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BLOUNT'S DISEASE : A CASE REPORT

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ABSTRACT **Introduction:** Blount disease, also known as tibia vara, is an acquired genu varus deformity in children that develops due to excessive compressive forces on the proximal medial metaphysis of the tibia, leading to altered enchondral bone formation. Epidemiology very rarely cases have been reported from Indian subcontinent. **Presentation of Case:** A 20-years-old male presented with deformity in both the legs and altered walking pattern for the past 10 years: On examination there was 16 degrees of varus deformity in both the knees. There was 25 degrees of internal tibial torsion bilaterally. The patient was managed by surgical intervention. Oblique proximal high tibial osteotomy was done bilaterally. Fixation was done with anatomical medial columnar T-Plates on both sides and immobilisation was done in above knee plaster cast. Patient recovered well with correction of deformity and could walk with normal gait pattern. **Discussion:** The cause of Blount's disease is still not well established. Treatment depends upon age at presentation, severity of varus deformity as determined by Langenskiold staging, and progression of the disease. Early intervention is required to avoid progression of the disease and permanent deformity.Options include knee-ankle-foot orthoses (KAFOs), corrective proximal tibial osteotomies with either acute or gradual fixation, and hemiepiphysiodesis. **Conclusion:** Blount's disease is a very rarely encountered condition in Indian subcontinent but has a characteristic presentation. It should be included in differential diagnosis in cases presenting with pathological bowing of legs and Other potential diagnoses on the differential include rickets, Ollier disease, proximal tibial physeal injury resulting from trauma, radiation, or infection, osteomyelitis, metaphyseal chondrodysplasia. Radiological findings and normal blood biochemistry can guide us towards the diagnosis of Blount's disease.

KEYWORDS : Blount's disease; Indian subcontinent; bilateral Blount's disease, adolescents Blount's disease

INTRODUCTION

Blount disease, also known as tibia vara, is an acquired genu varus deformity in children caused by disrupted normal cartilage growth at the proximal medial metaphysis of the tibia. This condition develops due to excessive compressive forces on the medial aspect of the proximal tibial physis, leading to altered enchondral bone formation. Blount disease can be either unilateral or bilateral and manifests in 2 forms—infantile and adolescent—distinguished by variations in age of onset and presentation. The infantile or early-onset form is commonly bilateral, typically manifests in children between the ages of 1 and 5, and tends to exacerbate after the initiation of walking. [1] The adolescent form manifests at a later stage and may present as either unilateral or bilateral.

Although obesity, early walking, and African-American heritage are recognized as risk factors for developing Blount disease, the precise pathophysiology of the condition remains unclear. The severity varies from articular cartilage irregularities to limb length discrepancies.[1,2] The treatment of Blount disease varies from bracing to surgical interventions and depends on the age and severity at presentation. Treatment options include knee-ankle-foot orthoses (KAFOs), corrective proximal tibial osteotomies with either acute or gradual fixation, and hemiepiphysiodesis. [3]. In this case report we wish to report a case of Adolescent bilateral Blounts disease in 20 years old Indian boy.

Presentation Of Case

A 20-years-old male pateint presented with deformity in both the legs and altered walking pattern for the past 10 years. There was no history suggestive of trauma or osteomyelitis. There was no relevant family history. On examination there was 16 degrees of varus deformity in both the knees. There was 25 degrees of internal tibial torsion bilaterally.

Knee range of motion was from 10 degree of hyperextension to 140 degrees of full flexion.

There was no tenderness around the knee and no ligamentous laxity. Knee joints were in contact with each other in standing position. On a scanogram, metaphyseodiaphyseal 15 degrees (Figure1a), tibiofemoral angle being angle was 15 degrees Hematological investigations (Serum calcium, Vitamin D, Alkaline phosphatase, ESR) were within normal limits.

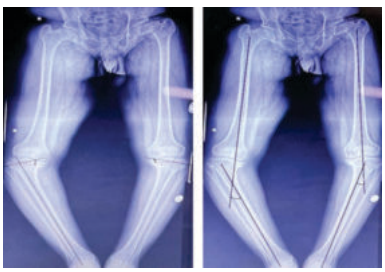

Figure 1a : Metaphyseodiaphyseal angles were 25 degrees bilaterally

Figure 1b : Tibiofemoral angles were 20 degrees on Right side and 16 degrees on left side.

Diagnosis of Blount's disease was made on the basis of the clinical and radiological findings.

Radiologically the disease fits in Langenskiold stage 4. [4] The patient's age being 20 years at the time of presentation, appropriate treatment would be proximal high tibial osteotomy [5]. Patient was operated for bilateral proximal high tibia oblique osteotomy (Figure 2). Osteotomy was stabilised with anatomical medial columnar T-Plates on both sides and above knee plaster cast was applied for 3 weeks. Osteotomy showed good union by the end of 2 months. Clinically the deformities were corrected (Figure 3) and child started walking with normal gait pattern.

