Endodontic Treatment of a Maxillary Lateral Incisor
Presenting *Dens Invaginatus* and Transposition to the Region of the Canine - Case Report

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Endodontic treatment was performed in a maxillary lateral incisor presenting two different types of anomalies: *dens invaginatus* and transposition to the region of the canine. The two transposed teeth were subsequently restored with light-cured composite, bringing dental esthetics to normal in a single session.

**Key Words:** *dens invaginatus*, dental transposition, esthetic restoration.

**Introduction**

Numerous clinical cases of anatomical alterations of the maxillary anterior teeth have been reported since the end of the last century. Among these teeth (central and lateral incisors and canine) the one which presents the greatest number of developmental abnormalities (*dens invaginatus*, talon cusps and radicular grooves) is the lateral incisor, due to its localization in a region of great embryological risk.

*Dens invaginatus* is an anomaly of development resulting from the deepening or invagination of the enamel organ into the dental papilla, beginning at the crown and often extending to the root, which occurs before the calcification of the dental tissues.

This anomaly is also known as *dens in dente*, dilated composite odontoma or gestant anomaly. Type 1 and Type 2 *dens invaginatus* from Oehlers' classification (Oehlers, 1957) represent no problem for endodontic treatment. The invagination of Type 3, however, poses greater difficulty to endodontic therapy, by the necessity of surgical completion.

Another anomaly that may occur in the maxillary anterior region is the interchanging of position between teeth. The canine frequently changes its normal place, occupying the position of the lateral incisor or of the first premolar (Thoma, 1954).
The objective of the present paper is to report a case of simultaneous occurrence of Type 2 *dens invaginatus* in a maxillary lateral incisor and transposition between this tooth and the canine, as well as to describe the endodontic treatment of the lateral incisor and the restoration of the patient's dental appearance.

**Case report**

A twenty year old white woman was admitted to the Endodontic Clinic of the University of Ribeirão Preto, complaining about spontaneous pain in the right maxillary lateral incisor.

The clinical examination revealed that the lateral incisor presented a cuneiform shape and was transposed to the region of the canine (Figure 1A,B). The pain was localized and the patient was able to securely identify the causative tooth. The lateral incisor was slightly sensitive to percussion, but insensitive to touch or thermal tests.

The roentgenographic examination disclosed the presence of Type 2 *dens invaginatus* of the right maxillary lateral incisor, with no alteration of the periodontal bone plate (Figure 1C).

The invaginated enamel was removed with diamond points, according to Pécora et al. (1987) and Vansan (1990), and endodontic treatment was performed by conventional methods (Figure 1F).

Once the endodontic treatment was completed, the lateral incisor was restored with light-cured composite (P50, 3M), but anatomically shaped as a canine, while the crown of the canine had its shape esthetically recomposed as a lateral incisor, by using the same resin (Figures 1D,E).

Finally, the patient's occlusal balancing was tested in protrusion as well as in lateral movement.

**Discussion**

The maxillary lateral incisor is more likely to present *dens invaginatus* than any other tooth. Conventional endodontic treatment may be performed with no problem in the case of Type 1 or Type 2 *dens invaginatus* (Pécora, 1987), but Type 3 requires additional surgery.

The lateral incisors presenting *dens invaginatus* are commonly cuneiform, producing an esthetically unpleasant aspect. In the case now reported, besides the cuneiform aspect and the presence of *dens invaginatus*, a second abnormality was present - transposition of the canine. Thus, the appearance of the patient was doubly prejudiced and, as a consequence, the crowns of these teeth required modification.

There were two options for doing this: 1) use prosthetic crowns, and 2) change the anatomical shape of the teeth, by using light-cured composite. This latter technique was chosen because the patient was not inclined to use a fixed prosthesis. The technique consists basically in re-covering the buccal enamel of the tooth to be modified with
Figure 1 - Sequence of clinical treatment: A, Transposition of the right maxillary lateral incisor to the region of the canine. B, Clinical aspect of the transposed teeth. Note the cuneiform crown of the lateral incisor, affecting the patient's appearance. C, Roentgenographic aspect of the region, showing Type 2 dens invaginatus of the right maxillary lateral incisor. D, Restoration with light-cured composite P50 (3M), transforming the canine into a lateral incisor and vice versa. E, Esthetic recuperation of the patient's teeth. Compare with B. F, Roentgenographic aspect of the endodontic treatment of the lateral incisor.
esthetic material, without the necessity of excessive wearing of the healthy dental structures.

The light-cured composite selected to restore the teeth was P50 (3M), a hybrid resin with 88% charge, whose particles vary from 1 to 5 μm, which provides opacity above 35%, and high resistance to compressive and transversal strains. This resin is able to be highly polished by conventional techniques using stones and sandpaper disks. These properties make it superior to the resins generally indicated for anterior teeth (Leinfelder, 1988; Monteiro, 1988).

Care was taken to re-establish the esthetics without affecting the periodontium, applying the resin to the tooth crown but avoiding the periodontal tissues.

The selected option of using the light-cured composite (P50, 3M) to restore the esthetics proved to be satisfactory, inasmuch as the esthetical end results satisfied the patient as well as her friends and relatives. This case has been observed for one year and the resin is in good clinical condition.

The case reported shows the possibility of modifying the anatomical shape of teeth of the maxillary anterior region when unesthetic anomalies are present, restoring the esthetical appearance of the patient by using light-cured composite.

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