

OSTEOCHONDROMA CAUSING PES-ANSERINUS SYNDROME

A CASE SERIES STUDY

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ABSTRACT:

Introduction: Osteochondroma is widely recognized as a benign bone tumor, protruding from underlying normal bone. The pes-anserinus is situated between the proximal medial tibia and the insertion point of the three tendons sartorius, gracilis, and semitendinosus. Torment in the pes anserine area brings about pes anserine condition.

Material and methods: A prospective study of "Osteochondroma causing pes-anserinus syndrome" during a period of two years from 2020 to 2022 at a tertiary hospital.

Result: The average age of our current case series was 17.3 years. In every instance, pain is the presenting symptom. All of them had a single osteochondroma, so clinical diagnosis of pes anserinus syndrome was made. On plain radiographs, the osteochondromas ranged in size from 2 to 4 cm, with an average of 3 cm. The typical location of all lesions was along the medial-posterior edge of the proximal tibia. In all instances, surgical resection relieved the symptoms.

Conclusion: Even though the osteochondroma is small, its characteristic location causes pes anserinus syndrome. When osteochondroma or pes anserinus syndrome occurs in children, the diagnosis may be overlooked. Resection of the osteochondroma is required for treatment due to the apparent consistency of the symptoms.

INTRODUCTION:

The most prevalent benign bone tumor is osteochondroma, which is characterized by an exophytic lesion of cortical and medullary bone with an overlying cap of hyaline cartilage.[1] There are two clinical manifestations: One involves multiple lesions (hereditary multiple exostoses) and one is a single lesion (solitary osteochondroma).[2] HME / Solitary osteochondroma is a common condition that affects 1 to 2 percent of people. 10%-15% of all bone tumors and 20%-50% of benign bone tumors are caused by these lesions. The male predisposition for solitary osteochondroma is between 1:1.6 and 1:3.4.[3,4] The estimated prevalence of hereditary multiple exostoses, on the other hand, is 1: 50,000 to 1: 100,000 in populations in the west. The general term "pes anserine syndrome" refers to knee medial pain that may or may not be caused by bursal sac inflammation.[5,6]

Sartorius, gracilis and semitendinosus ligaments embed generally 5cms distal to average knee joint line framing a design that looks like goosefoot or pes anserinus in Latin. Between the proximal medial tibia and the insertion point of these three tendons is the pes anserine bursa. Torment in the pes anserine area brings about pes anserine condition.[7,8]

Three pediatric cases of pes anserinus syndrome caused by osteochondroma are described in this report. Because the diagnosis of pes anserinus syndrome can be missed in children, the article focuses on the clinical characteristics and diagnosis of the condition.[12]

MATERIAL AND METHODS:

A prospective study of “Osteochondroma causing pes-anserinus syndrome” treated surgical resection done in Vinayaka Mission’s Medical College, Karaikal, during a period of two years from 2020 to 2022.

CASE PRESENTATIONS

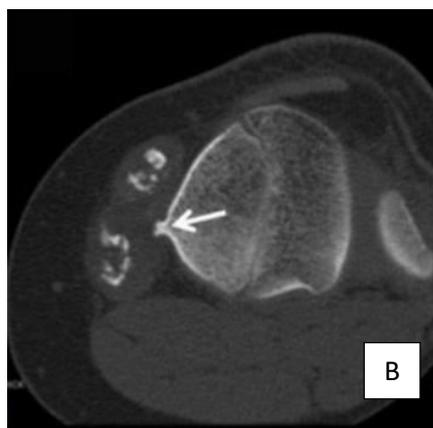
CASE 1:

A boy of 18 years old presented with pain and a mass on the left proximal leg's medial aspect. He began to experience symptoms around the age of four. He experienced pain when he flexed his knees, but it was absent when he walked or ran. His body weight was 58 kg and his height was 156 cm. He had no medical history that was related to the lesion in the past. There was no set of experiences of injury or injury at the knee. On examination, a hard, non-moving mass with tenderness on the medial side of the proximal tibia could be felt. The swelling was evident. A lesion with continuity to the underlying bone was visible on plain radiographs. On a standard radiograph, the lesion measured 2 cm in size. CT portrayed a protuberant bone sore with coherence to typical bone with an overlying cartilaginous cap comparing 1.6mm in thickness with ordinary surface.

The lesions were approached from behind the conjoint tendon for surgical resection. Using a curved chisel, the lesion was resected while the pes anserinus attachment was being retracted. The specimen's histology revealed a fragmented, minimally mature hyaline cartilage cap with moderate to abundant dense fibrous perichondrium and evenly spaced chondrocytes. A bony stalk made up of trabecular bone spicules and marrow space can be seen in the underlying zone.



