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Case Report

A Newborn Case with Larsen Syndrome

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Received date: September 12, 2023; **Accepted date:** October 31, 2023; **Published date:** January 05, 2024

Citation: Samet Benli, Abdullah Erincik, Atika Çağlar, Mustafa Aydın, (2024), A Newborn Case with Larsen Syndrome, *Clinical Research and Clinical Trials*, 9(1); **DOI:10.31579/2693-4779/165**

Abstract:

Larsen Syndrome is a rare genetic disorder that occurs in 1 in 100,000. Joint hypermobility, congenital joint dislocations, spinal deformity and distinctive facial appearance are characteristically present in the neonatal period. In this study, we present a case with Larsen syndrome by discussing it in the light of the literature.

Keywords: congenital joint dislocations; larsen syndrome, flnb gene mutation

Introduction

Larsen syndrome, defined by Larsen in 1950, is a rare disease [1]. Although it is an autosomal dominant and recessive form of the disease, the incidence of which is defined as approximately one in 100,000 births, sporodic cases have also been described [2]. Orthopedic findings including characteristic facial appearance, hypertelorism, wide forehead, collapse and flattening of the nasal arch, joint hypermobility, vertebral anomalies and multiple joint dislocations are considered pathognomonic in terms of diagnosis [3]. At the same time, upper respiratory tract anomalies such as cleft palate/lip, lower respiratory tract anomalies, cardiological and head and neck anomalies may accompany [4]. In this study, we present a case with Larsen syndrome by discussing it in the light of the literature.

Case Report

The patient who was born by cesarean section at 38 weeks of gestation from a 36-year-old mother was admitted to our unit due to respiratory distress. In the non-regular prenatal follow-ups of the patient, there was a history of polyhydramios in the last trimester. In the first physical examination of the patient, his body weight was 3340 g [25-50 p], his height was 47 cm [10-25 p], and his head circumference was 35.3 cm [50-75 p]. Head examination revealed atypical facial appearance, wide forehead, flattened nasal root, low ear, high palate, and hypertelorism (Figure 1a/1b). Bilateral hearing loss was detected in the BERA test of the patient, whose eye examination did not reveal any pathology. Echocardiography of the patient who had a 1-2/6 murmur to the left of the clavicle on listening showed Patent Ductus Arteriosus (PDA) and Patent Foramen Ovale (PFO). The patient, whose respiratory distress regressed, had inspiratory stridor in spontaneous respiration. He had laryngomalacia in the examination performed by flexible laryngoscopy. Chest X-ray showed a narrow thoracic cage. The patient did not have any spine or upper extremity anomalies. He had bilateral pes equinavarus in the lower extremity (Figure 2). He was taken to plaster treatment for pes echinacea. All abdominal and cranial ultrasonography examined for additional anomaly were normal. FLNB gene mutation was genetically detected in the patient who was thought to have Larsen syndrome due to the present atypical facial appearance, laryngomalacia, narrow chest cage, PDA-PFO, pes equinavarus findings. Our patient was followed up in the outpatient clinic and was discharged on the 18th day of hospitalization.

Discussion

Larsen syndrome is a rare inherited defect of connective tissue formation characterized by multiple large joint dislocations and atypical facial appearance. It was first described by Loren J.Larsen in a journal article in 1950 and its incidence is 1:100,000 live births. In addition to sporadic cases, both autosomal dominant and autosomal recessive inheritance are accepted [1]. Our patient's siblings were alive and healthy, and there was no consanguinity between the parents.

Larsen syndrome is a mesenchymal disorder that results from a defective process of embryonal induction involving generalized mesenchymal tissue. Larsen syndrome is caused by mutations in the FLNB gene. The FLNB gene encodes a protein called filamin B in the cell membrane of chondrocytes. This protein forms cytoskeleton and Filamin B appears to be important for proliferation and differentiation of chondrocytes and ossification of cartilage. As a result of FLNB gene mutations, proliferation or differentiation of chondrocytes and ossification of cartilage are impaired, resulting in the appearance of signs and symptoms of Larsen syndrome [5].

Prenatal diagnosis of Larsen syndrome is possible. A case diagnosed at the 15th gestational week by transvaginal sonography has been reported [6]. Again, in the prenatal period, there was a case diagnosed with micrognathia,

pelvic kidney, single umbilical artery, clinodactyly in the 5th finger, hyperextension of the legs in the knee joint, and low feet [7]. Hypoplastic thorax, lung hypoplasia, and tracheolaryngomalacia are characteristic findings of the fatal form of Larsen syndrome [8]. In our case, there was no regular pregnancy follow-up in the prenatal period, polyhydraminos was present in the last trimester. Prenatal ultrasonography is very important during pregnancy. The fetus should be evaluated in detail in terms of facial anomalies and joint dislocations. If there is an anomaly, fetal echocardiography should be performed in terms of cardiac anomalies.

