incisor	7
Maxillary Lateral Incisor	23
Maxillary Canine	9
Maxillary Premolar	31
Maxillary Molar	18
Mandibular Central Incisor	6
Mandibular Lateral Incisor	2
Mandibular Canine	5
Mandibular Premolar	31
Mandibular Molar	23

Figure 1: Radiographic condition of endodontic sealer



The physicochemical properties, especially solubility in water, of the endodontic sealer can influence the resorption on the periradicular tissue. In addition, the type of sealer can also influence on this result<sup>1</sup>.

To explain the reason of a completely success of cases with overfilling of the endodontic sealer associated with teeth with periapical lesion is that the infection is not caused by cytotoxicity of the filling material, but is usually caused by a concomitant infection<sup>1</sup>.

The large number of premolars with overfilling of sealer can be explained by the anatomical variation. Also, the ethnicity of the population can influence this anatomical variation. It is important to consider on Brazilian's population because of the miscegenation among various civilizations in the world<sup>2</sup>.

**Conclusions**

It was concluded that there are different patterns of apical extravasation and different levels of periapical repair in overfilling teeth.

**Acknowledgement**

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<sup>1</sup> Ricucci, D.; Rôças, I.N.; Alves, F. R. F.; Loghin, S.; Siqueira J, J.F. Apically Extruded Sealers: Fate and Influence on Treatment Outcome. *J Endod.* **2016**, *42*, 2.

<sup>2</sup>Ordinola-Zapata, R.; Bramante, C. M.; Minotti, P. G.; Cavenago, B. C.; Gutmann, J. L.; Moldauer, B. I.; Versiani, M. A.; Duarte, M. A. H. Micro-CT evaluation of C-shaped mandibular first premolars in a Brazilian subpopulation. *Int Endod J.* **2014**, *807-13*.