



Research Article

DENTAL MANIFESTATIONS OF CONGENITAL SYPHILIS

¹Jéferson Martins Pereira Lucena Franco, ²Sérgio Eberson da Silva Maia, ³Alerico Dias Vieira, ⁴Carolina Carvalho de Oliveira Santos and ^{5,*}Thiago Fonseca-Silva

^{1,2,3} School of Dentistry, Centro Universitario Leão Sampaio – UNILEÃO, Juazeiro do Norte, Ceará, Brazil

⁴Professor, Department of Restorative Dentistry, School of Dentistry, Universidade Federal do Paraná – UFPR, Curitiba, Paraná, Brazil

⁵Professor, Department of Oral Pathology, School of Dentistry, Centro Universitario Leão Sampaio – UNILEÃO, Juazeiro do Norte, Ceará, Brazil

ARTICLE INFO

Article History:

Received 16th April 2016
Received in revised form
25th May 2016
Accepted 29th June 2016
Published online 31st July 2016

Keywords:

Dental,
Syphilis,
Hypoplastic,
Tooth Enamel.

ABSTRACT

Congenital syphilis can affect several organs and tissues such as bones and skin. In addition, neurological disorders and face and teeth abnormalities can be presented in this condition. Hutchinson's incisors and Fournier's molars, also known as mulberry molars, are the two types of dental defects commonly associated with congenital syphilis. Although the dental features of this condition are well described in literature, the most of dentists may have never seen or made dental diagnosis of this change. The aim of this study was to conduct a short communication about dental features of congenital syphilis in order to reinforce the attention of oral health professionals for this condition that can be easily confused with others hypoplastic defects of the teeth.

Copyright © 2016, Jéferson Martins Pereira Lucena Franco et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Syphilis is a sexually transmitted disease caused by *Treponema pallidum*, an anaerobic tightly coiled helical bacterial specie (spirochete type), which affects only humans (de Paulo et al., 2015; Leuci et al., 2013). This disease can be acquired through sexual contact, vertical transmission (from mother to fetus) or by blood transfusion from an infected person (Barrett et al., 2004). In the early stages of disease the symptoms are quite scarce making it difficult to diagnosis and treatment. The infection can affect any organ of the individual and results in neurological, cardiovascular and skeletal damage (Leuci et al., 2013; Minicucci et al., 2013). Based on its infectivity and activity, syphilis can be classified into four stages: primary, secondary, latent and tertiary. The oral cavity is the most common site of involvement of syphilitic infection extragenital (Barrett et al., 2004; de Paulo et al., 2015; Seibt and Munerato 2016). During pregnancy, the infection by *Treponema pallidum* can be associated with intrauterine infection of the child.

*Corresponding author: Thiago Fonseca-Silva

Professor, Department of Oral Pathology, School of Dentistry, Centro Universitario Leão Sampaio – UNILEÃO, Juazeiro do Norte, Ceará, Brazil.

This condition is known as congenital syphilis and presenting several forms of involvement. Rash of skin, saddle nose, frontal bossing, tibia saber, interstitial keratitis in eye, deafness associated with vestibulocochlear nerve impairment and dental anomalies are findings of congenital syphilis (Nissanka-Jayasuriya et al., 2016; Kucinskiene et al., 2016).

Dental abnormalities

The earliest reference to dental manifestations of congenital syphilis was reported by Jonathan Hutchinson in 1861 (Hutchinson 1861). Dental defects are the most common manifestations of congenital syphilis in oral cavity. In incisors affected by congenital syphilis, the incisal edge has been described as either notched or "screw driver shaped". The bulbous crown is described as "barrel shaped". The tooth with these characteristics are named Hutchinson's incisors (Nissanka-Jayasuriya et al., 2016). The Figure 1 (A) shows maxillary central incisors with greater mesiodistal diameter in the middle third of the crown in "barrel shaped". The incisal third tapers toward the incisal edge, resulting in a tooth in "screw driver shaped" and, in addition, the incisal edge displays a hypoplastic enamel.

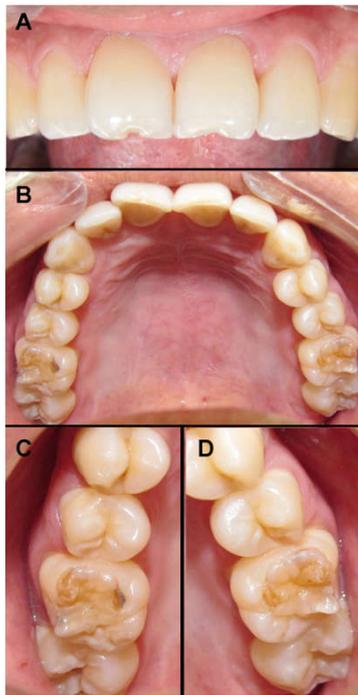


Figure 1. A) Hutchinson's incisors of congenital syphilis. Maxillary central incisors exhibiting "barrel shaped" and "screw driver shaped"
B) Molars mulberry of congenital syphilis.
C and D) Molars displaying occluded surface with numerous globular projections in the form of blackberry

The differential diagnosis for tooth structure defects is quite complex because there are several etiologic factors associated with this condition (Seow 2014). Dental defects of congenital syphilis can be confused for other changes in the structure and shape of the teeth. The environmental, genetic and systemic factors are associated with different types of dental hypoplasia and may hinder the diagnosis of dental alterations of congenital syphilis. Dental changes such as enamel hypoplasia, hypoplasia antineoplastic therapy, Turner's hypoplasia and tooth fracture can be included in the differential diagnosis of the Hutchinson's incisors and mulberry molars. The treatment of syphilitic hypoplasia may be required for aesthetic or functional reasons. Thus, various treatment protocols can be adopted from conservative restorations to artificial crowns. Adhesive restorations of composite resin have emerged as a simple and non-invasive technique to treat these dental changes since the introduction of the etchant and the increasing improvement of adhesive systems and composites made possible the realization of this technique. Technical direct restorative provide a conservative, aesthetic and functional treatment in a single session, minimizing the amount of dental tissue to be removed in a tooth already compromised by the change in enamel, restoring aesthetics and dental harmony (Roberts *et al.*, 2016). The Figure 2 shows the steps for condition of diagnosis and treatment of dental alterations of congenital syphilis.