Clinical findings of Larsen syndrome include short stature, multiple congenital joint dislocations, frontal prominence, nasal root depressed, mixed hearing loss (20%), cataract, anterior corneal lens dislocation, cleft palate, pes cavus, pes equinavarus, laryngotracheomalacia, laryngeal stenosis. Although intelligence is usually normal, 15% of patients have mental retardation (OMIM #150250). Our patient had atypical facial appearance, flattened nasal root, low ear, wide forehead, hypertelorism, and high palate as facial anomaly. Bilateral symmetrical, mixed type hearing loss can be seen in patients with Larsen syndrome [9]. There was no bilateral response to the brainstem auditory evoked potential (BERA) test performed to evaluate our patient's hearing. In addition, accompanying laryngo/tracheomalacia and bronchomalacia cause severe respiratory distress [10]. Our patient with narrow thorax also had laryngomalacia. Respiratory distress continued for three days postpartum.

Cardiac diseases accompanying Larsen syndrome were divided into two groups as congenital and acquired by Kiel et al. Common septal defects such as atrial septal defect, ventricular septal defect and patent ductus arteriosus can be seen congenitally. Acquired defects are often related to underlying defect such as aortic enlargement and regurgitation, mitral valve prolapses and regurgitation, and ductus arteriosus aneurysm [11]. However, as in the case of Liang and Hang, it has been reported in patients with multiple cardiac anomalies in which patent ductus arteriosus, atrial septal defect, bicuspid aortic valve, mild subaortic stenosis and mitral valve prolapse are seen together [12]. Our patient also had PDA and PFO.

Orthopedic problems constitute the major components of the syndrome. Flat frontal bone and small skull base in skull; cervical vertebral hypoplasia of the spine, subluxation or fusion of the cervical vertebrae, cervical kyphosis, spondylolysis; laxity and dislocations in the joints; cylindrical fingers and short matacarpals on the hands; talipes equinovarus, talipes equinovarus and short metatarsals are seen in the foot (OMIM #150250). The orthopedic problems seen are difficult to treat. The walking of these patients is delayed compared to their peers. In addition, osteoarthritis can be seen in large joints in the future [13]. Our patient had pes equinavarus at birth and was treated with plaster cast by orthopedics.

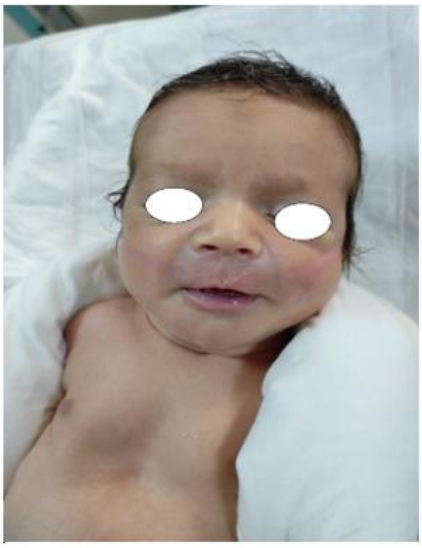

Figure 1a: The patient's atypical facial appearance

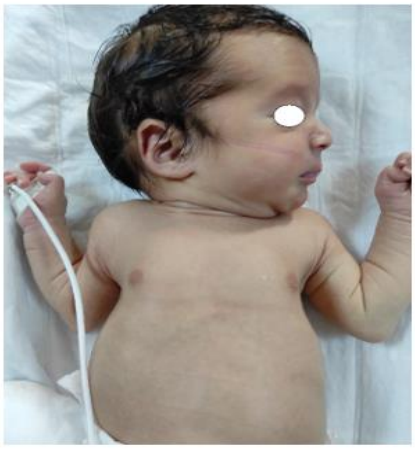

Figure 1b: Low ear appearance of the patient

Conclusion and Recommendation

In conclusion, although Larsen syndrome is a rare syndrome, its frequency is increasing in societies where consanguineous marriages are common, as in our country. It should be considered in patients with atypical facial appearance and joint anomalies, and detailed ultrasonography is important because prenatal diagnosis is possible.

Conflict of interest

There is no financial interest or any conflict of interest between the authors.

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DOI:10.31579/2693-4779/165