Dental aspect in Down Syndrome: A case report

Saba Sultana Shaikh, Chhaya Adalja, Revant Chole, Pranay Patel, Ruchita Peter.

Department of Oral Medicine and Radiology, College of Dental Science and Hospital, Amargadh, Bhavnagar, India

Abstract

Down syndrome (DS) is caused by the presence of all or a part of a third copy of "chromosome 21 (47, XY, +21 or 47, XX, +21)". John Langdon Down in 1866 named this syndrome as "mongolism." The patients of Down syndromes are associated with some medical and dental disorders. The oral finding most commonly present in patients with DS include the tongue (macroglossia), teeth (number and shape), delayed eruption of teeth and poor quality of alveolar and jaw bones (osteoporotic-like). This article presents a case of DS in 9 -year-old male patient who had missing mandibular anterior teeth.

Introduction

Down's syndrome (DS) is an easily recognized congenital, autosomal anomaly characterized by generalized physical and mental deficiencies. It affects between 1 in 600 and 1 in 1000 live births. Down syndrome is named after John Longdon Down, the British doctor who first described the condition in 1887 [1,2].

DS is genetic disorder caused by the presence of all or a part of a third copy of chromosome 21[3]. Down's syndrome can range from mild to severe. Usually, mental development and physical development are slower in people with DS[1,3]

DS can be identified in a newborn by direct observation or in foetus by prenatal scanning[4]. Some common physical signs of DS are flat face with an upward slant eyes, short neck, abnormal shaped ears, small hands, single crease in the palm of the hand, poor muscle tone, loose ligaments and white spots on the iris of the eye[3,4].

Case Report

A 9-year-old male patient, third birth order, born to consanguineous couple aged 35 and 40 years has reported to the Department of Oral Medicine and Radiology with the chief complaint of missing teeth in the mandibular anterior region and desired replacement of the same.

The patient was moderately built and had mild degree of mental retardation. He had most of the common dysmorphic features of Down syndrome like short palpebral fissures, epicanthic folds of the eyelid causing almond shaped eyes; mongoloid slant, hypertelorism, depressed nasal bridge. The patient also presented with a short neck, small hands and feet, deep crease in the palm of the hand, poor muscle tones.

Figure 1: Facial view showing a flat face with an upward slant of the eye and a descending angle of the mouth.

Family history was significant. His medical history was unremarkable and he was not on any medication. The facial profile showed a flat face with an upward slant of the eye and short palpebral fissure. The profile view revealed depressed nasal bridge and infra-orbital margins.

Intra oral examination revealed mising teeth in relation to the mandibular anterior region and the clinical crowns appeared smaller than normal (microdontia). The patient had a high arched palate, relatively small mouth and macroglossia. The patient had a relatively

low caries incidence and fairly good oral hygiene status.

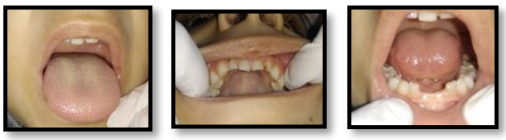

Figure 2: Intra-oral view showing localized spacing in relation to the mandibular arch, short clinical crowns and macroglossia.

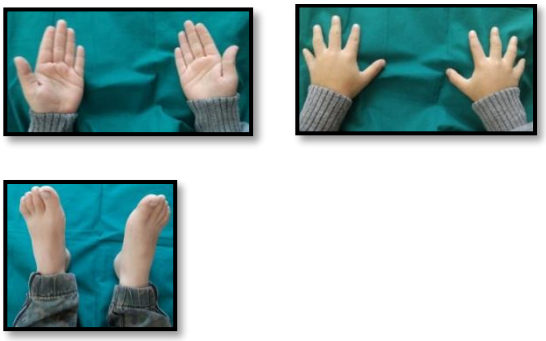

Figure 3: No palmer and plantar crease noticed

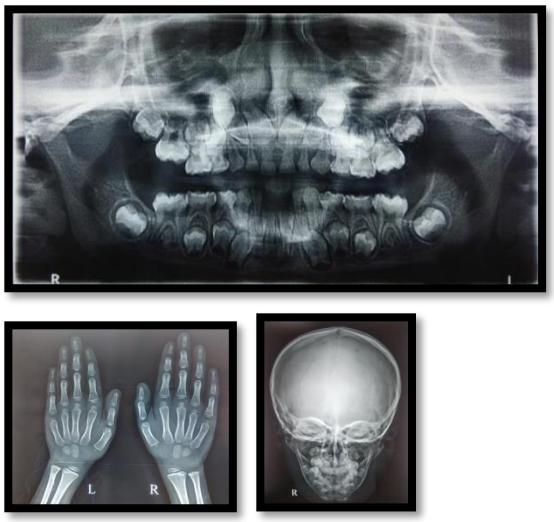

Figure 4: The orthopantomogram revealed localized spacing of teeth in the lower arches, decayed teeth as well. Hand and wrist radiograph revealed delayed growth. AP skull view shows presence of succedeneous tooth buds.

Considering the physical and mental development, clinical, oral and radiographic findings the patient was diagnosed as a case of Down syndrome and wait and watch was adviced for the mandibular anterior missing teeth and restoration of decayed tooth was adviced for restoring the structural and functional integrity.

Discussion

Down syndrome is an autosomal chromosomal anomaly resulting from trisomy of all or a critical part of chromosome 21. It affects approximately 1 in 600 to 1000 live births. Despite the development of prenatal diagnosis, the incidence of Down syndrome births is predicted to remain static or even to increase over the next decade, partly due to increased maternal age[5]. Diagnosis of Down syndrome primarily includes screening test which are non invasive test such as ultrasonography, definitive diagnostic test includes Karyotyping cultured fetal cells such as chorionic Villus Sampling (CVS), aminocentesis[6]. During the 2nd and 3rd trimisters of pregnancy Percutanious umbilical blood sampling (PUBS) is a method for obtaining fetal blood along with ultrasnography[7].

Many of the medical and physiological characteristics of this condition have direct consequences for the oral health of subjects affected and indirect consequences for the quality of life of the affected persons and their guardians[8].

Dental care for the patient with Down syndrome can be achieved in the general practitioner's office in most instances with minor adaptations. Although this population has some unique dental care needs, few patients require special facilities in order to receive dental treatment. Adequate dental health care for persons with developmental disabilities is a major health need[5].

Stem cell research looks at the earliest stages of human development. Now that specific genes on chromosome 21 are identified, it may not be unreasonable to predict that the cellular

processes that give rise to Down syndrome will also be revealed. Miller (2002) reported that scientists have undertaken the task of identifying those gene expressions that are linked with the development of Down syndrome; if these scientists are successful, the possibility of altering the disease progression may not be so far out of reach. The National Down Syndrome Society is currently sponsoring research on the causes of Down syndrome[9] (National Down Syndrome Society, 2002).

Conclusion

The presence of dental anomalies in patients with DS is quite pronounced, with an incidence of 95.92%. Along with their slow growth and development, these patients present at least one type of dental anomaly. Knowledge regarding DS and its dentofacial manifestations is important not only for the early diagnosis but also for the long-term medical and dental health management of these individuals. An early recognition of such a disorder is crucial in improving the psychological, physiological, as well the medical and dental quality of life in affected patients.

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Conflicts of interest:

There are no conflicts of interest.

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Corresponding Author:
Dr. Shaikh Saba Sultana
Department of Oral Medicine and Radiology, College of Dental Science and Hospital, Amargadh, Bhavnagar, Gujarat, India.
Email ID: saba.shaikh121@gmail.com