

HOW FAR CAN A TOOTH BE MOVED WITHOUT DESTROYING THE PULP?*

BY F. C. RODGERS, D.D.S., ST. LOUIS, MO.

Professor of Orthodontia, St. Louis University Dental School.

DURING the course of treatment of orthodontic cases, teeth often have to be moved bodily to varying distances in order to bring them into normal occlusion. The question has often occurred to me, "How far can a tooth be moved without destroying the vitality of the pulp?" Recently, a case was presented to me for treatment which offered an opportunity to answer this question.

The patient was a young miss of fourteen years, with all the permanent teeth erupted in normal occlusion except the upper left cuspid which was impacted over the buccal roots of the upper first molar and lying diagonally across these roots. The tip of the cuspid crown erupted just through the gum to the mesial

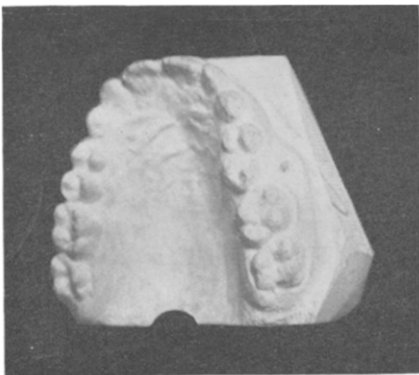


Fig. 1.—Note tip of cuspid protruding through the gum above the second bicuspid; outline of root indicated by pencil mark on model.



Fig. 2.—Occlusal view, cuspid moved mesially, crown portion fully exposed.

of the buccal cusp of the molar and the apex of the cuspid superimposed over the distal root of the molar. (See Fig. 1)

The problem presented for solution was, to move the cuspid bodily from this impacted location past the two bicuspids into its normal position. The case was further complicated by the location of the tooth which made it impossible to attach an appliance. (See Fig. 1.) The survey made on the model shows the distance that the apex of the cuspid had to be moved. (See Fig. 4.)

TREATMENT

The first stage of the treatment was started with a Jackson removable appliance, consisting of a delicate spring wire curved up over the gum, distal to the second molar and made to bring pressure mesially against the cuspid root

*The models were exhibited at the Clinic of the American Orthodontists' Society Meeting, Edge-water Beach Hotel, Chicago, August 1, 2, and 3, 1918.

at the junction of the crown. Active force for moving the tooth was obtained by repeatedly opening the loop of the spring wire until the tooth was in a position as shown in Fig. 2.

At this stage, the position of the tooth began to change from vertical to horizontal, as shown in Fig. 3, which necessitated the use of a different appliance. A band with a root-wise extension (Case) was adjusted and cemented on the crown. An alignment wire anchored on the molar teeth was used to hold the cuspid crown in position, while moving the root mesially by means of sea-grass ligatures which were attached to the root extension on the band to a spur opposite the central on the alignment wire.

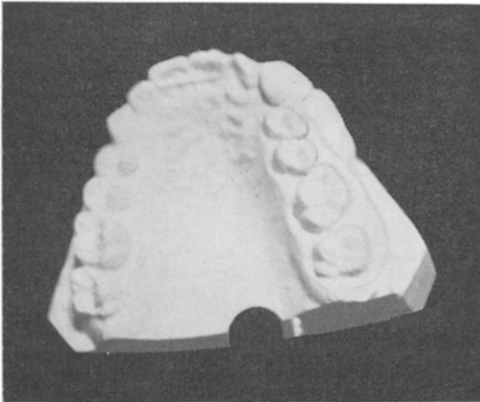


Fig. 3.—Buccal view, root plainly outlined on the gum in a horizontal position. Tooth very loose.

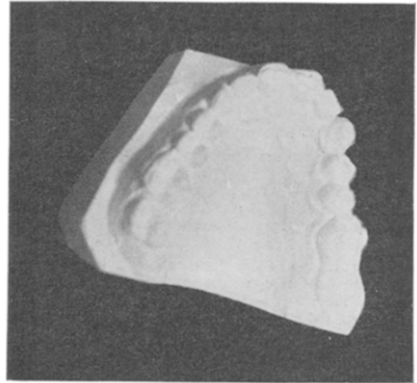


Fig. 5.—Occlusal view, same case, also showing retaining appliance on the lingual.



Fig. 4.—Buccal view, showing cuspid tooth in normal position. Survey shows distance tooth was moved ($1\frac{1}{16}$ inch).

The stability of the tooth at this stage was in a precarious condition; it was held in place by a thin layer of gum tissue over the root; the apex was almost exposed, while the crown had to be supported and held in position by the alignment wire. The vitality of the pulp, up to this stage, was normal; it responded to thermal tests.

Figs. 4 and 5 show models of the case with the cuspid tooth in its normal position. Further treatment was suspended on account of the summer vacation and in order to give nature a chance to stabilize the tooth by regeneration of periodontal fibers and a deposition of the bone around the root. Fig. 4 is a model showing the case at the present time.