

## Premature loss of primary teeth associated with congenital syphilis: a case report

Andréa Gonçalves Antonio\* / Alice Kelly\*\* / Lucianne Cople Maia\*\*\*

*Congenital syphilis is an infectious disease transmitted by an infected mother to her fetus. Several reports in the literature have focused on oral manifestations of congenital syphilis, mainly about Hutchinson's teeth and dysplastic molars, which are more common. However, this paper describes an unusual feature of congenital syphilis in a four-year-old child. A case of premature loss of primary teeth associated with congenital syphilis is reported.*

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### INTRODUCTION

Syphilis is an infectious disease, which can be congenital or acquired, caused by the spirochete *Treponema pallidum*. Acquired syphilis is much more common and is the result of sexual contact with, or blood transfusion from, an infected person.<sup>1</sup> When the infection of a syphilitic mother is passed through the placenta to the fetus, the fetus has a chance of being infected. If the fetus is affected, the condition is termed congenital syphilis.<sup>2</sup> Early congenital syphilis occurs when the child is two years old or younger. If the child is older than two years of age, the condition is termed late congenital syphilis.<sup>3</sup>

Maternal syphilis is a significant problem in Latin America.<sup>4,5</sup> Official data show that the number of infants born with congenital syphilis was 10,600 during 2002, according to 15 countries that reported data to the Pan American Health Organization.<sup>5</sup> In the last epi-

demiological annual survey carried out in Brazil, 3,316 new cases of congenital syphilis were registered.<sup>6</sup> Besides, syphilis reflects one of the most glaring examples of racial disparity in health status, with the rate for blacks nearly 30 times the rate for whites.<sup>7</sup>

In relation to the oral manifestations of congenital syphilis, the most common signs are high-arched palate, short mandible, and rhagades at the commissures, saddle nose, frontal bossing, Hutchinson's teeth, dysplastic molars<sup>8</sup> and palatal defect<sup>9</sup>. Dysplastic permanent incisors, interstitial keratitis and eighth nerve deafness compose the classic Hutchinson's triad, which are defined as pathognomonic diagnostic features of congenital syphilis.<sup>10</sup>

Premature loss of teeth associated with systemic disease usually results from some change in the immune system or connective tissue. The most common of these conditions appear to be hypophosphatasia and early-onset periodontitis. Other diseases that may be manifested with severe oral infection, such as Wiskott-Aldrich syndrome, diabetes mellitus, or herpes zoster, could result in early tooth loss.<sup>11</sup> However, premature loss reports of primary teeth in patients with congenital syphilis were not found in the literature reviewed.

Although the premature loss of primary teeth in conjunction with early eruption of permanent teeth may be of no clinical significance, the clinician should not overlook the loss of primary or permanent teeth in the absence of trauma. Therefore, the aim of this paper is to report a case of premature loss of primary teeth in a four-year-old child with congenital syphilis.

### CASE REPORT

A four-year-old female Afro-American child was brought by her mother to the pediatric dental clinic of a public university in Rio de Janeiro, Brazil. The chief complaint was the presence of dental caries in the posterior teeth of her daughter.

\* Dr. Antonio was a postgraduate student of pediatric dentistry, Department of Pediatric Dentistry and Orthodontics, School of Dentistry, Federal University of Rio de Janeiro, Brazil.

\*\* Dr. Kelly is a pediatric dentist with a post graduation in Pediatric Dentistry, Department of Pediatric Dentistry and Orthodontics, School of Dentistry, Federal University of Rio de Janeiro, Brazil.

\*\*\* Dr. Maia is Associate professor of pediatric dentistry, Department of Pediatric Dentistry and Orthodontics, School of Dentistry, Federal University of Rio de Janeiro, Brazil.

Send all correspondence to Dr. Lucianne Cople Maia, Rua Marquês do Paraná, 189 apt. 1804 - Centro - Niterói- Rio de Janeiro - Brazil 24.030-210

Voice/Fax number: (55) (21) 2629-3738

E-mail: rorefa@microlink.com.br



Figure 1. Palatal defect.



Figure 2. Absence of the teeth numbers 51 and 52.

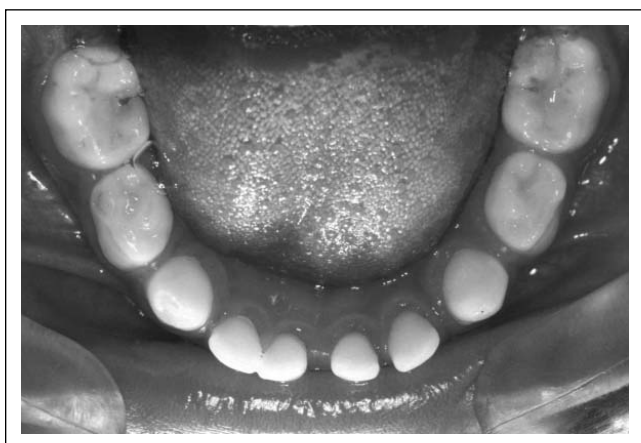


Figure 3. Cavitated carious lesions in mandibular primary second molars.

