

Rotation of 180 degrees of a lower incisor: case report

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Abstract

The tooth rotation consists of a dental anomaly of position, in which there is a displacement of the tooth within the alveolar bone around its longitudinal axis. This study proposes to describe a rare condition of rotation of 180° in a lower right central incisor, no history of trauma or any other dental dental anomaly in the oral cavity. Thus, we sought to gain a deeper understanding of this anatomical variation, which can cause occlusal problems in patients, to alert the dental surgeons, so they are prepared to carry out a careful planning of the teeth involved.

Keywords: tooth abnormalities, anatomy, malocclusion, incisor.

1 Introduction

During the development of the structures of complex maxillo-mandibular, dental elements are likely to suffer from disorders caused by environmental factors, hereditary or idiopathic, resulting in developmental abnormalities, which can result in aesthetic and functional disorders (TEIXEIRA, MARTINS, LASCALA et al., 2008).

Among these disorders are anomalies of tooth position: rotation of teeth, migration and transposition (PEDREIRA, MAGALHÃES, CARDOSO et al., 2007), that result from developmental changes during the eruption of permanent teeth (GUPTA, SAXENA, JAIN et al., 2011).

The rotation of teeth consists of a displacement intra-alveolar mesiolingual or distolingual of tooth around its longitudinal axis (GUPTA, SAXENA, JAIN et al., 2011).

It can occur unilaterally or bilaterally as a result of migration, more influenced by physiological factors than genetic (KUMAR and BHIM, 2011), and clinical examination is sufficient for diagnosis (SCARPIM, NUNES, CERCI et al., 2006).

Studies using panoramic radiographs to obtain the frequency of dental changes said that the rotation are anomalies of position with high prevalence, varying the rotation between 45° and 90° (VÁZQUEZ, BRUNO, RAMÍREZ et al., 2008). However, in relation to complete rotation of teeth (180°) few cases are reported (GUPTA, SAXENA, JAIN et al., 2011).

Thus, the aim of this article was to report a clinical case of complete rotation of teeth (180°) of lower right central incisor, which presents the vestibular surface totally focused on the lingual region.

2 Case report

A man 32 years old, Brazilian (1.67 m tall and 72 kg of weight) during dental appointment made reference to dental element 41 (lower right central incisor) as a tooth “crumpled forward.” He reported that since the eruption, the tooth was like that and did not mention the occurrence of trauma or other local interference factor to explain its etiology (Figure 1a, b).

The clinical examination found that this element was presented rotated at 180° around its long axis, that is, with its vestibular surface positioned to lingual region (Figure 2). The element showed itself intact, with the absence of: cavities, mobility, periodontal disease, and responded to the pulp vitality tests.

Through conventional panoramic radiograph of the jaws, it was observed that the density and trabeculate of the basal bone were normal, with a slight loss of horizontal alveolar bone crest in the region of the lower incisors rights. Periapical radiography observed that there was integrity of lamina dura and periodontal space, and absence of periapical lesions in the element 41 (Figures 3 and 4).

There was no need for treatment, since it consists of an individual dental change that did not influence the occlusion, did not cause deformation of the jaws, nor interfered with the patient’s facial features.

3 Discussion

The dental elements are susceptible to numerous changes of development (GARIB, ALENCAR, FERREIRA et al., 2010), which can be primary or arise secondarily due to environmental influences (FERREIRA, 2004).

There are several hypotheses about its origins in the literature, such as heredity, hyperactivity of the dental lamina, a division of normal tooth germ, activity of the remnants of dental lamina and sheath of Hertwig, lack of space for normal eruption, genetic mutations by interacting with environmental factors such as trauma, local infection and radiation, nutritional deficiencies, among other (SCARPIM, NUNES, CERCI et al., 2006).

The formation and development of the dental organ begin around the seventh week of intrauterine life, and when any of these mentioned interference, whether local or general occur during the odontogenesis, may cause disturbances that alter the physiology and morphology of tissues (BERTAZZOLI, BAPTISTA, FONSECA et al., 2007).

The dental anomalies of development can manifest itself from simple changes in shape or position of the dental

