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Multiple Tooth Agenesis in Non-syndromic Patient: A Rare Case Report

Agenesia Múltiple Dental en un Paciente No-sindrómico: Reporte de un Caso Raro

[*,**]**Eduardo Borie;** [*]**Ramón Fuentes &** [*]**Víctor Beltrán**

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SUMMARY: Dental agenesis is a term referred to the absence of one or more teeth. However, oligodontia is a severe type of tooth agenesis involving six or more congenitally missing teeth, excluding the third molars. Oligodontia has a low prevalence and is a very rare condition. The aim was to show this case report of a 13-year-old female patient who presented oligodontia with absence of eight permanent teeth and condylar atrophy on left side. The patient had no history of any syndrome or systemic disease according to the anamnesis. Is very important to know oligodontia features to perform a carefully treatment plan.

KEY WORDS: Dental agenesis, Oligodontia, Radiograph.

INTRODUCTION

Tooth development results of several interactions between oral epithelium and underlying mesenchymatic tissue during odontogenesis (Fuentes & Oporto, 2009; Borie *et al.*, 2010).

Dental agenesis is a term referred to the absence of one or more tooth and which, in permanent teeth, is a congenital anomaly that is frequently seen in humans (Suda *et al.*, 2011). The overall prevalence of agenesis ranges from 1.4% to 11.3% in different regions and populations (Sisman *et al.*, 2007; Shimizu & Maeda, 2009; Aktan *et al.*, 2010). On the other hand, oligodontia is a severe type of tooth agenesis involving six or more congenitally missing teeth, excluding the third molars (Shimizu & Maeda; Wang *et al.*, 2011). The prevalence for oligodontia is in ranges of 0.03% to 0.07% (Celikoglu *et al.*, 2010; Aktan *et al.*). Oligodontia is a very rare condition (Rolling & Poulsen, 2001).

The etiology of tooth agenesis is still largely unknown (Goodman *et al*., 1994). Dental agenesis may be caused by factors related either to the mucosal ectoderm, to the ectomesenchyme, or to innervation (Kjær *et al.*, 1994). Also, in people with agenesis of a single tooth, it was considered more likely by a local factor in the region (Kjær *et al*., 2008). Amongst all non-syndromic (familial or sporadic) agenesis conditions detected in humans, the most common is the absence of third molar(s) with an average about 20% (Paixão-Côrtes *et al*., 2011). Some studies have reported that mutations in the homeobox gene MSX1, paired domain transcription factor PAX9, and EDA are associated with non-syndromic oligodontia (Swinnen *et al*., 2008; Suda *et al*.; Paixão-Côrtes *et al*.). Renault (1990) mentioned that cases with agenesis in maxilla and mandible and with and absence of nine or more teeth need a very complex dental treatment. Some authors as Vinay *et al*. (2011) reported a case with oligodontia related with osteopetrosis, which is a rare hereditary disorder of the skeleton characterized by increased density of the bones.

Tooth agenesis is more reported in females than in males (Mattheeuws *et al*., 2004; Celikoglu *et al.*) and more found in maxilla than the mandible with a similar number of missed teeth in both sides (Aktan *et al*.). The most frequently missing teeth were the maxillary lateral incisors, followed by the mandibular second premolars and the mandibular central incisors (Celikoglu *et al*.). Is important to point out that agenesis of maxillary central incisors, canines, and first permanent molars reportedly is very rare (Tavajohi-Kermani *et al.*, 2002). The absence of permanent teeth may cause some several clinical problems, such as malocclusion making orthodontic treatment difficult and requiring orthognathic surgery (Mattheeuws *et al*.).

[*] Departamento de Odontología Integral, Universidad de la Frontera, Temuco, Chile.
[**] Post-Graduate Student, Department of Dental Materials and Prosthodontics, Dental School of Ribeirão Preto, University of São Paulo, Ribeirão Preto, SP, Brazil.

CASE REPORT

A 13-year-old female patient came in May 2011 to the Dental Clinics of the Universidad de La Frontera (Temuco, Chile) reporting absence of some teeth. Through a digital panoramic radiograph the existence of multiple agenesis of permanent dentition was revealed. In the radiograph agenesis of tooth 1.4, 1.5, 1.7, 2.5, 2.7, 3.4, 3.5, 4.5 (Fig. 1) was identified, with a small dimension of maxilla. Also, a slight condylar asymmetry with a small size and a slight stylohyoid ligament ossification was noted in the left side. After this, a foot radiograph was taken to determine if the condition had a relation with an osteopetrosis; however, normal findings were noted. During anamnesis the patient reported she had no trauma history, previous tooth extraction, orthodontic treatment or complications during pregnancy or birth. The patient´s mother informed that there was no history of syndromic or systemic disease.

At general examination no alterations or systemic diseases were identified, with facial symmetry, no palpable lymph nodes and both jaws were normal. Clinically, in the intraoral examination no caries and the absence of the same teeth were observed with tooth rotation of 1.3, 2.3 and 4.3. No presence of periodontal disease was noted.