A



B

FINDINGS:

- A medium sized, 4.5 x 3.1 x 2.6 cm (craniocaudal x transverse x anteroposterior) bony projection arising from the anteromedial aspect of the proximal tibia with following characteristics and extension:
 - Continuation of the cortex and medullary cavity with the native bone.
 - A T2 hyper and T1 hypointense thin cartilage cap is noted overlying the lesion measures - 1.6 mm in maximum thickness.
 - No soft tissue components or fracture.
 - No significant arthritic changes at the left knee joint.
- **Menisci:**
 - Medial meniscus - NI significant
 - Lateral meniscus - NI significant
- **Cruciate ligaments:**
 - ACL: Mild STIR high signal seen along the anteromedial fibers, however appear intact - PCL: Intact
- **Postero lateral corner structures:**
 - LCL- NI significant
 - Popliteus tendon- NI significant
 - Biceps tendon- NI significant
 - Lateral Gastrocnemius- NI significant
 - Medial band- NI significant
- **Postero medial corner structures:**
 - MCL- NI significant
 - Semi membranous muscle and tendon - NI significant
 - Medial Gastrocnemius- NI significant
 - Semi membranous and Gastrocnemius bursa- NI significant
- **Lateralis meniscus:**
 - Cruciate ligament- NI significant
 - Patella- NI significant
 - Patellar tendon- NI significant
- **Bones, joint, cartilage & soft tissue:**
 - No fracture seen in any bone.
 - Mild diffuse cartilage thinning noted.
 - No intra-articular loose bodies.
 - Trace effusion in knee joint. No significant synovitis.

IMPRESSION:
An 18-year-old boy with alleged history of distal left knee swelling, MR

- Features of an Osteochondroma arising from the antero-medial tibia with fibrocartilagenous matrix, thin cartilage cap measures up to 1.6 mm in thickness.

