VIMS HEALTH SCIENCE JOURNAL

March – 2014, Volume 1, Issue 1

ISSN No : 2348 – 523X www.vimshsj.edu.in

CASE REPORT

# FIBULAR HEMIMELIA : A CASE REPORT

*Dilip L. Lakhkar, **Sangramsinh M. Bhagat ,** Sandeep R. Shinde

*Professor and Head, **Senior Resident.

**Correspodance Address :**

Department of Radiodiagnosis and Imaging,

Padmashree Dr.Vithalrao Vikhe Patil Foundation's Medical College & Hospital, Ahmednagar

**Email:** drsangrambhagat@gmail.com

## Abstract -

Fibular hemimelia is a partial or complete aplasia of the fibula and is usually associated with other anomalies of tibia and foot. It is the most common malformation among the long bone deficiency disorders. On plain radiograph of the leg and foot, significant fibular deficiency can be seen. In this case report, a 29 year old female presented with valgus deformity of right foot and was radiographically investigated and treated in our hospital.

**Key Words -** Fibula; Hemimelia; Talipes valgus; Bowing, Osteotomy.

## Introduction -

The incidence of fibular hemimelia has been estimated to be 5.7 to 20 cases per 1 million births [1]. Fibular hemimelia is the most common congenital aplasia of a long bone, and is followed by aplasia of tibia, ulna, radius and femur in that order[2]. Shortening of extremity is obvious at birth with leg length discrepancy and is contributed by tibia and 13 % by femur. [2,3,4,5,6,7]

## Case report -

A 29 years old female whose parents had a consanguineous marriage came to orthopaedic department with pain in right ankle and difficulty in walkin gsince 1 year. Patient gave history of ankle deformity since birth for which no medical consultation was sought.

On examination tenderness and talipes valgus deformity of foot was found.

Plain radiograph showed a hypoplastic fibula with gradual tapering of diaphysis and a beak like appearance of lower end (Figure 2 & 3).The tibia showed slight anteromedial bowing and deformity of distal tibial epiphysis. The right femur and the left limb were normal.

A diagnosis of fibular hemimelia was made.

**Figure 1 –Photograph showing valgus deformity of right foot.**

**Figure-2- AP/LAT radiograph of right leg showing hypoplastic fibula with gradual tapering of diaphysis and beak like appearance of its lower end.**

**Figure 3– Plain radiograph AP/LAT of right ankle showing talipes valgus deformity.**

## Discussion -

Fibular hemimelia is a rare disorder caused by congenital deficiency or absence of fibula and it represents spectrum of abnormalities[2,3]. It ranges from mild fibular hypoplasia to aplasia and may be unilateral or bilateral, unilateral involvement is more common than bilateral; anterior tibial bowing is associated with unilateral involvement whereas tibias are usually straight with bilateral involvement. The right side is more commonly affected than the left.[4] This deformity results in equinovalgus position of the foot and ankle and frequently consecutive dislocation of the foot. Congenital absence or hypoplasia is often associated with ventral and medial bowing of companion tibia. In most of the cases a light soft tissue band can be palpated running from the proximal portion of the tibia to the calcaneus and often contains cartilage and may be the remnant or the equivalent of the absent fibula [5-7].

There are different classifications by various authors [6, 8, 9] but the most popular is on the basis of guide to treatment and functional restoration by Kruger[6].

**Type I. Unilateral involvement**

Ia. Normal femur

Ib. Presence of proximal focal femoral deficiency

**Type II. Bilateral defect**

Ia. Normal femur

Ib. Presence of proximal focal femoral deficiency [6,7].

On plain films of leg and foot, significant fibular deficiency or absence of fibula can be seen. Tibia is often bowed anteriorly or/and medially with cortical sclerosis along the concavity of curvature. The epiphysis of tibia may be small or absent due to general delay in appearance of ossification centre in this condition. But generally there is deformity of distal tibial epiphysis. Tibial articulation with femur is normal. There is general delay or absence in appearance of pedal bony structures with ossification occurring as late as 5 years [2-9]. In this patient various degrees of soft tissue and bony abnormalities of the lateral aspect of foot have been associated with fibular hemimelia. Plain radiography of hip is necessary to exclude proximal focal femoral deficiency. The femur was normal in this case.

Antenatal sonographic diagnosis of fibular hemimelia is possible by non-visualisation of fibula and bowed, shortened tibia[10,11].

Treatment consists of tibial osteotomies, tarsal arthrodeses to correct the clubfoot and tarsal coalition exist [12], In long term follow up of four cases in a series by Tomas et al [2] it was discovered that several leg lengthening operations are necessary and simple amputation may be the treatment of choice in severe cases of fibular hemimelia. The prognosis depends on the degree of limb deformity.

Differential diagnosis of fibular hemimelia on plain x ray may be difficult but careful inspection of the radiograph will usually lead to diagnosis even if the tibia is small and slender to mistake it for the fibula. In tibial hemimelia, the fibula will not be bowed and does not articulate with the femur. The foot is in varus position in tibial hemimelia whereas it is in valgus in fibular hemimelia [6]. In anterior or medial congenital bowing, both bones are present and tibia is well articulated with the femur.



**References :**


1) Florio I, Wisser J, Huch R, Huch A. Prenatal ultrasound diagnosis of a femur-fibula-ulna complex during the first half of pregnancy. FetalDiagnTher 1999; 14:310-312

2) Tomas GJ, Valverade BD, Chismal AJ, Valverde MC. Complete fibular hemimelia. A long term review of four cases. Act Ann OrthopBelg 2002;68(3): 265-271.

3) Exner GU. Bending osteotomy through the distal physis in fibular hemimelia for stable reduction of the hind foot. J padiatr Orthop B 2003;12(1):27 32.

4) Monteagudo A, Dong R, Timor-Tritsch IE. Fetal fibular hemimelia: case report and review of the literature. J Ultrasound in Med (2006); 25(4): 533-537.

5) Fordham NC, Applegate KE, Wilke DC, Churg CJ. Fibular hemimelia. More than just an absence bone. Semin Musculoskelet Radiol 1999;3(3):227-238.

6) Ozonoff P. Paediatric orthopaedic Radiology.Philaldelphia, SW Saunders, 1992; 307-311.

7) Achterman C, Kalamachi A. Congenital defeciency of fibula. J bone Joint Surg 1979;61(8): 133-141.

8) Verma A, Yadu S. Fibular Hemimelia. Indian paed.2003;40(4):359-362.

9) Stanitski DF, Stanitsk CL. Fibular hemimelia. A new classification system. J pead. Orthop 2003;23(1):30-34.

10) Abbel DE, Hertzberg BS, James AH. Antenatal sonographic diagnosis of isolated bilateral fibular hemimelia J Ultrasound Med 2002;21(7): 811-815.

11) Uffelman J, Woo R, Richards DS. Prenatal diagnosis of bilateral fibular hemimelia. J ultrasound Med2002; 19(5): 341-344.

12) Caskey PM, Lester EL. Association of fibula hemimelia and club foot. J paed Orthop 2003;22(4): 522-525.