



Dental Union Abnormalities: Literature Review

Fabiana Martinez^{1*}, Frederick Segura² and Jorge Paisano³

¹General Dentist Graduated, North-East Private University, Gran Mariscal of Ayacucho, Venezuela

²Dentist specialty in University teaching graduated from the Experimental University of the Central Plains Romulo Gallegos, Venezuela

³Graduated, North-East Private University, Gran Mariscal of Ayacucho, Venezuela

***Corresponding Author:** Fabiana Martinez, General Dentist Graduated, North-East Private University, Gran Mariscal of Ayacucho, Venezuela.

Received: July 13, 2018; **Published:** October 05, 2018

Abstract

Dental Fusion, concrescence, twin, twinning and concrescence, are tooth growth abnormalities. It is important to note that sometimes the fusion and braiding are clinically indistinguishable, and it may be necessary to perform an exhaustive anamnesis in which it is important to ask the patient if he has suffered dental losses, as well as to make a set of periapical and Panoramic x-rays, to perform a certain diagnosis.

Dental marriage anomalies may generate an increase in size in the dental structure that can be seen on clinical examination and confused with a metadontia in some cases, being that it could be a fusion, flowering or concrescence. These have a higher incidence in the primary dentition can affect both dentitions.

Sometimes alterations in dental morphology are the result of disorders of dental development, which may affect the crown, root or both, caused by fusion, or other alterations of the Union and may cause alterations in occlusion.

The objective of this article is to describe abnormalities of growth and dental development according to the Union to know and differentiate them and make a correct diagnosis by using different types of X-rays.

Keywords: Anomaly; Dental Fusion; Macrodoncia; Concrescence; Twinning and Twinning

Introduction

The anomalies of growth and development are classified in: shape, size, union, number, structure and color. But in this article, we will look at the most common that are the dental anomalies of Union. The etiology and pathogenesis of these anomalies are not clear [1-2], having involved traumatic and inflammatory factors that have affected both follicles [3]. The exact etiology cannot be determined by the difficulty to establish the embryological circumstances, since these alterations result from abnormal events in the embryonic development of the tooth [4]. Some authors point out that the association of certain tooth abnormalities and some mental disorders suggests the involvement of the neural crest in dental development [5]. Other research found that high doses of vitamin A may cause anencephaly and dental fusion in pregnant laboratory rats [6]. Hitchin and Morris described the ontogeny of conoids incisors and showed that the primary disorder is the

persistence of the interdental lamina. They also showed cases of fusion within members of the same family, which could be attributed to a probable autosomal dominant hereditary pattern, with a low degree of penetration [1]. There is some degree of agreement in the literature about a possible hereditary component for double teeth in humans [1,3,5,7,8].

Anomalies Dental Union Dental Fusion or Sinodoncia

Dental Fusion is an anatomical dental anomaly consisting of the embryological junction or in pre eruptive phases of two or more adjacent dental germs by dentine with the result of a single tooth of greater than normal size, and the reduction of the formula Tooth is diminished.

Sometimes you can even share the pulp chamber, but usually the fused teeth present two [9,10], pulp chambers. The teeth

affected eruptions already fused, being able to be total or limited to the crown or root [11]. The fusion can be total or partial and will depend on the stage of the development that the tooth has reached at the moment of the fusion. If it starts before calcification, there will be fusion of all the components of the tooth (enamel, dentin, pulp and cement). If the union begins in later stages of the germ development, then the fusions will be partial, i.e., separate crowns and fusions purely of the roots. The ducts can or may not be fused.



Figure 1: Intraoral clinical aspect of fusion of inferior third and fourth molar supernumerary.

Incidence

It is more frequent in temporal dentition than in permanent [9,12,13]. And it mainly affects inferior incisors 9, although other authors say that it usually affects the antero-superior sector 14. A 33% of the cases come accompanied by permanent successor Agenesis [15].

Etiology

A certain hereditary tendency has been described [16]. Traumatic and inflammatory factors that have affected both germs are involved. But the exact etiology cannot be determined by the difficulty to establish embryological circumstances, since these alterations result from abnormal events in the embryonic development of the tooth [4].

