GOLDENHAR SYNDROME: REPORT OF THREE CASES ASSOCIATED WITH UNCOMMON MALFORMATIONS

Goldenhar Sendromu: Nadir görülen anomalilerle birlikte olan üç olgunun sunumu

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Abstract: *Goldenhar syndrome is associated with anomalies in multiple organ systems. The main characteristics of the syndrome are epibulbar dermoids, preauricular skin tags or fistulae, and especially cervical vertebral defects. We present three cases of Goldenhar syndrome with extremely rare anomalies including tracheo-oesophageal fistula, oesophageal atresia, parachute mitral valve, unilateral renal agenesis, inguinal hernia and hypospadias. There was no family history of Goldenhar syndrome in any of our patients and their mothers did not take any medication during pregnancy. To our knowledge, this is the first reported observation of parachute mitral valve and hypospadias in Goldenhar's syndrome.*

Key Words: *Goldenhar syndrome, Hypospadias, Oculoauriculovertebral syndrome, Mitral valve prolapsus*

Özet: *Goldenhar sendromu çok sayıda organ sistemlerini ilgilendiren anomalilerle birlikte olabilir. Sendromun ana özellikleri; epibulbar dermoidler, aurikular ekler veya fistüller ve vertebral anomalilerdir. Bu yazıda trakeo-özefageal fistül, özefagus atrezisi, paraşüt mitral kapak, tek taraflı böbrek agenezisi, inguinal herni ve hipospadias gibi nadir anomalilere sahip üç Goldenhar sendromu olgusunu sunduk. Hastalarımızda Goldenhar sendromu ile ilgili aile hikayesi ve annenin gebelikte ilaç kullanımı yoktu. Bilgilerimize göre Goldenhar sendromuna eşlik eden paraşüt mitral kapak ve hipospadias anomalileri ilk kez rapor edilmektedir.*

Anahtar Kelimeler: *Goldenhar sendromu, Hipospadias, Oculoauriculovertebral sendrom, Mitral kapak prolapsusu*

Goldenhar syndrome is a rare symptom complex involving craniofacial and vertabral malformations with associated renal and cardiac defects (1-3). The first description of Goldenhar syndrome was possibly made by Von Arld in 1845. This syndrome was first distinguished from other congenital anomalies of the first and second branchial arch by Goldenhar in 1952 (1). We observed three cases of Goldenhar syndrome with extremely rare anomalies including tracheo-oesophageal fistula, oesophageal atresia, parachute mitral valve, unilateral renal agenesis, inguinal hernia and hypospadias. Parachute mitral valve and hypospadias have not previously been described.

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Case 1

The male infant was admitted to the Neonatal Intensive Care Unit because of poor sucking, malformed auricles (Fig 1) and inguinal hernia on the ninth day of life. He had been born following 40 weeks of gestation to a 35 year-old Gravida 5, Para 5 mother. The parents were unrelated and their four other children were normal and in good health. Physical examination revealed unilateral microtia, low-set ears, hypertelorism, epibulber dermoid, asymmetric face with crying, bilateral hydrocele, hypospadias and inguinal hernia (Fig 2). Auscultation of the heart revealed a grade III/VI systolic murmur. Multiple analysis for chemistry, renal function tests and urinalysis were within normal levels. Echocardiographic examination revealed D-transposition of great arteries (Fig 3). Cranial CT was normal, temporal CT showed a normal structure on the right side. On the left

internal auditory canals, semicircular canals, cochlea and ossicles were not identified. Abdominal ultrasonography revealed unilateral renal agenesis.

Case 2

A 3200 g full-term female was admitted to the Neonatal Intensive Care Unit at 4 hours of age for excessive salivation. She had been born breech delivery to a 22 year old Gravida 3, Para 3 mother. The parents were unrelated and their two other children were normal and healthy. On examination the baby was noted to have an asymmetrical face with mandibular hypoplasia, right preauricular skin tag, microtia, cleft lip, low-set malformed ears and right epibulber dermoid. An attempt to pass an orogastric catheter was unsuccessful. On chest X-ray, hemivertebrae were present at thoracal spine and the visible tip of the orogastric catheter at third dorsal vertebrae (Fig 4). The baby underwent an operation and oesophageal atresia and tracheo-oesophageal fistule were repaired successfully.

Case 3

A 6-month-old girl was referred to the Pediatric Cardiology Unit of Erciyes University for cyanosis and heart murmur. The findings on physical examination were as follows: height and weight below 3rd percentile; low-set ears; unilateral microtia; cleft lip and palate; micrognathia; hemivertabrea at cervical spine and grade III/VI systolic murmur on the left sternal border and apex. These clinical findings suggested the diagnosis of Goldenhar syndrome. The echocardiographic examination revealed parachute mitral valve and ventricular septal defect (Fig 5). Chromosomal study was not done.