C



D



E



F

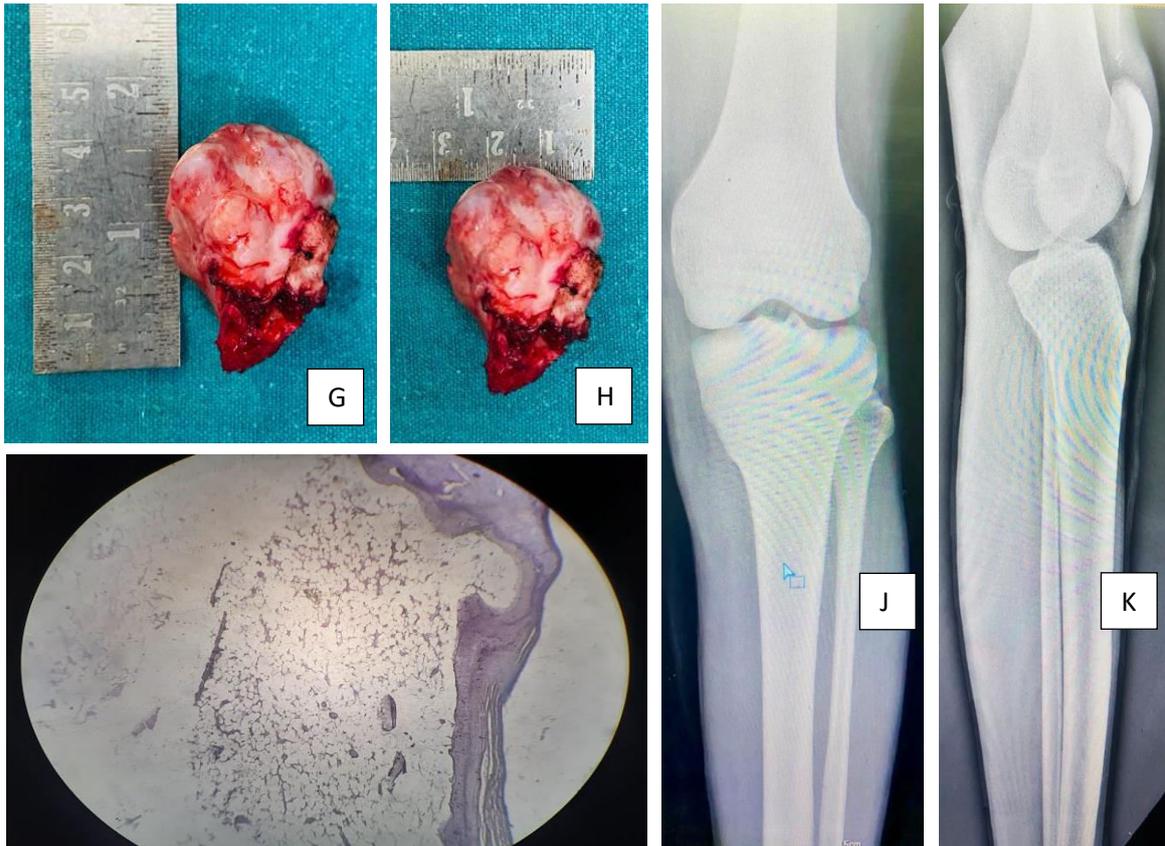


Fig 1:(A)x-ray showing solitary pedunculated exostosis, (B,C)MRI+CT LEFT KNEE shows single osteochondroma with cartilage cap of 1.6mm at antero-medial aspect of proximal tibia, (D)clinically presented as a swelling over medial aspect of proximal part of left leg

(E) **IMPINGED PES ANSERINUS** by underlying osteochondroma, (F)surgical resection of osteochondroma along with cartilage cap, (G,H) resected specimen measured to be 4*3cm, (I) Histologically, a hyaline cartilaginous cap and underlying lamellar bone trabeculae and fatty marrow are seen, (J,K) post-op x-ray

CASE 2:

Another 18-year-old boy presented with pain and swelling on the medial aspect of the proximal left leg, which he had noticed for several years. His height and body weight were 160 cm and 62 kg, respectively. He had no past medical history related to the lesion. There was no history of trauma or injury.

On physical examination, the non-mobile hard lesion was palpable with slight tenderness on the medial side of the proximal tibia. Plain radiographs showed a lesion protruding from the bone with continuity to the underlying bone. The size of the lesion was 1.5 cm on a plain radiograph. CT depicted a protuberant bone lesion with continuity to normal bone. However, an overlying cartilaginous cap or surrounding inflammation was not apparent. Surgically, the lesions were approached posterior to the conjoint tendon, and resected using a curved chisel. The lesion was composed of lamellar bone trabeculae and a covering cartilaginous component, compatible with osteochondroma. There was no evidence of malignancy.



Fig 2:(A,B)clinically presented as a swelling over medial aspect of proximal part of left leg, (C) X-RAY LEFT KNEE shows pedunculated exostosis from medial aspect of proximal part of leg, (D,E,F)CT left knee shows pedunculated bony lesion from medial aspect of tibial metaphysis with cartilage cap.

CASE 3:

A 16-year-old male child presented to the department of Orthopaedics, VMMC, Karaikal, Pondicherry with a complaint of pain over medial aspect of left knee since last Two months. There was no history of trauma, fever, or pain in other joints. On clinical examination, it was found that there was localised tenderness over the medial aspect of the proximal tibia at the attachment of pes anserinus. Tenderness was marginally more with the Knee joint in extension. Overlying skin was normal. No underlying bony swelling was palpable. The knee joint was stable. There were no bony swellings in other limbs. Systematic examination of the child was normal. Radiographic examination of left knee joint revealed pedunculated bony spur arising from the proximal tibial metaphysis corresponding to the attachment of the hamstring tendons. A clinico-radiological diagnosis of proximal tibial osteochondroma with pes anserinus bursitis was made.

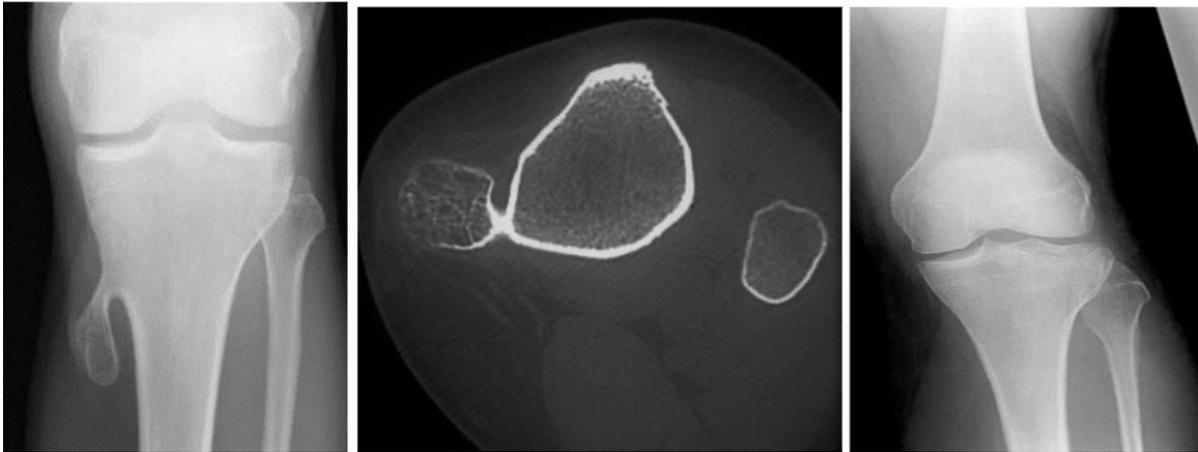


Fig 3:(A) X-RAY of left knee showing pedunculated exostosis from the medial aspect of proximal tibia at metaphysis-diaphysis junction, (B) CT transverse section shows outgrowth from tibia, (c) Post-operative X-RAY after resection of osteochondroma.