Radiographic study

The radiographic examination to be carried out in these cases does not escape the exposed concepts for any retained part, regardless of its location, number, anatomical conformation, associated pathological processes, etc. The different techniques can be used according to the Criterion and the premise of knowing the main characteristics of these elements and their location in the three planes of the space, for the purpose of deciding their

surgical approach path. Extraoral techniques, such as orthopantomography, are determinant in the early detection of these pathological entities, since, generally requested by orthodontists at an early age, provide a general picture of both Jaws where the presence of one or more denticles retained is usually evident in conjunction with possible accidents that they themselves caused. The set of intraoral techniques that are used for the radiographic study of canines in retention is applicable in these cases, being able to corroborate the diagnosis more precisely with the conventional periapical X-rays and determine the correct Location using the occlusal radiographic sockets and those carried out with the Clark technique. In certain cases of greater complexity, it is necessary to resort to computed tomographies, which determine an accurate and reliable diagnosis facilitating the surgical planning [17].



Figure 2: Orthopantomography. Dental fusion of 38 with a supernumerary molar.

Consequences

Among the clinical consequences of this condition, which usually occur in the anterior sector, are aesthetic problems very difficult to solve if the merger is complete [8,10]. Other problems that may be associated is the loss of length of the arch and a delay in the rash or ectopic teeth, additional to caries in the junction lines [18,19].

Treatment

To prevent caries from appearing, the furrow must be restored with composite resins or sealants of pits and fissures. In the permanent dentition should be expected the complete root formation, being able to separate both teeth by selective wear this treatment is only done in partial mergers where there is no union of the pulps.

Concrescence

It is the form of fusion that arises once the root is formed. In this case the teeth are joined only by the radicular cement [20,21]. The

concrescence can be true and acquired, the first occurs when the development of the tooth is completed and is more commonly seen in second and third molar upper, due to the lack of space, instead the acquired is produced by Hypercementosis associated with Chronic inflammation in the affected region [22].

Etiology

The true concrescence occurs in more advanced stages than the fusion and the twining, during the development of the roots and the cement, therefore the Crown is already formed and is not affected. It is thought that it is due to a trauma or dental crowding due to lack of space, which produces an excessive pressure of one tooth on another, giving rise to the union of cement in formation [20]. It can happen between two normal teeth, between a normal tooth and a supernumerary one, or between two super numerals [22]. The acquired concrescence, with the tooth already formed, can obey, in the same way, to traumatic or inflammatory causes, in both cases with resorption of the interdental bone septum and posterior union by formation of Reive Neocemento, uniting one root with another. Concrescence may appear also acquired in processes that study with hypercementosis, such as chronic infections or Paget's disease.

Incidence

It has a higher incidence in the molar region of the upper Maxilla [23], especially between the second and third molars, where the space failure is more common.

Diagnosis

It is very difficult to observe because it is a condition in the roots. But radiographically you can see the union or fusion of the roots of both teeth.

Consequence

Variations in size, shape and dental position [16]. The clinical implications of this pathology are mainly related to the importance of their radiological diagnosis before performing dental extraction. If your presence is not identified, accidental dislocations of the continuous tooth may occur [24].

Treatment

It does not require any treatment.

Twining and twinning

The twining consists in the division of a tooth germ, to give rise to two teeth. It is observed both in the dentition Decidua as in the permanent and in some cases has hereditary tendency. Some-

times the division is partial, and the result is a tooth that looks very similar to the fusion, but with a normal dental formula. Other times the division is complete, giving rise to two teeth that are reflexes one of another. To this last case we call it twinning. In the twins we will find a normal tooth and a supplementary, mirror image of the previous one.



Figure 3: Twining in deciduous incisors and in permanent germ crown.

Clinical features

Are variable, lower-grade incisal notch on the incisal edge in a wide crown to almost 2 separate crowns. Similarly, the pulp chamber and root canal may be common elements in both cases or separately in each one. Complications include potential crowding of the dental arches. Difficulty in differential diagnoses between twining and fusion of a normal or supernumerary tooth.

