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Dental Agenesis Associated with Dental Impaction (Case Report)

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Abstract: ***Dental agenesis is a dental anomaly that can affect several teeth. This anomaly is followed by various types of malocclusion, disorders in the chewing function and aesthetic impairment. Early diagnosis is important for defining a better treatment plan. The teeth most often affected by agenesis are the second mandibular premolar, followed by the maxillary lateral and the second maxillary premolar. This does not take into account the agenesis of third molars, which is increasingly commonplace. Lack of some follicles causes distortion of chewing function and distortion or misplacement of other teeth or their follicles, thus creating susceptibility for dental impaction. We will present a clinical case, of a patient with dental agenesis. The diagnosis and treatment plan were decided in collaboration between the two dental specialties, Orthodontic, and the Oral Surgeon.***

Keywords: Agenesis, impaction, malocclusion

1. Introduction

Dental agenesis is a dental anomaly that affects several teeth, leading to some types of malocclusion, affecting function and aesthetics. If agenesis touches the frontal teeth, this is an aesthetic problem which also leads to psychological problems. Dental agenesis is considered as a normal stage of human race development, related to lifestyles and consumption of pre-processed products.

Agenesis or hypodontia, is the term describing the absence of the tooth follicle [1, 2]. Hypodontia is called light, with 1-2 teeth absent, moderate with 3-5 teeth absent and heavy or oligodontia, when 6 or more teeth are absent. Anodontia is the case when all of the teeth follicles are missing. These cases are rare and are associated with genetic disorders [3] associated with cranio-maxillo-facial syndromes.

The problem affects more permanent teeth and very rarely deciduous teeth. Diagnosis is decided by clinical examination, radiography and history of the disease. During the examinations, other anomalies such as, shape and size disorder, alveolar bone undeveloped, eruption tooth delay, deciduous teeth persistence, artificial diastema, or deep bite may be observed [4, 5, 6]

Etiology, is multifactorial, includes genetic and environmental factors. According to recent genetic studies, in families with hereditary agendas, mutations have been found in genes MSX1, PAX9, AXIN2 [7]. External etiologic factors are associated with trauma during follicular development; others are related to hormonal disorders, infections, radiation or other external factors that act during growth. [5]

Dental agenesis can be a symptom of a syndrome that is associated with other congenital disorders.

Impacted teeth have a diverse etiology. The reason may be agenesis followed be caused by malocclusion and misalignment of permanent teeth follicles, lack of lateral incisor guide for canine tooth and failure of root resorption of deciduous lateral incisor, insufficient space for tooth eruption which is more pronounced in the mandibular third molars.

2. Material and Method

We will present a clinical case to a patient with agenesis and impacted teeth, setting the diagnosis, treatment steps and treatment results.

3. Clinical Case

Patient V.C at the age of 15, in routinely check up at the dentist, complains about several deciduous teeth that haven't been replaced by permanent teeth.

In clinical examination, the persistence of 52, 62, 63, 73, 83 is observed. In the panoramic x-ray, agenesis of the permanent lateral incisors was observed, and the impaction of the permanent dental canines. The patient is recommended to the orthodontist and oral surgeon for diagnosis determination.

Figure 1: Intraoral view before treatment

Figure 2: View at central occlusion

Figure 3: Panoramic radiography examination

Extra-oral orthodontic examination:
Mesocephalic, with no facial asymmetry, pronounced dental mucosa plicae and uneven division of facial surfaces. Intraoral Examination: deep bite with total coverage of permanent inferior central incisors by permanent superior central incisors, severe diastema.

It is noted the agenesis of superior bilateral lateral incisors and superior canines, complete bony impaction, inferior canines partially and completely impacted.

Preliminary extractions of deciduous teeth were made. Very soon after the extractions of teeth number 52, 53 and 62, 63 you could see the impacted canines coming down through gum.

Figure 4: The deciduous teeth extraction

The fixed orthodontic braces were placed in the upper jaw.

Figure 5: Placement of the fixed braces in the upper jaw

The fixed orthodontic braces in the lower jaw were placed 4 months after placement in the upper jaw.

Figure 6: The eruption of maxillary canines

Figure 7: Placement of the fixed braces in the lower jaw

As a result of the large space in the jaws, it was decided (after parents were informed) that the canine's teethshould be positioned in their place, not adjacent to the central incisors, as that would cause a large space between the teeth. Lateral incisors later will be replaced with prosthetics appliance or implants.

Meanwhile in the lower jaw, treatment continues to create the space for the canine's teeth. After one year from the placement of the fixed orthodontic braces in the lower jaw, the necessary spaces were created and surgical intervention was performed for exposure of tooth number 33. At local and radiographic examination, it was found that 33 had complete soft tissue and partial bony impaction. With local bilateral infiltrative anesthesia, oral intervention was done, excision of the oral mucosa to release the vestibular site of the tooth, release of the alveolar bone with surgical bur, irrigation with saline without crossing the cement-enamel ligament, placement of a ZnO surgical cover paste for

hemostasis, to enable the attachment of the brackets to the tooth.

Figure 8: Intermediate treatment phase

Figure 9: Creating space for mandible canines

Figure 10: Surgical intervention, excision of the oral mucosa, for exposure of the vestibular site of the tooth

Figure 11: Excision of a bone part and exposure of vestibular site of the tooth

Figure 12: Placement of paste with ZnO for hemostasis

Figure 13: Placement of the brackets to the tooth

Correct alignment of the teeth in the lower arcade and proper teeth alignment in the upper arcade were made while maintaining the space for replacing the lateral incisors

Figure 14: Canine alignment in the lower arcade, 8 months after the canine exposure

Figure 15: View at the almost end of the treatment

Two resins teeth were placed to replace lateral incisors to solve the temporary aesthetic problem during the growing period.

Figure 16: Temporary replacement of lateral incisors

4. Conclusions

Clinical cases should be carefully evaluated and seen from every aspect to achieve good results. Consultations and multidisciplinary treatments should always be made. In the case of agenesis there is also the psychological side of the patients from the damage of aesthetics. These patients often insist on keepingthedeciduous teeth when they become aware of the lack of permanent teeth, which leads to disorders in permanent aesthetic problems, occlusaldisorders, and risk fortooth impaction.

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