DISCUSSION

Dental anomalies can results from many factors, including genetic and environmental ones. Although defects in certain genes have the highest incidence, etiological events in prenatal and postnatal periods have also been blamed for anomalies in tooth number, dimension, morphology, position, and structure (Basdra *et al.*, 2000; Uslu *et al.*, 2009). In this case report, the patient presented oligodontia because it had absence of eight teeth excluding third molars. The predominance in females was according with the stated with Mattheeuws *et al*. Also, this case concurs with Aktan *et al.* who reported that similar number of missed teeth was in both sides and maxilla was more affected. Celikoglu *et al.* found that the most frequently missing teeth were the maxillary lateral incisors, followed by the mandibular second premolars and the mandibular central incisors; however, in this case only second premolars agrees with the previously raised. The other teeth compromised were not reported in the literature. Some authors had found a relation between oligodontia and osteopetrosis (Vinay *et al.*); however, this hypothesis was discarded when foot radiograph density was observed.

In the present case, the alveolar process was affected which concurs with Tavajohi-Kermani *et al*. The absence of eight permanent teeth causes some several clinical problems with the dimension of maxilla and mandible. The above, was supported by Mattheeuws *et al*. The small size in maxilla concurs with Bu *et al*. (2008) who found a smaller dimension in patients with oligodontia. All this leads to a very complex dental treatment, agreeing with Renault. Patient´s history and anamnesis concurs with a non-syndromic patient.

Finally, is very important to know oligodontia features to perform a carefully treatment plan.

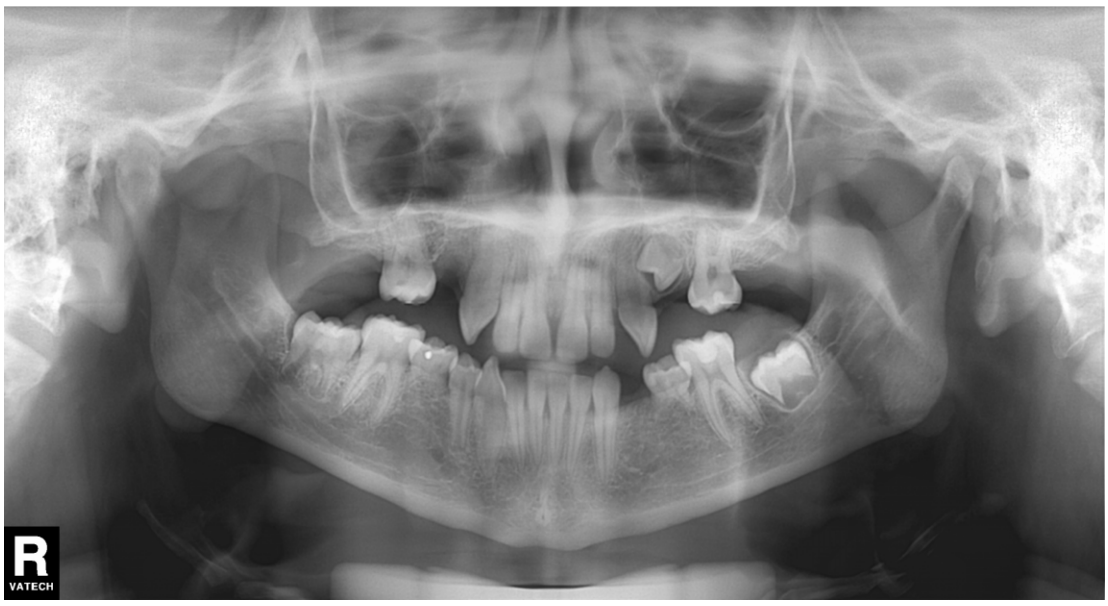

Fig. 1. Panoramic radiograph of the patient. Note the absense of eight teeth and the small dimension in maxilla.

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RESUMEN: La agenesia dental es un término que se refiere a la ausencia de uno o más dientes. Sin embargo, la oligodoncia es un tipo grave de agenesia dental con ausencia congénita de seis o más dientes, excluyendo los terceros molares. La oligodoncia tiene una prevalencia baja y es una condición muy rara. El objetivo es presentar este reporte de caso de una paciente femenina de 13 años quien presentó oligodoncia con ausencia de ocho dientes permanentes y atrofia condilar en el lado izquierdo. La paciente no presenta historia de padecer algún síndrome o enfermedad sistémica según su anamnesis. Es muy importante de conocer las características de la oligodoncia para llevar a cabo un plan de tratamiento de manera cuidadosa.

PALABRAS CLAVE: Agenesia dental, Oligodoncia, Radiografía.

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Correspondence to:
Eduardo Borie Echevarría
Departamento Odontología Integral
Facultad de Medicina
Universidad de la Frontera
Manuel Montt 112
Temuco - CHILE

E-mail: eduardoborie@ufro.cl

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