Etiology

Hyperactivity in the dental lamina.

Incidence

Occurs in less than 1% of the population, can be familial, and involves primary teeth, about five times more generally than permanent teeth [22]. The most affected teeth are the primary lower incisors and the permanent upper incisors. It's rarely bilateral.



Figure 4: Tooth 41 with a forked crown in which there is a central groove that came from enamel.

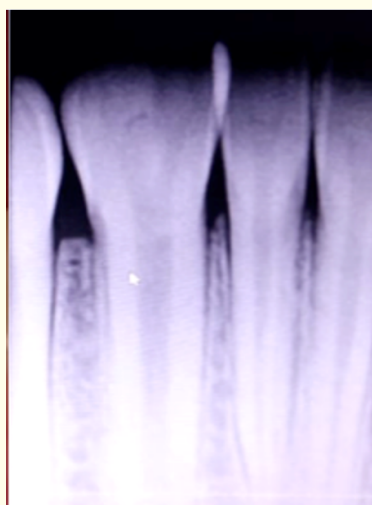


Figure 5: Periapical radiograph showing the presence of a single channel of the wide root, and 1 pulp cavities. Partial twining.

Diagnosis

The clinical diagnosis is done by the dental formula, because if the patient has a twin the dental formula is not affected, unlike in the dental fusion there is a decrease in the dental formula. But if you have a twine the dental formula will be increased.

Consequence

The most difficult problem is to do the correct diagnosis, due to its similarity with the dental fusion.

Treatment

Aesthetic restoration with resins, or surgical removal of supernumeraries in mating cases. Orthodontic treatment by crowding [25].

Coalescence

Coalescence is the union of two teeth by dense osseous or fibrous tissue. The cause may be traumatic or inflammatory, as in the case of concrescence. Radiographically the Diagnostic is difficult to perform, although it can be observed the disappearance of the periodontal space, or the osseous septum interdental. It is usually a casual finding when trying to perform the extraction of a tooth, as in the case of concrescence.

Discussion

Some authors catalogue mergers within the anomalies in the way; However, changes in the volume and the shape of the tooth is the result, but not the cause of the anomaly. Therefore it should be classified within the anomalies of Union. There has been some confusion between the different clinical entities, especially when it comes to differentiate the fusion and gemination, have also used other terms as a double tooth (teeth double) or tooth double (dental twinning) to describe these anomalies [1,5,26].

Different criteria for classifying these alterations, as well as the impossibility of explaining its etiology give rise to great confusion to make the diagnosis [27]. For example, the division of a germ that gives rise to two teeth (called gemination teeth) is often confused with the union of two germs in development (called fusion teeth), the diagnosis will depend on good knowledge of both anomalies. Since there is an increase in the gemination of the number of teeth and teeth in the merger there is a decrease of the same.

Tony and Adam and Begum [28], based on studies of Allenet [29], presented two cases of fusion and gemination teeth in where the treatment was limited to the odontosección of tooth fused small avoiding exposure of the followed pulp Chamber of a Orthodontic treatment.

Conclusion

The treatment of this type of anomalies should focus from a comprehensive point of view, according to the results of the diagnosis clinically and radiographically, based on the commitment of the histological union of the teeth. By a careful clinical and radiographic evaluation of fused teeth is essential to make the kilometer differentiation between different anomalies Act of Union and thus select the most appropriate treatment for the case. A multidisciplinary approach among various professionals would contribute to successful completion of this pathology.

Its clinical significance lies in its aesthetic and functional by the January tend to make them endodontic treatments. The patient

with this type of anomaly tooth is very important for reasons aesthetic, periodontal and orthodontic dental care.