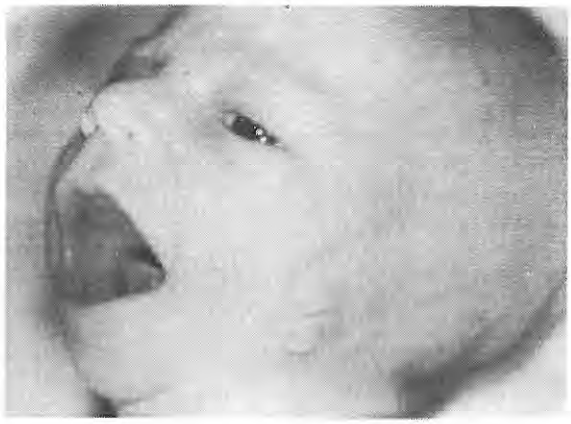

Figure 1. Appearance of malformed ear (microtia)

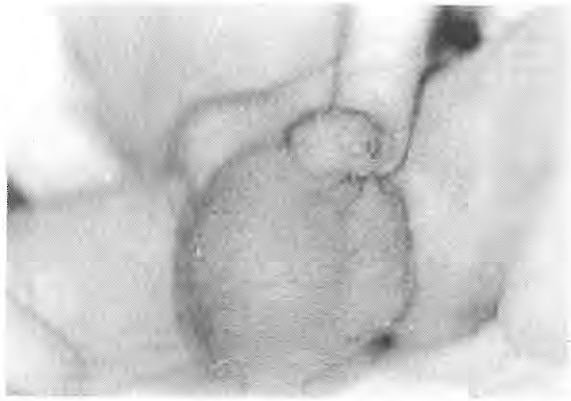

Figure 2. Appearance of hypospadias

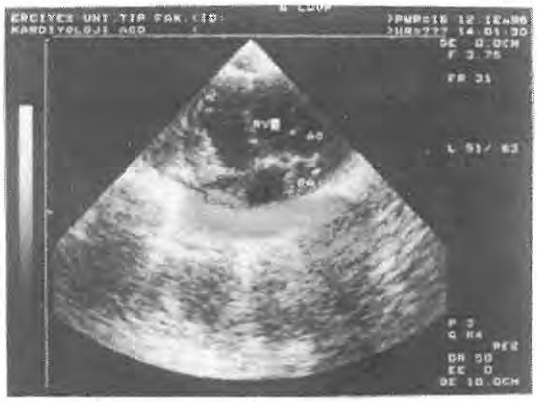

Figure 3. D-transposition of great arteries

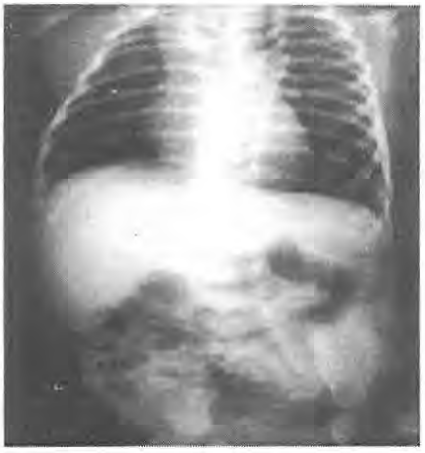

Figure 4. Plain abdominal and chest x-ray. Note the returned orogastric catheter because of oesephageal atresia

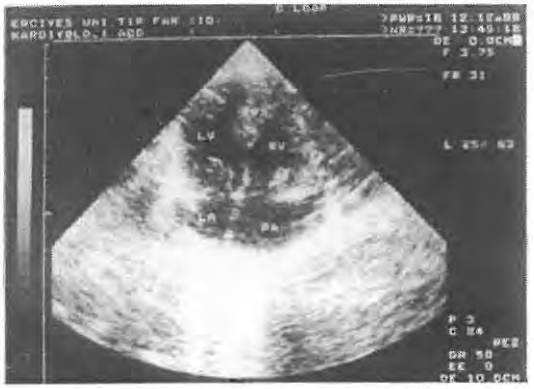

Figure 5. Parachute mitral valve and ventricular septal defect

DISCUSSION

Since the Goldenhar syndrome is rare, the true incidence is unknown (1). After the first description of Goldenhar in 1952, variable combinations of facial, oral, auricular, vertebral, ocular, and cardiac malformations have been described (4).

The true etiology is controversial. While some researchers advocate a non-hereditary congenital explanation, others believe there is a hereditary pattern (2). The occurrence of Goldenhar syndrome has been usually sporadic and little evidence of a hereditary pattern has been found. The most popular theory suggests that a vascular abnormality or hemorrhage in the area of the first and second branchial arches may cause defects in the developing embryo (1). There was no family history in our patients and their mothers were not taking any medications during pregnancy. This syndrome may be accompanied by congenital cardiopathy with an incidence of 35 %, depending on the publications (3,5). Bustamante et al (6) described five patients with cardiac malformations included the following: Tetrology of Fallot, transposition of the great arteries and total anomalous venous connection. One of our patients had D-transposition of great arteries and another had parachute mitral valve with ventricular septal defect. This is the first report of parachute mitral valve in Goldenhar syndrome.

Renal anomalies have been reported with the Goldenhar syndrome, but the incidence of associated genitourinary malformations has not been defined. The genitourinary anomalies included the following: ectopic and/or fused kidneys, renal agenesis (as in our case 1), vesicoureteral reflux, ureteral duplication and multicystic kidney (7). To our knowledge, this case represents the first description of Goldenhar syndrome associated with hypospadias.

Tracheoesophageal fistula, with or without esophageal atresia (TEF/EA), appears to be a defect of blastogenesis, as is Goldenhar syndrome, with which it has occasionally been associated. Sutphen et al (8) reviewed the literature about Goldenhar syndrome between 1985 and 1993. Of 60 Goldenhar

syndrome patients, three had TEF/EA. In fact, as mentioned by Sutphen et al., the occurrence of TEF/EA should prompt a search for other known anomalies of Goldenhar syndrome.

Because of multiple anomalies present in children with Goldenhar syndrome, an interdisciplinary team approach is necessary for appropriate overall management. Indirect and direct therapy should be initiated as early as possible. To our knowledge, we are reporting for the first time this very interesting observation of parachute mitral valve and hypospadias in Goldenhar syndrome.

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