DISCUSSION:

Osteochondromas can cause pain depending on their location and size. Traditionally, most osteochondromas are diagnosed incidentally as they are symptomless.[1] Complications due to osteochondroma are due to compression of adjacent structures, fractures, osseous deformities, bursa formation, malignant transformation.[2] Osteochondromas occur usually after 40 years of age, more common in females than in males. Osteochondroma is not usual in younger patients, and 75%-80% of such cases are discovered before the age of 20 years and are symptomatic.[3,4] In approximately 1% of solitary lesions malignant transformation of osteochondroma occurs. In hereditary multiple exostoses is estimated that in approximately 3%-5% in these patients' malignant transformation may take place.[4] Plain x-rays can diagnose osteochondroma, but cross-sectional imaging like MDCT and MRI can be done to detect the cartilage cap, marrow continuity.[5]

A diagnosis of pes anserinus syndrome is made when there is spontaneous pain infero-medial to the knee joint while climbing or descending the stairs or sometimes it may present as localised swelling.[10] The incidence of pes anserinus syndrome is higher in women who are overweight and 50-80 years old, especially if they also have osteoarthritis of the knees, valgus deformities or pes planus. The other causes can be osteochondroma, trauma, retraction of posterior thigh muscles, damage to the medial meniscus, infection, and foreign body reaction. The differential diagnosis of pes anserinus syndrome includes lesions with pain infero-medial to the knee joint, like the medial meniscus; osteoarthritis of the medial compartment of the knee; lumbar radiculopathy; lesions in the medial collateral ligament; and insufficiency fractures.[6]

Pes anserinus syndrome is not common in childhood[13], and can be overlooked in a paediatric population with osteochondroma. In the English literature, there is only one case series of pes anserinus syndrome, though pes anserinus syndrome due to osteochondroma is described in a review.[10] In our present case series, the average age was 17.3 years. Pain is the presenting symptom in all cases. The current clinical findings of age distribution and symptoms were almost in correlation as in the reported case series. In the current case series, the symptoms disappeared on resection. Therefore, in cases of osteochondroma associated with pes anserinus syndrome surgical resection is necessary to relieve pain.

In making a diagnosis of pes anserinus syndrome due to osteochondroma in this series, the size of the osteochondromas was small, and the lesions were not prominent on the plain

radiographs in some cases. To detect lesion beneath pes anserinus in the paediatric population careful palpation is needed.[13]

Plain radiographs generally are not useful in the diagnosis of pes anserinus syndrome. In the majority of the cases, the diagnosis of pes anserinus syndrome was made clinically.[8] The current pes anserinus syndromes were diagnosed by symptoms and physical examination, after the diagnosis of osteochondroma on the plain radiographs. CT and/or MRI were performed in some cases in preparation for surgery for the osteochondroma, rather than for the diagnosis of pes anserinus syndrome. In the diagnosis of pes anserinus syndrome, ultrasonography and MRI do not confirm the clinical diagnosis.[10] However, the characteristic finding of pes anserinus syndrome on ultrasonography includes the thickness of the insertion of the pes anserinus, the presence of fluid collection, and changes in the subcutaneous fat of the medial aspect of the knee.[10]

CONCLUSION:

Three patients with pes anserinus syndrome due to proximal tibial osteochondromas is described. The lesion located at the medial-posterior edge of the proximal tibia, Osteochondromas at this location cause pes anserinus syndrome, even though the size of the lesion is small. Following surgical excision of the osteochondromas the presenting symptom pain is relieved. Pes anserinus syndrome could be overlooked in a paediatric population with osteochondroma, because pes anserinus syndrome is rare in this population. However osteochondroma associated with pes anserinus syndrome surgical resection is the treatment of choice.

SUMMARY TABLE:

Case No.	Age(Year) / Sex	No. of lesion	Side	Location	Presenting complaint	Duration	Modality	Size (cm)	Treatment	Follow-up
1	18/Male	Solitary	Left	Ant-med	Pain	2Yr	MRI+CT	4	Resection	Pain free
2	18/Male	Solitary	Left	Post-med	Pain	3Yr	CT	2	Resection	Pain free
3	16/Male	Solitary	Left	Post-med	Swelling	2mn	X-RAY	3	Resection	Pain free

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