Original Research Paper Medicine

Coffin Siris Syndrome: A Rare Case Report

Dr Sahil Mustafa Kidwai	Oral Medicine and Radiology Private Practitioner, meerut
Dr. Riyaz Ahmed	Associate Professor, Dental Department, LLRM Medical College, Meerut
Dr. Sumit Goel	Reader, Department of Oral Medicine & Radiology Subharti dental college and Hospital, Meerut, Uttar Pradesh
Dr. Maneet Kukreja	Prosthodontist Private practitioner, Ludhiana, Punjab
Dr. Ali Atif	Post Graduate student, Department of Oral Surgery Subharti dental college and Hospital, Meerut, Uttar Pradesh

ABSTRACT

Coffin-Siris Syndrome (CSS) is an intellectual disability disorder characterized by aplasia or hypoplasia of the distal phalanx or nail of the fifth digit, developmental delay, coarse facial features, and other different clinical manifestations. Facial features typically include a wide nose with a flat nasal bridge, a wide mouth with thick lips, and thick eyebrows and eyelashes. Due to the clinical variability of facial and other features, the diagnosis of this syndrome is often difficult to confirm. It is a rare genetic abnormality with undetermined pattern of inheritance. Approximately 140 cases of CCS have been reported in the medical literature. Dentists should be well aware that along with achieving a well functioning dentition and an esthetically satisfying facial appearance, proper motivation and psychological support for the patients and their parents are also important. Here, we report another rare and interesting case of CSS who presented with all characteristic signs and symptoms of this syndrome. An interesting oral manifestation in the form of bifid uvula was seen in our case which is rarely reported in literature.

KEYWORDS Coffin-Siris Syndrome, intellectual disability, distal phalanx hypoplasia, coarse facial features, bifid uvula

INTRODUCTION

Coffin-Siris syndrome (MIM 135900) is a rare heterogeneous disorder both clinically and genetically.[1,2] The first description of the syndrome was published by Coffin and Siris in 1970; they described 3 girls with mental retardation, absent nails of the fifth fingers and hypoplastic distal phalanges.[3] Coffin Sirus Syndrome (CSS) is also sometimes referred in literature as Dwarfism-Onychodysplasia, Fifth Digit Syndrome, Mental Retardation with Hypoplastic 5th Fingernails and Toenails, and Short Stature-Onychodysplasia.[3,4]

CCS is a rare congenital multi-systemic genetic disorder characterized by aplasia or hypoplasia of the distal phalanx or nail of the fifth digit, developmental delay, intellectual disability, coarse facial features, hypotonia, joint laxity, delayed bone age, low birth weight and other variable clinical manifestations.[5] It is more commonly seen in females and more than 100 cases of confirmed CSS has been clinically reported in literature till date.[1,3,5]

Here, we report another rare and interesting case of CSS who presented with all characteristic signs and symptoms of this syndrome.

Case Report

A 20 year old female reported to the outpatient department of Subharti Dental College and hospital, Meerut with the chief complaint of deposits on the teeth since 6 months. History revealed development delays like failure to attain normal height, late in sitting, standing, delayed speech as compared to her siblings. Born to non consanguineous parents, her Intelligence quotient was below normal she could only understand simple commands. There was no familial history. On physical examination, her height was 130cms and her head circumference of 52 cms. Nails of her upper extremities were hypoplastic and that of the fifth finger was absent (Fig 1). On the other hand, all the nails of lower digits were missing except for thumbs (Fig 2). Extra oral examination revealed broad nasal bridge, hypertelorism, exotropia, thick facial hairs, hersutism, thick eye brows, long eye lashes and small eyes (Fig 3). Intraoral examination revealed missing maxillary lateral incisor, generalized periodontitis (Fig 4) and bifid uvula (Fig 5). Blood investigations performed were hemoglobin, total leukocyte count, platelets, serum creatinine, blood urea, calcium profile, liver function tests and thyroid function tests which were under normal limits. Radiological investigations were non contributory. Patient was then referred for ophthalmological and cardiac examination which did not reveal any significant findings other than exotropia. After thorough examination, patient and parents were counseled and her dental treatment was performed. She is under regular follow up and care.

DISCUSSION

Coffin-Siris syndrome occurs very rarely. Its genetic background has not been determined so far. In most patients presented in the literature, there were no chromosomal abnormalities. Heterozygous mutation or genomic rearrangement in the *ARID1B* (6q25.3), *SMARCA4* (19p13.3), *SMARCB1* (22q11.23), *ARID1A*(1p36.1-p35), and *SMARCE1* (17q21.2) genes have been reported to be causative for CSS.[6,7] In most cases the disease is a result of a de novo mutation, but familial occurrences have also been reported[6,7]

Coffin-Siris syndrome involves a wide range of major and minor clinical findings. Characteristic major features include mild to severe developmental or cognitive delay (in all patients),

fifth finger nail/distal phalanx hypoplasia or aplasia, and coarse facial features like thick eyebrows and long eyelashes, broad nasal bridge and hypertelorism.[1,2,3] All the three distinctive features were present in our case. Also, an interesting oral manifestation in the form of bifid uvula was seen in our case which is rarely reported in literature

Common minor findings include short stature, failure to thrive, feeding difficulties, microcephaly, ophthalmological manifestations (cataracts, ptosis, strabismus)[2,3], cardiac anomalies (ventricular septal/atrial septal defects, tetralogy of Fallot, patent ductusarteriosus)[9], hypertrichosis (arms, face, back) and sparse scalp hair.[2,3] Our patient presented with ptosis, strabismus, hypertrichosis and sparse scalp hair.

The diagnosis of this condition is purely based on the most frequent clinical features. To confirm our case, we used the clinical criteria by Schrier SA ***et al***., 2012[1] which require the presence of all the three of the major features and one of each of the three categories of minor features.

