

Hemisection of a front tooth

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_A 14-year-old girl greeted us in the treatment room with a friendly smile. Her aesthetically unpleasing tooth #21 was immediately apparent. It appeared twisted and too wide. The mother's comment highlighted the severity of the situation: "My daughter generally does not smile like that. She is embarrassed and avoids smiling."

_Case report

The patient presented with two deformed teeth in the region of tooth #21 that were fused together, a deformity that occurs in 0.01 % of the population. The central and lateral incisors in the maxilla are most frequently affected. One can distinguish between the fusion of the tooth surface and the whole tooth with a joint pulp chamber (partial versus complete fusion). Fusions in milk teeth are more frequent than those in permanent dentition are. Fusions in milk teeth are not determinants of fusion in the permanent dentition.

The following treatment was planned for the patient:

1. X-ray diagnosis to determine whether the fusion was partial or complete;
2. hemisection of the teeth along the root separation line;
3. direct capping with calcium hydroxide, if necessary, to retain the vitality of tooth #21;
4. temporary crowns; and
5. orthodontic integration of the tooth into the dental arch.

_Summary

The fusion of two teeth occurs in the nascent period of the teeth. There are various courses of action in therapy that address either partial

(only the tooth enamel) or complete (with joint pulp) fusion.

Since the young patient had two separate pulp chambers, the vital tooth #21 could be retained. Should pulp opening occur during hemisection with complete fusion, an immediate application of a hydrogen peroxide pellet would be recommend. After a short integration period, calcium-hydroxide paste (e.g. Kerr Life, Kerr) should be applied to the pulp wound. This initial therapy—direct capping—is very likely to help keep the part of the tooth to be retained vital.

A temporary crown, as shown in this case, completed the treatment. After a rest period of at least three months and monthly vitality tests, long-term tooth retention can be expected.

Orthodontics following the hemisection should not be performed until a six weeks healing period has elapsed.

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Figs. 1 & 2 Fusion of teeth #21 and 21a (accessory tooth germ).—**Fig. 3** Orthopantomograph with illustration of the fused teeth #21 and 21a. Seemingly, the accessory tooth #21a does not have a proper pulp chamber.



Fig. 4 Minimally invasive, marginal incision with discreet vertical relief distal to tooth #21a.—**Fig. 5** Vestibular formation of a muco-periosteal flap to evaluate the fusion between teeth #21 and 21a.—**Fig. 6** The fused teeth were cut off from the crown right down to the root using a diamond-coated micro-cutter with a cutting disc.



Fig. 7 The fused part of tooth #21a was removed by periostomy and the actual tooth #21 was retained.—**Fig. 8** Openings in the pulp chamber were investigated using explorer sensors and magnifying spectacles. The pulp chamber of tooth #21 appeared to be completely closed.—**Fig. 9** Tooth #21 was carefully prepared for the incorporation of a provisional crown.



Fig. 10 The empty alveolus of tooth #21a was filled with a collagen sponge to avoid quick resorption.—**Figs. 11 & 12** Tooth #21a after exact hemisection of the fused teeth.



Fig. 13 Plastic covering of the alveolus of tooth #21a. Wound closure was carried out with absorbable suture materials and through surface adhesion with cyanoacrylate.—**Fig. 14** Post-op view.—**Fig. 15** Post-op view after one week.