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SPECIAL ARTICLES

THE SUBMERSION OF THE UPPER RIGHT DECIDUOUS, SECOND MOLAR RESULTING IN THE IMPACTION OF THE DECIDUOUS SECOND MOLAR AND SECOND BICUSPID*

By Judson E. Best, D. D. S., '24

THE submersion of the teeth is not a rare entity but is seen more frequently by the pedodontist and orthodontist who come in contact with a larger number of children than the general practitioner. This case of complete submersion of the upper right deciduous second molar, resulting in the impaction of the deciduous second molar and second bicuspid, is especially interesting from an etiologic standpoint.

Patient, E. H., male, age 14, was brought to my office by his mother April 28, 1934, complaining of an aching which had persisted for several days in the upper right first molar. Examination revealed the right side of the face slightly swollen, the upper right first molar was carious but not of sufficient degree as to cause a severe ache. The buccal mucous membrane in the bicuspid region was inflamed. The upper right second bicuspid was missing. The patient gave negative history of extraction of any permanent teeth. The palatine arch was narrow and pointed. Palpation elicited no indication of a missing tooth, no unusual bony eminence on palatal or buccal sides; but produced a slight fluctuation on the buccal aspect of the area accompanied by pain. The upper right first molar was inclined mesially and the first bicuspid distally. The occlusal space between these teeth was insufficient to permit the eruption of the second bicuspid. The angle formed by the inclination of the teeth indicated that the second bicuspid was trapped near the occlusal plane. The area was sprayed with ethyl chloride and an incision made through the occlusal tissues, which, upon retraction, exposed the cusp of a tooth. A small quantity of cystic fluid escaped through the incision.

* **Editor's Comment:** We are pleased to present here an article of interest and merit from another of our graduates in practice. This article expresses the personal views and experiences of the writer on the subject indicated.

With these clinical findings, a diagnosis of impaction of the second bicuspid was made. The area was bathed with a saline solution, swabbed with campho-phenique, and a strip of plain gauze inserted into the incision to permit drainage. The patient was advised to apply an ice bag to the face and novaldin was prescribed to control pain. An X-ray was taken for localization and the patient instructed to return the following day. Radiographic examination revealed, to my surprise, the impaction of the deciduous second molar and second bicuspid. Careful study and investigation were made to determine the cause of the impaction of the deciduous molar which led to the subsequent impaction of the bicuspid. The radiogram revealed a small area of rarefaction about the crown of the deciduous molar (pericoronal osteitis) and complete absorption of its roots. The bicuspid occupied a position at almost a right angle with the cervical portion of the deciduous crown, its root extending to the first bicuspid and cuspid area, but not in contact with their roots.

Operative procedures revealed nothing of etiologic value. Post operative examination of the molar revealed a definite occlusal cavity and the cusps showed signs of wear, which indicated that the tooth had erupted and was in occlusion. Examination of the bicuspid revealed the flattening of the apical section of the root, indicating a backward pressure during the formation of that section. All evidence indicated clearly that the deciduous molar had erupted into the arch but was submerged by the descending permanent first molar. The first bicuspid erupted as the deciduous molar sank beneath the gum and was pulled distally by the transseptal fibres of the gingivae. The convex distal surface of the bicuspid acted as a lever under its eruptive force and pushed the molar farther into the tissues, where it remained wedged between the first molar and first bicuspid.

There seems to be no exact scientific data on the etiology of submerging teeth. Most of the deductions have been more or less speculative. The second deciduous molars are the most frequently submerged teeth. Therefore, it is quite evident that the eruption of the first permanent molar is responsible for this abnormality. The theory which has been advanced to explain this phenomenon is that the first permanent molar erupts as the result of pressure that is toward the occlusal plane and slightforward. After the tooth erupts past the point of greatest convexity of the deciduous second molar, the continued forward pressure is directed against an inclined plane on the distal surface of the deciduous molar. The

forward pressure on the inclined plane will have a component of force in an apical direction. Since the deciduous tooth can not move forward because of the deciduous first molar, its only movement is apically.

On the following day the case was operated upon. Dr. Clairmonte Cave assisted and to him I am indebted for the diagrams and cooperation in this case. It is always well to have an able assistant in all major oral operations. The right maxillary block injection was given. Two incisions were made, one extending downward from near the buccal mucous fold along the line of the mesio-buccal root of the first molar to the gingival border, the other from near the buccal mucous fold downward along the line of the root of the first bicuspid to the gingival border. A periosteal elevator was inserted under the tissues and the flap retracted upward, exposing the buccal plate. Enough overlying bone was removed with a chisel to permit delivery of the deciduous molar. The crypt was curretted because of a calcarious deposit closely resembling serumal calculus, lavaged with a saline solution and swabbed with iodine. More osseous tissue was removed with mallet and chisel to expose the entire crown of the bicuspid, which was elevated into position to be grasped with root forceps. The margins of the crypt were smoothed with rongeurs, the area bathed with a saline solution and the flap put back into position and sutured, using 000 catgut. A strip of plain gauze, medicated with equal parts of guaiacol, iodine and glycerine, was inserted into the deciduous socket.

The patient was advised to apply an ice bag at intervals, novaldin again was prescribed to control pain and Dobell's solution as a mouth wash every three hours. Instructions regarding diet were given and rest in bed advised. The following day the gauze dressing was removed, the area bathed with saline solution and swabbed with tincture of aconite and iodine. This procedure of treatment was carried out for a period of six days. The patient had an uneventful recovery.

The early recognition of submerging teeth is imperative in order that suitable measures may be instituted to correct this abnormality and thus prevent impaction. This may be accomplished by suitable orthodontic appliances, or by the extraction of the submerging or submerged tooth and the insertion of a space retainer to prevent closure of the space to be occupied by its permanent successor.

April 28, 1934.

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