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A Rare Case of Lacrimo-Auriculo-Dento-Digital (LADD) Syndrome

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Abstract: ***Lacrimo-Auriculo-Dento-Digital (LADD) syndrome or Levy-Hollster syndrome is a very rare genetic disorder which is either sporadic or inherited in autosomally dominant pattern. We present to you an 8 year old child with LADD syndrome of sporadic inheritance and lacrimal atresia.***

Keywords: LADD Syndrome, Lacrimal atresia, Autosomal Dominant, Syndatcyly

1. Introduction

Lacrimo-Auriculo-Dento-Digital (LADD) syndrome or Levy-Hollster syndrome is a rare genetic disorder which is either sporadic or inherited in autosomally dominant pattern, with mutations in fibroblast growth receptor FGFR2, FGFR3, or FGF10 genes[(1)] characterized by aplasia, atresia or hypoplasia of the lacrimal and salivary systems, cup-shaped ears, hearing loss, and dental and digital anomalies.

2. Case Report

An 8 year old girl was brought by her mother to our ophthalmic OPD with chief complaints of watering since past four years with mild redness and itching in both eyes. She also gave a history of mild hearing impairment in both ears for which the child was never examined previously.

The child was born out of non-consanguineous marriage with uneventful antenatal, natal and post natal history. All milestones were achieved and was immunised till date. The child has no siblings and none of the parents or family has similar complaints.

On examination she was found to be conscious, coherent, oriented to time and place. Her height is 115cms and she weighed 26kgs. She has slight cup shaped ears (Fig1), syndactyly of right thumb (Fig 2) microdontia and high arched palate (Fig 3) rest of the physical examination was normal.

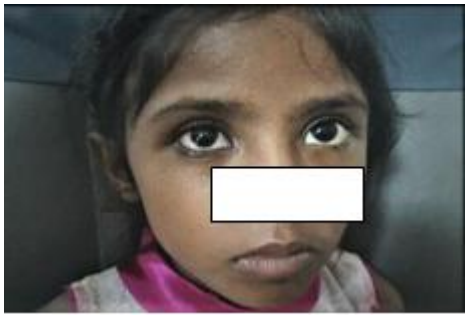

Figure 1: Cup Shaped Ears

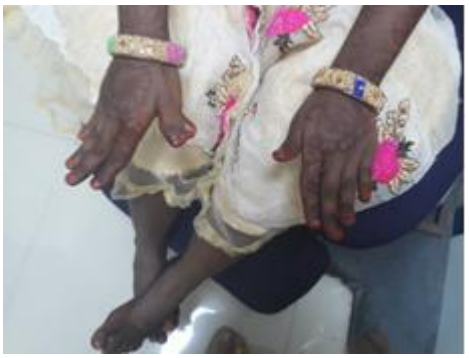

Figure 2: Syndactlyly

Figure 3: Microdontia

On ocular examination, in both eyes the child has visual acuity of 20/20, IOP 16mmHg, extra ocular movements were free and full in all gazes with central well maintained fixation. Epiphora was noted from both eyes and and accessory lacrimal puncti were seen on the inferior lid margin. (Fig 4) The tear film height was found to be higher in both eyes, ocular surface, rest of the anterior and posterior segment examination showed normal findings. On lacrimal sac syringing primary lower puncti of both eyes were found to be stenosed, where as patency was recorded in both accessory puncti and upper puncti of both eyes. (Fig 5)

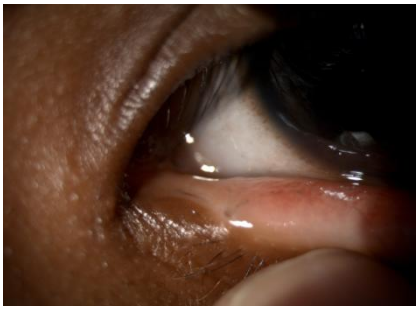

Figure 4: Accessory Punctum

Figure 5: Lacrimal Syringing

The child was prescribed antibiotic eye drops and ocular lubricants to alleviate the symptoms and was referred to paediatric dentistry and ENT specialist for further management. On the next visit her symptoms subsided and was advised to follow up after six months.

3. Discussion

Lacrimo-Auriculo-Dento-Digital (LADD) syndrome or Levy-Hollster syndrome is an extremely rare multisystem disorder, only 60 cases have been reported till date. It has a wide spectrum of signs and symptoms, as the disease has variable expressivity. Individuals with LADD syndrome show cup-shaped ears, sensorineural and conductive hearing loss, choanal atresia, hypodontia, peridontia, enamel dysgenesis, xerostomia, agenesis of salivary glands, nail dysplasias, shortness of toes and digits, temporal bone abnormality, epilepsy.[(2)] Syndactyly, clinidactyly, cleft lip and palate, microdontia, various renal and genito-urinary abnormalities have been described too[(3)].

Ocular manifestations such as malformations in the lacrimal apparatus, including hypoplastic or aplastic lacrimal puncta, nasolacrimal duct obstruction, epiphora, dacryocystitis, are seen in 71% of patients and resultant tear film deficiency and dry eyes precipitate chronic keratoconjunctivitis or corneal ulcerations in 64% of cases. Limbal stem cell deficiency and impaired corneal sensations have been reported even in the absence of dry eyes. Management of ocular manifestations of LADD syndrome are mainly symptomatic, but limbal transplantation has been prompted for consideration given these findings [(4)]

TP63 gene mutation is exceedingly rare and is seen in association with LADD syndrome resulting in thin corneas and open angled glaucoma. This gene is also found to be responsible for overlap of symptoms with Ectrodactyly–ectodermal dysplasia–cleft syndrome, or EEC which is one of the important differential diagnoses of LADD syndrome.[(5)]

All these myriad of clinical features suggest that the patient may present with any symptom at any age of life which makes it challenging to diagnose. So when these patients visit an ophthalmologist, thorough investigations, recognition of manifestations is imperative in order to avoid misdiagnosis and subsequent incorrect management. Since the disease has familial inheritance it is crucial to examine the family members and siblings for the disease, counsel for regular follow up and direct the patient to respective specialists for tailored management.

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