

# Femoral Hypoplasia - Unusual Facies Syndrome, Presentation of Rare Case

## Introduction

Femoral Hypoplasia-Unusual Facies syndrome (FH-UFS) is a rare, sporadic syndrome of unknown etiology, with a prevalence of <1\1000000. A review of the literature reveals that there are few reported cases of syndromes similar to our case, with a preponderance of female gender to be affected [1,2]. To date, 56 cases have been reported in the literature, last of which was in Bangladesh in 2014 [3,4]. This was recognized as a distinct entity in 1975 by Daentl et al. who reported their cases of femoral hypoplasia - unusual facies syndrome, This syndrome was first prescribed by Franz and O'Rahilly in 1961 [5,6]. There has been speculation of a link to maternal Diabetes Mellitus [7,8].

This syndrome encompasses a spectrum of anomalies including bilateral femoral hypoplasia and cranio-facial dysmorphism with cleft palate and other several systemic anomalies like short or absent fibulas, shortening of humeri, restricted motion of elbows, constricted ilial base, vertical ischial axis, hypoplastic acetabulae, large obturator foramina, lower spine abnormalities and posterior tapering of the ribs. In addition, there might be a shortening of the femur leading to thigh and leg length discrepancy and talipes equinovarus deformity [1,7].

**Keywords:** Hypoplasia of the femurs; Cranio-facial dysmorphism

## Case History

Our case is the second child of healthy non-consanguineous parents, delivered by Lower Segment Caesarean Section (LSCS) at 38<sup>th</sup> week of gestation to a 21 years old mother booked in our hospital. The mother is a case of type I diabetes mellitus on insulin.

Antenatal ultrasound examination at 22 weeks of gestation (Figure 1) revealed a fetus with bi-parietal diameter and abdominal parameter consistent with 20 weeks gestation, bilateral abnormal widening of the lower spine was demonstrated, and the sacrum was not visualized. The most significant abnormalities involved the lower extremities. both femoral bones are noted visualised, however on the right side a suspicion of a small hyperplastic bone is seen proximal to the tibia measures about 1 cm in length, The amniotic fluid volume was subjectively increased. The intracranial anatomy appeared normal, the kidneys and bladder were normal.

Amniocentesis was done at 22 weeks of gestation in view of abnormal antenatal ultrasound and reported as normal male fetus. The first sibling was a normal full term baby.

The birth weight was 2.440 Kg (<3<sup>rd</sup> centile), Head Circumference: 34.6cm (between 10<sup>th</sup> - 50<sup>th</sup> centile), baby was pink with good perfusion maintaining his oxygen saturation on room air, active, with minimal tachypnea.

The following clinical findings were noted: craniofacial dysmorphism, low set ears, low hair line, upslanted palpebral fissures, long philtrum with thin upper lip, micrognathia,

## Case Report

Volume 6 Issue 1 - 2017

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**Received:** August 07, 2016 | **Published:** January 02, 2017

hypoplastic alae nasi and cleft palate, bilateral hypoplasia of femur with dyplastic hips, showing flexion and adduction deformity. Length of the thigh was very short compared to the length of the leg, with a knee joint being rudimentary. Bilateral talipes equinovarus deformity of varying degrees (Figures 2&3).



**Figure 1:** Antenatal ultrasound showing both femoral bones visualised.

The following Investigations were done: Karyotyping was normal male (46 XY), 2D Echocardiography showed tiny Patent Ductus Arteriosus (PDA), Brain Ultrasound and Abdominal Ultrasound revealed normal findings. Ultrasound of both hips showed undeveloped acetabulum, the chondral tibial epiphyses of both tibia appears larger in size (approximately 17 mm x 17mm), resembling the size of normal femoral chondral epiphyses, and the tibia seems forming pseudo sockets in the soft tissue outside

the iliac bones. His Skeletal survey findings were; (Figure 4) Skull showed that the facial bones are smaller in size compared with cranial bones, and a small sized anterior fontanel, Spine were with normal appearance, the chest showed a thin ribs and clavicles, pelvis showed that the distance between the ischial bones is widened, long bones revealed bilateral absent femurs and thin osteoporotic fibulae while the small bones were overlapped.

In view of dysmorphic features, Exome Sequencing test was done but no clinically significant variants were identified through analysis of whole sequencing data, a finding suggestive of femoral hypoplasia unusual faces syndrome.

The baby was seen by maxillofacial team in view of bilateral choanal stenosis for which bilateral nasal tubes were inserted (Figure 2).

Baby was discharged at the age of 15 days, with follow up appointments to multidisciplinary clinics; Including a counselling which may be of benefit for patients and their families. Other treatment is symptomatic and supportive.



**Figure 2:** Bilateral absent femur with abnormal facies.



**Figure 3:** Low set ears with micrognathia.



**Figure 4:** Skeletal survey showing absent femur.

## Discussion

Femoral Hypoplasia - Unusual Facies Syndrome includes bilateral femoral hypoplasia, facial dysmorphism with cleft palate, micrognathia, long philtrum, thin upper lip with short broad tipped nose and dysplasia of hips. Other malformations including skeletal defects and visceral abnormalities in cardiovascular and genitourinary systems may be found [9,10].

As the maternal insulin does not cross the placenta, and fetal insulin is not detectable until 10 weeks, raising the possibility of maternal diabetes or glucose homeostasis being the teratogenic factor in femoral hypoplasia - unusual facies syndrome [6]. However, craniofacial anomalies have been rarely reported in such infants [11].

Similarly, in our case, there was maternal diabetes and our clinical findings showed similar malformations with craniofacial dysmorphism, bilateral femoral hypoplasia, micrognathia, upper thin lip, cleft palate and congenital heart disease like patent ductus arteriosus. With this framework, the case fits into classical clinical spectrum of FH-UFS.

The outcome of such cases there may be problems in feeding and speech development but many patients have been of normal to above normal intelligence and most of them have been ambulatory [7,12]. Most complications arise from small stature and limited function of the lower limbs [7]. However, Most reported cases are ambulatory [5]. Recurrent urinary tract infection and incontinence have also been reported [8]. Most reported cases without serious complications, the life span is usually normal [8].

When detected before viability, the option of termination of pregnancy can be offered to the parents. The postnatal management is directed towards the orthopedic, facial, cardiac and genitourinary complications.

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