Other features which have been reported include neurologic involvement (Dandy-Walker malformation, gyral simplification, agenesis of the corpus callosum, seizures, and hypotonia), hearing loss, joint laxity, genito-urinary and renal malformations and frequent infections. Developmental delay and scoliosis appear in infancy and childhood.[1-3]

Differential diagnoses include Nicolaides-Baraitser syndrome, brachymorphism-onychodysplasia-dysphalangism, DOOR syndrome, hyperphosphatasia-intellectual deficiency syndrome, Rubinstein-Taybi syndrome and Cornelia de Lange syndrome.[1,8,9] Treatment is essentially supportive and symptomatic. Occupational, physical and speech therapy are recommended. Development and feeding should be monitored closely and patients should undergo regular ophthalmological and audiological testing. The prognosis is poor in severely affected individuals, with aspiration pneumonia and seizures reported in childhood.[2,10]

Our patient presented with poor oral hygiene. Due to intellectual disability patient was never cooperative in maintaining her oral health. People with CSS have no unique oral health problems. However, some of the problems tend to be frequent and severe. Early professional treatment and daily care at home can mitigate their severity and allow these patients to enjoy the benefits of a healthy mouth. Gingival and periodontal diseases are the most significant oral health problem in people with CSS as seen in the present case. Children experience rapid, destructive periodontal disease. Consequently, large numbers of them lose their permanent anterior teeth in their early teens. Contributing factors include poor oral hygiene, malocclusion, bruxism, conical-shaped tooth roots, and abnormal host response because of a compromised immune system. Some patients benefit from the daily use of an antimicrobial agent such as chlorhexidine. An appropriate delivery method along with brushing technique should be recommended based on the patient's abilities. Chlorhexidine applied using a spray bottle or toothbrush is equally efficacious. Emphasis should be given for frequent professional scaling. Children and young adults should be advised topical fluorides and sealants to reduce risk of caries.

CONCLUSION

Coffin-Siris syndrome is a rare genetic abnormality. Despite its variable expressivity, early diagnosis through oro-facial findings is possible. In addition to facial features, diagnosis of this rare syndrome requires a reliable skeletal, ocular and cardiac evaluation. This disorder not only causes physical discomfort to the patient but also leads to psychological problems. Therefore, dentists should be well aware that along with achieving a well functioning dentition and an esthetically satisfying facial appearance, proper motivation and psychological support for the patients and their parents are also important. The presence of bifid uvula as a consistent finding of CSS will need to be confirmed by further reports and studies.

FIGURE LEGENDS

FIG 1: Photograph shows hypoplastic nails of her upper extremities while the nail of the fifth finger is absent

FIG 2: Photograph shows hypoplasia and aplasia of the nails

FIG 3: photograph showing coarse facial features like broad nasal bridge, hypertelorism, exotropia, thick facial hairs, hersutism , thick eye brows , long eye lashes and small eyes

Fig 4: photograph showing missing lateral incisors and generalized periodontitis

FIG 5: photograph showing bifid uvula

FIG 1

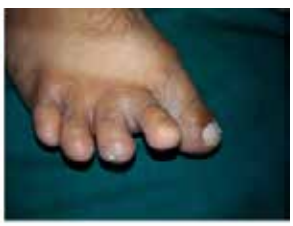

FIG 2

FIG 3

FIG 4

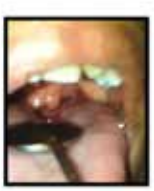

FIG 5

REFERENCES

1. Schrier SA, Bodurtha JN, Burton B, Chudley AE, Chiong MA, D'avanzo MG. The Coffin-Siris syndrome: a proposed diagnostic approach and assessment of 15 overlapping cases. Am J Med Genet A. 2012;158A (8):1865-76.
2. Vergano SS, Deardorff MA. Clinical features, diagnostic criteria, and management of Coffin-Siris syndrome. Am J Med Genet C Semin Med Genet. 2014;166C(3):252-6.
3. Levy P, Baraitser M. Coffin-Siris syndrome. J Med Genet. 1991;28(5):338-41.
4. Lucaya J, Garcia-Conesa JA, Bosch-Banyeras JM, Pons-Peradejordi G. The Coffin-Siris syndrome. A report of four cases and review of the literature. Pediatr Radiol. 1981;11(1):35-8.
5. Fleck BJ, Pandya A, Vanner L, Kerkering K, Bodurtha J. Coffin-Siris syndrome: review and presentation of new cases from a questionnaire study. Am J Med Genet. 2001 15;99(1):1-7.
6. Kosho T, Miyake N, Carey JC. Coffin-Siris syndrome and related disorders involving components of the BAF (mSWI/SNF) complex: historical review and recent advances using next generation sequencing. Am J Med Genet C Semin Med Genet. 2014;166C(3):241-51.
7. Yu Y, Yao R, Wang L, Fan Y, Huang X, Hirschhorn J, Dauber A, Shen Y. De novo mutations in ARID1B associated with both syndromic and non-syndromic short stature. BMC Genomics. 2015;16(1):701.
8. Qazi QH, Heckman LS, Markouizos D, Verma RS.The Coffin-Siris syndrome. J Med Genet. 1990;27(5):333-6.
9. Coffin-Siris syndrome with the rarest constellation of congenital cardiac defects: A case report with review of literature. Ann Pediatr Cardiol. 2014;7(3):221-6 .
10. Bender HA, Zaroff CM, Karantzoulis S, Nakhutina L, MacAllister WS, Luciano D. Cognitive and behavioral functioning in Coffin-Siris syndrome and epilepsy: a case presentation. J Genet Psychol. 2011;172(1):56-66.