Final considerations

Dentists should consider the dental changes of congenital syphilis and its various clinical aspects, in the differential diagnosis of dental abnormalities, to establish a correct diagnosis and appropriate treatment protocols. Moreover, the dental findings of congenital syphilis may assist in diagnosis of other disorders associated such as deafness associated with vestibulocochlear nerve impairment and interstitial keratitis.

Conflicts of interest

The authors declare that they have no conflicts of interest.

REFERENCES

Barrett, A. W., M. Villaruel Dorrego, T. A. Hodgson, S. R. Porter, C. Hopper, A. S. Argiriadou, and P. M. Speight. 2004. 'The histopathology of syphilis of the oral mucosa', *J Oral Pathol Med*, 33: 286-91.

de Paulo, L. F., J. P. Servato, M. T. Oliveira, A. F. Durighetto, Jr., and Zanetta-Barbosa, D. 2015. 'Oral Manifestations of Secondary Syphilis', *Int J Infect Dis*, 35: 40-2.

Hutchinson, J. 1861. 'Clinical Lecture on Heredito-Syphilitic Struma: And on the Teeth as a Means of Diagnosis', *Br Med J*, 1: 515-7.

Kucinskiene, V., L. Russetti, D. Stoniene, A. Vitkauskiene, S. Valiukeviciene, and R. Tameliene. 2016. 'A Case Report and Review of Early Symptomatic Congenital Syphilis Clinical Variations', *Clin Pediatr (Phila)*, 55: 693-7.

Leuci, S., S. Martina, D. Adamo, E. Ruoppo, A. Santarelli, R. Sorrentino, G. Favia, and M. Mignogna. 2013. 'Oral Syphilis: a retrospective analysis of 12 cases and a review of the literature', *Oral Dis*, 19: 738-46.

Minicucci, E. M., R. A. Vieira, D. T. Oliveira, and S. A. Marques. 2013. 'Oral manifestations of secondary syphilis

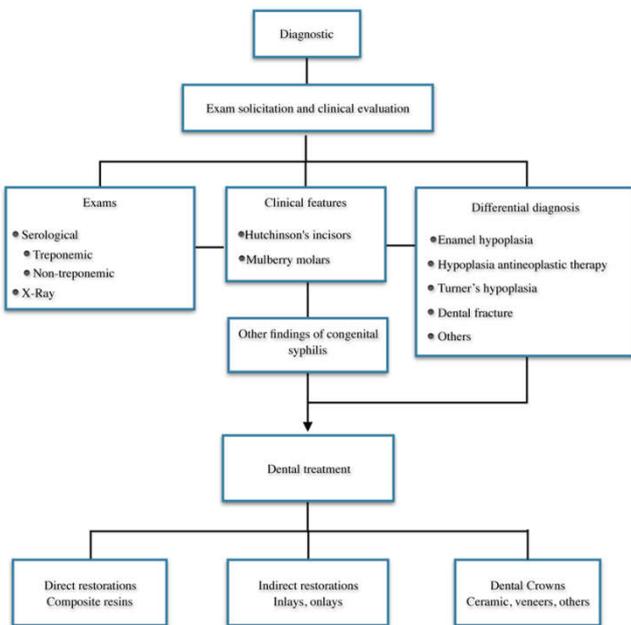


Figure 2. Steps for formulating the diagnosis and treatment of dental abnormalities of congenital syphilis

The first molars may have multiple and malformed cusps called Fournier's molars or "mulberry molars". Molars affected by congenital syphilis are described as if "a smaller tooth growing out of a larger one, a stump growing from a normal crown" (Nissanka-Jayasuriya *et al.*, 2016). The Figure 1 (B, C and D) shows the upper first molars showing abnormal occlusal anatomy, various unorganized globular projections that resemble the surface of blackberry. In addition, can be seen a deep groove around the base of each cusp caused by enamel hypoplasia.

- in the elderly - a timely reminder for dentists', *Aust Dent J*, 58: 368-70.
- Nissanka-Jayasuriya, E. H., E. W. Odell, and C. Phillips. 2016. 'Dental Stigmata of Congenital Syphilis: A Historic Review With Present Day Relevance', *Head Neck Pathol*.
- Roberts, D. L., B. F. Warner, D. A. Bentley, and R. L. Quock. 2016. 'Combination esthetic treatment of anterior teeth affected by idiopathic enamel hypoplasia: a case report', *Gen Dent*, 64: 47-50.
- Seibt, C. E., and M. C. Munerato. 2016. 'Secondary syphilis in the oral cavity and the role of the dental surgeon in STD prevention, diagnosis and treatment: a case series study', *Braz J Infect Dis*.
- Seow, W. K. 2014. 'Developmental defects of enamel and dentine: challenges for basic science research and clinical management', *Aust Dent J*, 59 Suppl 1: 143-54.