Anamnesis revealed that she was born by normal childbirth after a complicated gestation, in which her mother presented nutritional deficiencies.

The medical history of the child states that antibiotic therapy with penicillin when she was one year old for the treatment of early congenital syphilis was given.

Extra-oral examination did not reveal abnormalities. Intra-oral examination revealed poor oral hygiene, palatal defect (Figure 1), absence of the teeth numbers 51 and 52 (Figure 2) with no history of trauma, hypoplasia in mandibular primary canines and in all primary molars, cavitated carious lesions in mandibular primary second molars (Figure 3) and absence of periodontal pocket.

As described by her mother, elements numbers 51 and 52 exfoliated just after eruption, before the child reached one year of age, besides the fact that another tooth erupted in their place, also having been exfoliated a short time later. The mother was asked if she would have those teeth, said she did not, and suggested that the child could have swallowed them.

Radiographic examination confirmed caries lesions in teeth numbers 75 and 85 and absence of alveolar bone tissue loss in inter-proximal surfaces (Figure 4). It was also observed the absence of bone tissue in the pre-maxilla region referred to elements numbers 51 and 52 that exfoliated early. Periapical radiographic examination (Figure 5) revealed that teeth numbers 11 and 21 were short and narrow with broad notches at the edges,

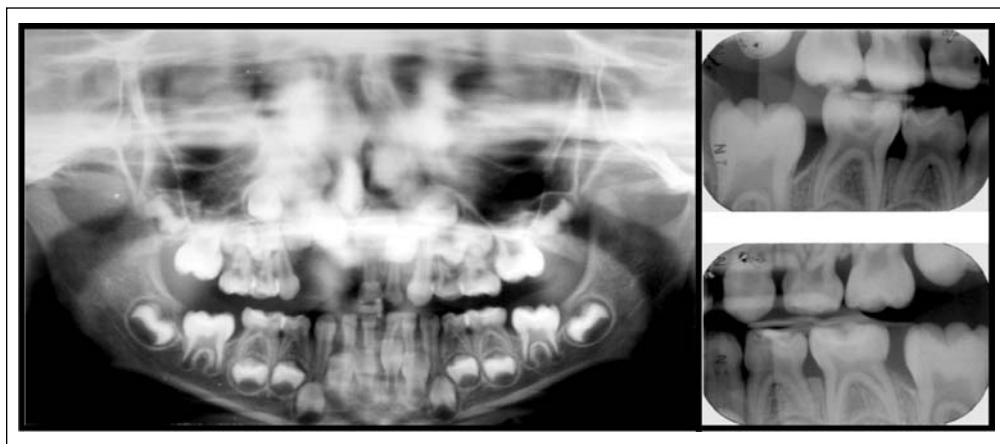
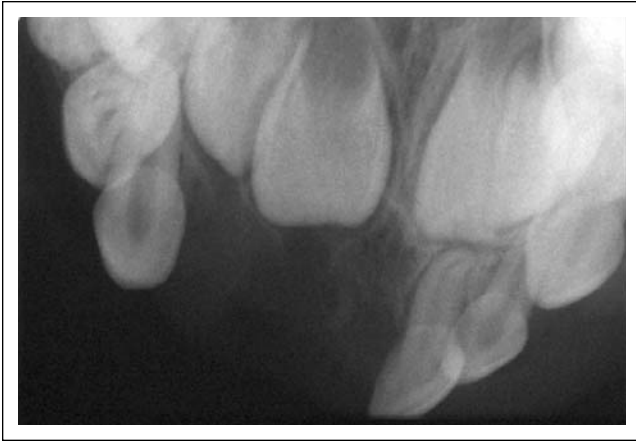


Figure 4. Radiographic examination showed carious lesions in elements numbers 75 and 85, and absence of alveolar bone tissue loss in inter-proximal surfaces.



**Figure 5.** Periapical radiograph examination revealed that teeth numbers 11 and 21 were short and narrow with broad notches at the edges.

similar to Hutchinson's teeth, which is common in children with congenital syphilis. No bone defect in the hard palate region (Figure 6) was found.

Regarding the bone loss in the premaxilla region, the laboratory examination was required to verify the alkaline phosphatase serological levels, which result was considered normal.

The proposed treatment plan for the patient included oral hygiene instruction for mother and the child, restorative treatment for caries lesions, as well as the placing of a space maintainer in the region of the absent incisors. Follow-up visits will be scheduled every third month after the treatment, for constant oral hygiene instructions and for the proposed space maintainer follow-up, monitoring the succeeding permanent eruption.