Bibliography

- Hitchin AD and Morris I. "Geminated odontome-connation of the incisors in the dog - its etiology and odontogeny". *Journal of Dental Research* 45 (1966): 575-583.
- O'Reilly PMR. "A structural and ultrastructural study of a fused tooth". *Journal of Endodontics* 15 (1989): 442-446.
- Nadal-Valldaura A and Patología dentaria. Barcelona: Ed Ron-das (1987).
- Chaudry SI, et al. "Dental twinning". *British Dental Journal* 182 (1997).
- Puy L, et al. "Double teeth: Case reports". *Journal of Clinical Pediatric Dentistry* 15 (1991): 120-124.
- Knudsen PA. "Fusion of upper incisors at bud or cap stage in mouse embryos with exencephaly induced by hipervitaminosis". *Acta Odontologica Scandinavica* 23 (1965): 549-565.
- Levitas TC. "Gemination, fusion, twinning, and concrescence". *Journal of Dental Child* 32 (1965): 93-100.
- Camm JH and Wood AJ. "Gemination, fusion and supernumerary tooth in the primary dentition: Report of case". *Journal of Dental Child* 56 (1989): 60-61.
- Arrieta JJ, Bartolomé B. "Anomalías dentarias". En: Varela M (editor). Problemas bucodentales en pediatría. Madrid: Ergón (1999): 43-58.
- De la Macorra. "Diagnóstico radiológico de las enfermedades dentarias". En: Bascones A (coordinador). Tratado de Odontología. Madrid (1998): 2931-2938.
- Nadal-Valldaura A and Patología dentaria. Barcelona: Ed Ron-das (1987).
- Hagman FT. "Anomalies of form and number fused primary teeth, a correlation of the dentitions". *Journal of Dental Child* 55 (1988): 359-361.
- Chen R and Wang C. "Gemination of a maxillary premolar". *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology* 69 (1990): 656.
- Villa MA. "Patología pre-eruptiva". En: Bascones A (coordinador). Tratado de Odontología. Madrid: Trigo Ed (1998): 2459-2463.
- Ustrell J. Manual de Ortodoncia. Publicacions I Edicions de la Universidad de Barcelona (2011): 194-195.
- Jimenez, M. Odontopediatria en Atencion Primaria. Editorial Vértice. España 4 (2012): 85-86.
- Ulfohn A and Gilligan J. "La extracción dentaria: Técnicas y aplicaciones Clínicas". Editorial Medica Panamericana (2014).
- Milazzo A and Alexander SA. "Fusion, gemination, oligodontia, and taurodontism". *Journal of Pedodontic* 6 (1982): 194-199.
- Mader CL. "Fusion of teeth". *The Journal of the American Dental Association* 98 (1979): 62-64
- Shafer W, et al. Tratado de Patología Bucal. 4a. Edicion. Editorial Medica Panamericana (1987): 39-40.
- Villafranca F y Col. Higienistas Dentales. Temario Volume II. 1a. Edicion. Editorial MAD. España, (2006).
- Langlais R and Miller C. "Atlas a Color de enfermedades bucales". 1st Edicion en Español traducida de la 4a. Edicion en Ingles. Mexico: Editorial El Manual Moderno (2011).
- Gill D and Naini F. Ortoncia: principios y práctica. 1a. Edicion. Mexico: Editorial El Manual Modern (2013).
- Sapp J, et al. "Patología Oral y Maxilofacial Contemporánea" (2006).
- Laskaris George. "Patologías de la Cavidad Bucal en niños y Adolescentes". (2001).
- Mattos-Graner RO, et al. "Anomalies of tooth form and number in the permanent dentition: report of two cases". *ASDC Journal of Dental Child* 64 (1997).
- Maibaum WW. "Fusion or confusión?" *Oral Surgery, Oral Medicine, Oral Pathology* 69 (1990): 656-658.
- Tony H, et al. "Nonendodontic coronal resection of fused and geminated vital teeth". *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology* 83 (1997): 501-505.
- Allen R, et al. "Resorption patterns following intentional vital root transection in Macaca mulata". *The International Journal of Adult Orthodontics and Orthognathic Surgery* 9 (1994): 119-127.

Volume 2 Issue 11 November 2018

© All rights are reserved by Fabiana Martinez., et al.