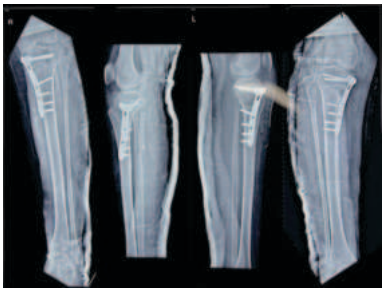

Figure 2 : Immediate Post OP

DISCUSSION

Blount's disease is classically defined as a progressive deformity of the proximal tibia that results in genu varum. This condition is subclassified by age of onset (infantile & adolescent), which has implications for associated deformities and treatment options. [6]Adolescent Blount's, also known as late-onset tibia vara, manifests after the age of ten years and is the subject of this review. [7]Treatment considerations for adolescent tibia vara are based on the severity of the deformity and the patient's growth remaining. Unlike infantile Blount's, conservative treatment (i.e. bracing) is ineffective for the late-onset variant due to patients' body habitus and proximity to skeletal maturity and should not be considered. The mainstay of surgical treatment centers around either growth modulation or osteotomy[7,8], the latter of which may be done with acute or gradual correction techniques.

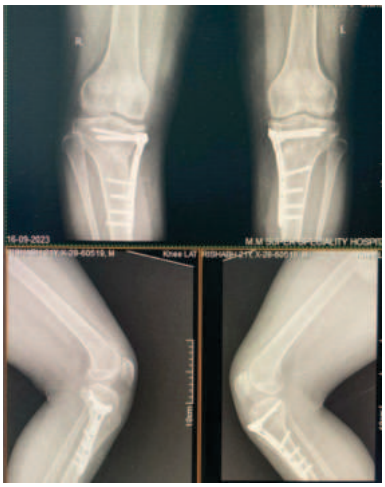

Figure 3 : 1 Year Post Op

The Differential Diagnosis Of Blounts Disease [9,10]:

1). Physiologic bowing: It is usually a self-limited condition, recognized by smoothly curved bowing of the femur and tibia and usually resolves by 18-24 months of age.
2). Congenital bowing: Angulation may occur in the middle portion of the tibia with a normally appearing distal femur and proximal tibia.
3). Rickets: Typical radiological features like fraying, splaying and cupping at the metaphyseal end with biochemical abnormalities (which were normal in our case).
4). Osteomyelitis: Growth plate disturbance occurs secondary to infection.
5). Metaphyseal chondrodysplasia:Metaphyseal deformities are seen with rickets occurrence radiological changes without serum biochemical abnormalities.
6). Ollier's disease: It is differentiated easily from Blount's disease on radiographs by the presence of multiple enchondromas.

CONCLUSIONS

Blount's disease is commonly seen in African-American lineage and rarely, cases are reported from other parts of world. The usual differential diagnosis in such cases can be rickets, Ollier disease, proximal tibial physeal injury resulting from trauma, radiation or infection, osteomyelitis, metaphyseal chondrodysplasia but Blount's disease should also be kept in mind during the evaluation of the patients with similar clinical presentation and normal blood investigations.Best prognosis can be obtained with early diagnosis and unloading of medial joint with osteotomy.

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Conflicts Of Interest

Authors declare no conflict of interest.

REFERENCES

1). Janoyer M. Blount disease. Orthop Traumatol Surg Res. 2019 Feb;105(1S):S111-S121.
2). Blount WP. Tibia vara: osteochondrosis deformans tibiae. JBone Joint Surg. 1937; 19(1):1-29.
3). Greene WB. Infantile tibia vara. J Bone Joint Surg Am. 1993;75(1):130-143.
4). Langenskiold A. Tibia vara. A critical review. Clin Orthop Relat Res. 1989; 246:195-207.
5). Joseph B, Nayagam S, Loder RT, Torode I. Paediatric orthopaedics: A system of decision making. Hodder Arnold.2009.
6). M JanoyerBlount diseaseOrthop Traumatol Surg Res(2019)
7). B Griswold et al.Opening wedge osteotomy for the correction of adolescent tibia vara Iowa Orthop J (2018)
8). J de Pablos et al.Update on treatment of adolescent Blount disease Curr Opin Petiatr (2018)
9). Silve C, Jüppner H. Ollier disease. Orphanet J Rare Dis. 2006;1:37.
10). Jain N, Narain S, Gupta AK, Nag HL, Kabra SK. Blount's disease: A lesser known cause of Bowlegs mandating early differentiation from physiological bowing. Indian J Pediatr. 2002; 69(2):189-191.