## DISCUSSION

The detailed description of the oral manifestations of congenital syphilis is amply reported in odontological literature.<sup>8,9,12,13,25</sup> However, the present report portrays the case of a child presenting premature exfoliation of the primary incisors of the upper right quadrant, supposedly as a consequence of this pathology. These circumstances have not been found in the literature consulted.

According to Andreasen and Andreasen<sup>14</sup>, the avulsion of primary teeth owing to trauma can occur, particularly at the age in which children are learning to walk. Nevertheless, according to the same author, traumas to deciduous dentition are generally teeth dislocations. Considering two dental teeth lost and the presence of alveolar bone defect, the anterior extension of which occurs in the same direction as the aforementioned dental teeth, where the absence of enough bone tissue for support was radiographically observed in this premaxilla region, all of which makes the possibility of avulsion remoter, the suspicion arises that this loss is indeed a consequence of congenital syphilis, for it is this condition that has promoted the bone malformation.



**Figure 6.** Radiographic examination showed absence of bone defect in the hard palate region.

Apart from that, it was reported by the mother that another dental tooth erupted in the same place, having also been lost soon after eruption in the arch. It was speculated, therefore, that it was a case of natal or neonatal teeth, since they can appear with great mobility, as they do not have complete radicular formation, in some cases, which causes the early loss of a great number of such teeth.<sup>15</sup> However, according to the anamnesis, these teeth erupted when the child was nearing one year of age. Thus, the attempt to establish a correlation with natal or neonatal teeth failed, and this option was also discarded, for such teeth are respectively either present at birth or erupt up to a month of age.<sup>16</sup>

As stated by the literature, the premature loss of primary teeth associated with certain systemic illnesses causing the manifestation of severe oral infections is frequent, as, for example, in the Wiskott-Aldrich syndrome, herpes zoster, diabetes mellitus type I and hypophosphasia.<sup>17,11</sup> This article presents the case report of a child, who had no systemic compromising other than congenital syphilis, diagnosed and treated when she was one year old, according to the medical report presented by her mother.

In addition, the laboratory results revealed normal concentrations of alkaline phosphatase. Thus, the presence of bone illnesses, which is characterized by a large osteoblastic activity, can also be discarded.

Judging from the radiographic examinations of the patient, no alveolar bone losses were observed in proximal surfaces, which are characteristic of early-onset periodontitis.<sup>15</sup> In these circumstances, the possibility of loss of the deciduous elements in point owing to this condition has also been discarded, for if such an illness had occurred there would have probably also been presence of periodontal pocket, as well as absence of other dental elements.

It is believed that the large number of hypoplastic dental teeth presented in this case report was caused by maternal nutritional deficiencies during the gestational period of the child. According to McDonald *et al.*<sup>15</sup>,

deficiencies in vitamins A, C and D, calcium and phosphorus can often be related to the onset of enamel hypoplasia. Purvis *et al.*<sup>18</sup>, in a study of 112 unweaned infants, observed enamel hypoplasia in 56% of them, and also that such a condition was linked to a vitamin D deficiency during gestation.

Defects in the region of the palate, the lesion of which maintains communication with the nasal fossa in syphilitic patients, are mentioned in the literature.<sup>9,19,20</sup> In the present case it is believed that there was an unsuccessful attempt of communication with the nasal fossa, as the anatomical defect found in the hard palate is shown as a depression in the region, but there is no communication with the nasal fossa that can be radiographically observed.

The use of a space maintainer was planned in the anterosuperior region of the maxilla from which teeth numbers 51 and 52 were lost, since the succeeding permanent incisors are radiographically shown to have less than two-thirds of formed root, and bone tissue covering the region of element number 12, which are signs that the occurrence of the eruptive process of said elements will still take some time. Therefore, the space maintainer will re-establish the masticatory, phonation and esthetic functions until the eruption of the permanent teeth. Moreover, the mother has been advised of the need for the follow-up visits for this appliance, after placement, in order to allow the monitoring of the eruption of the permanent incisors.

Congenital syphilis almost always leaves lifelong sequelae. The manifestations of the illness last a long time, even after the infection has been cured or all activity has ceased.<sup>13</sup> Thus, as it has been radiographically shown that the succeeding incisors present characteristics of the 'barrel shape' common to patients with this condition,<sup>3,12,21,22</sup> when the space maintainer is removed for the eruption of the permanent incisors, the follow-up will continue so that these elements can be adequately restored to re-establish esthetics, in case of need.

In the face of the case here described, and taking into consideration that the child with congenital syphilis frequently presents oral manifestations, the pediatric dentist should be alert not only to the classical sequelae of this illness but also to any characteristics presented by a congenital syphilis patient, so that a correct diagnosis may be made and an adequate treatment prescribed for these manifestations.

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