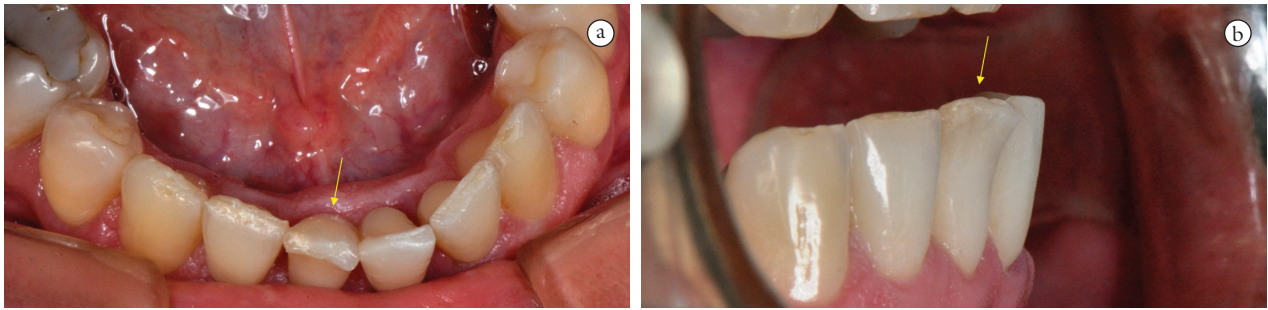


Figure 1. a, b) Rotation of 180° of the lower right central incisor.

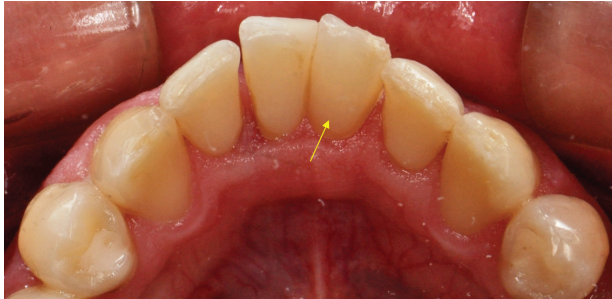


Figure 2. Vestibular surface of lower right central incisor positioned to lingual region.

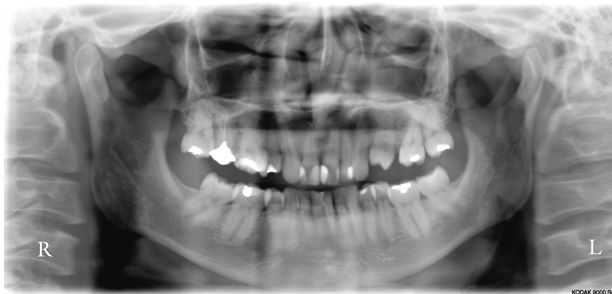


Figure 3. Conventional panoramic radiograph of the jaws.

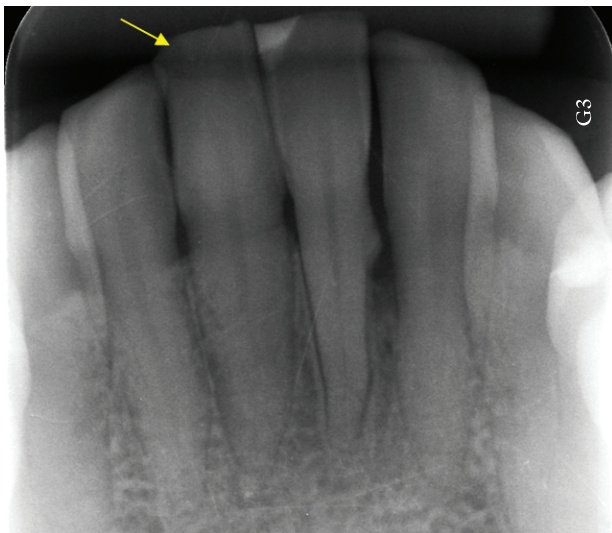


Figure 4. Periapical radiography.

units to changes that lead to such complex structural disorganization of the enamel and dentin (SEABRA, MACHO, PINTO et al., 2008).

When these disturbances occur during the eruption, continuous process of moving a tooth from your local of development for its functional position (FERREIRA, 2004), dental position anomalies may arise. In addition, a impairment in bone development of dental arches could lead to disturbances in the positioning of the teeth (BERTAZZOLI, BAPTISTA, FONSECA et al., 2007).

The recognition of anomalies is not always possible only with the clinical examination, it is often necessary resort to a radiographic examination to diagnose or confirm the diagnosis (SEABRA, MACHO, PINTO et al., 2008).

In the phase of change of teeth the panoramic image is especially important because the evaluation of location and stage of development of intraosseous germs of permanent teeth allows the identification of deviations in the normal pattern of eruption (GARTNER and GOLDENBERG, 2009).

The knowledge of these anomalies has great influence in establishing the treatment plan of patients (WAKED, COUTO, SALES et al., 2004), as they cause the malocclusions (FERREIRA, 2004).

Lisher ranked the malpositioning tooth individually, defining the change of the tooth relative to its normal position. He added the suffix “version” to the term indicative of the direction of the deviation (MIGUEL NETO and MUCHA, 2000; FERREIRA, 2004).

The rotation, classified as one of these changes of position was subjectively defined as an intra-alveolar rotation mesiolingual or distolingual of the dental element around its long axi (BACCETTI, 1998). According to Teixeira, Martins, Lascala et al. (2008), the lower canines are the most affected by rotation with low frequency of involvement of the lower incisors

These changes in dental positions can affect the obtainment of the normal occlusion of patient, which is defined as 28 teeth on the bow correctly ordered and in harmony with all the static and dynamic forces that act on them, or better, normal occlusion is an occlusion stable, healthy and aesthetically attractive (FERREIRA, 2004). In the case reported here, even with tooth rotation, since it is complete (180°) it remained the interproximal contacts and the size of the dental arch, with no wasted space on the perimeter.

4 Conclusion

Anatomical changes may be present in the oral cavity, without incurring in functional or psychological harm to the

patient, the dental surgeons should watch for these situations, trying to carry a proper treatment plan for each case.

References

- BACCETTI, T. Tooth rotation associated with aplasia of nonadjacent teeth. *The Angle Orthodontist*, 1998, vol. 68, n. 5, p. 471-4. PMID:9770106.
- BERTAZZOLI, RCB., BAPTISTA, MR., FONSECA, LC. and FIGUEIREDO, CRL. Prevalência de anomalias dentárias em crianças nascidas de mães soropositivas para o HIV. *DST - Jornal brasileiro de Doenças Sexualmente Transmissíveis*, 2007, vol. 19, n. 1, p. 11-15.
- FERREIRA, FV. *Ortodontia: diagnóstico e planejamento clínico*. São Paulo: Ed. Artes Médicas, 2004.
- GARIB, DG., ALENCAR, BM., FERREIRA, FV. and OZAWA, TO. Anomalias dentárias associadas: o ortodontista decodificando a genética que rege os distúrbios de desenvolvimento dentário. *Dental Press Journal of Orthodontics*, 2010, vol. 15, n. 2, p. 138-157.
- GARTNER, CF. and GOLDENBERG, FC. A importância da radiografia panorâmica no diagnóstico e no plano de tratamento ortodôntico na fase da dentadura mista. *Revista Odonto*, 2009, vol. 17, n. 33, p. 102-109.
- GUPTA, SK., SAXENA, P., JAIN, S. and JAIN, P. Prevalence and distribution of selected developmental dental anomalies in an Indian population. *Journal of Oral Science*, 2011, vol. 53, n. 2, p. 231-238. PMID:21712629. <http://dx.doi.org/10.2334/josnusd.53.231>
- KUMAR, S. and BHIM, B. Clock wise or anti-clock wise. *Jiads*, 2011, vol. 11, p. 52-54.
- MIGUEL NETO, AB. and MUCHA JN. Classificação das maloclusões – uma nova proposta. *Ortodontia Gaúcha*, 2000, vol. 4, n. 1, p. 41-58.
- PEDREIRA, EM., MAGALHÃES, MCG., CARDOSO, CL., TAVEIRA, LAA. and FREITAS, CF. Radiographic study of dental anomalies in Brazilian patients with neuropsychomotor disorders. *Journal of Applied Oral Science*, 2007, vol. 15, n. 6, p. 524-8. PMID:19089192.
- SCARPIM, MFPA., NUNES, VS., CERCI, BB., AZEVEDO, LR., TOLAZZI, AL., GRÉGIO, AMT. and IGNÁCIO, AS. Prevalência de anomalias dentárias em pacientes avaliados para tratamento ortodôntico: estudo retrospectivo. *Revista de Clínica e Pesquisa Odontológica*, 2006, vol. 2, n. 3, p. 203-212.
- SEABRA, M., MACHO, V., PINTO, A., SOARES, D. and ANDRADE, C. A Importância das Anomalias Dentárias de Desenvolvimento. *Acta Pediátrica Portuguesa*, 2008, vol. 39, n. 5, p. 195-200.
- TEIXEIRA, VP., MARTINS, MAT., LASCALA, CA., MARQUES, MM., ROSSI, JM., MISSAWA, GTM. and MARTINS, MD. Estudo de anormalidades dentárias de desenvolvimento em pacientes em tratamento ortodôntico. *Revista do Instituto de Ciências da Saúde*, 2008, vol. 26, n. 4, p. 454-7.
- VÁZQUEZ, DJ., BRUNO, IG., RAMÍREZ, MJ., MARTÍNEZ, BAM., CARBAJAL, EE. and MARTÍNEZ, EE. Estudio de prevalencia de patologias dentarias de desarrollo en radiografías panorámicas. *Revista de la Facultad de Odontología*, 2008, vol. 23, p. 9-12.
- WAKED, AO., COUTO, GB., SALES, RD. and SOARES, EA. Prevalência das Más-oclusões em Pacientes da Clínica de Ortodontia da Universidade Federal de Pernambuco. *Jornal Brasileiro de Ortodontia e Ortopedia Facial*, 2004, vol. 9, n. 52, p. 385-9.

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