

## Case Report

# Patellar tendon ganglion cyst with Osgood Schlatter disease: A rare coexistence

Nilufer Aylanc, Nebil Eker, Mustafa Resorlu

Department of Radiology, Faculty of Medicine, Canakkale Onsekiz Mart University, Canakkale, Turkey

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### ABSTRACT

Patellar tendinopathy is one of the causes of anterior knee pain. Osgood Schlatter disease (OSD) is another reason for pain in this location, occasionally accompanying patellar tendinopathy. We present magnetic resonance imaging and radiographic findings in a case of OSD with incidentally diagnosed patellar intratendinous ganglion that is a rare coexistence. We report a case of a 30-year-old male who presented with anterior knee pain, prolonged for 20 years. In radiologic evaluation, there was opacity in the patellar tendon and there was osseous fragment near the tibial tuberosity on lateral radiographic image. Except for this lesion, patellar tendon had the signal intensity changes indicating patellar tendinopathy. Besides these

findings, there was bone irregularities and bone marrow edema on the tibial tuberosity and osseous fragment neighboring these structures with surrounding soft tissue edema.

Patellar tendinopathy is a pathophysiological process that can be seen in people with knee pain and can occur due to recurrent trauma. Radiological findings can be encountered in a wide range from mild structural changes in the tendon due to degeneration to intratendinous lesions and adjacent bone pathologies such as OSD. Therefore, there is a relationship between two pathologies and magnetic resonance imaging plays an important role in the radiological diagnosis of these two entities.

**KEY WORDS:** ganglia, pain, patella, tendinopathy, tibia

### INTRODUCTION

Ganglion cysts are benign lesions that can be seen in any part of the body, but frequently seen in hand, wrist, foot, ankle and knee side. They can be seen in bones, joints, tendon sheaths or in soft tissues. Intratendinous ganglia are rare lesions, while patellar tendon replacement is almost rare<sup>[1]</sup>. Ganglion cysts placed on knee side may be one of the symptoms of anterior knee pain. Unlike synovial cysts, these lesions have no synovial epithelial and occur secondary to mucoid degeneration of connective tissue because of occasionally chronic irritation and repetitive traumas<sup>[2]</sup>. Osgood Schlatter disease (OSD) is also one of the causes of anterior knee pain, caused by repetitive microtraumas to anterior aspect of the tibia, leading to processes from tibial tuberosity edema to bone fragmentation at this side. With all the osseous

findings, patellar tendinopathy is also seen at the same time in different forms<sup>[3]</sup>. We report a case where these two entities were seen, both patellar ganglion cyst and tibial apophysitis, presenting with anterior knee pain. Both pathologies are the result of exposure of the knee to chronic micro traumatic processes and their coexistence is very rare.

### CASE REPORT

A 30-year-old man was referred to the Department of Orthopedic Clinic with an increasing prevalence of anterior knee pain prolonged for 20 years. On conventional radiography, there was slight opacity in the patellar tendon tract on lateral radiograph and mild irregularity on tibial tuberosity contour where the patellar tendon inserts (Figure 1). On magnetic resonance images, there was a lesion slightly

#### Address correspondence to:

Nilufer Aylanc, Associate Professor, Department of Radiology, School of Medicine, Canakkale 18 Mart University, 17100 Canakkale, Turkey. Tel: +90 2862635950; +90 5058569606; E-mail: niluferaylanc@gmail.com



**Fig 1.** Lateral knee radiography; mild opacity in the trace of patellar tendon (red arrow) and a bone fragment (white arrow) superiorly to tibial tuberosity.

hyperintense on sagittal T1 and hyperintense on sagittal proton density sequence in the patellar tendon, in the dimensions of 20x5x5 (CCxAPxT), indicating cystic lesion. Signal changes suggesting tendinopathy except from this lesion were observed in tendon also. On the distal portion of the tendon adjacent to the tibia, a slight contour irregularity on the T1 weighted series and a bone fragment with a signal characteristic like that of the neighboring bones, were observed in a

diameter of 7.9 mm. Mild bone marrow edema were also seen in soft tissues adjacent to the bone fragment and in adjacent tibial tuberosity, clearly seen on fat saturated images (Figure 2).

An informed consent form was taken from the patient for case presentation.

## DISCUSSION

OSD and ganglion cysts are rare diseases on their own, and it is very rare to see both in the same region. Ganglion cysts are benign lesions and can be seen in any part of the body, especially in hand, foot, wrist, ankle and knee<sup>[3]</sup>. In those anatomical localizations they can be seen in soft tissues, in tendons or tendon sheaths, in articular capsule or they can be seen in bones<sup>[4]</sup>. Histologically, with no synovial component, they have fibrotic wall and are not classified as true cysts. It is suggested that mucinous degeneration in collagen fibers and active mucinous secretion because of hypercellularity, takes a role in the occurrence of these cystic lesions<sup>[3]</sup>.

However, repetitive microtraumas take an important role in etiology<sup>[5]</sup>. Ischemia and chronic irritation of tendon resulting in degeneration can be another reason for cystic formation, or these cystic lesions may be congenital<sup>[2,3,5]</sup>.

Tendinous degeneration can cause ruptures over time. However, during degeneration, different histopathologic processes can occur such as hypoxia, mucoid degeneration, tendolipomatosis and calcific tendinopathy, alone or together. Hypoxia is the most common pathology in tendon ruptures, that causes necrosis in tenositis, longitudinal detachment in collagen fibrils and structural distortion. In



**Fig 2.** MR images; sagittal fat saturated proton density (a) and T1 weighted fast spin echo image (b); signal changes reflecting to patellar tendinopathy and cystic lesion within the tendon (red arrow). A bony fragment (white arrow) seen superiorly to tibial tuberosity.

tendolipomatosis, irregular destructive cavitations come to occur due to lipocytes accumulation between deep collagen and finally result in reducing in the tendon's tensile strength<sup>[6,7]</sup>. Calcific tendinopathy with calcium accumulation in collagen fibers is seen as a thickening in the tendon and inflammation around calcification<sup>[6,7]</sup>. Mucoïd degeneration in ligaments and tendons cause detachment in collagen fibers and liquefaction and result in mucin accumulation<sup>[6]</sup>.

Intratendinous ganglion cysts, especially in patellar tendon, is a very rare localization for ganglions and are seen frequently in sportsmen who also have underlying tendinopathy, as reported in literature<sup>[4]</sup>. OSD is another pathology that can cause chronic degenerative process in knee and can be presented with anterior knee pain like patellar tendinopathy. OSD can also be seen with fragmentations from tibial tuberosity that may result in chronic irritation resulting from chronic repetitive traumas in anterior tibial tuberosity, with apophysitis and distal patellar tendinopathy. In etiology, jumping and kicking movements in the etiology play a role and OSD is more often seen in the male population. The cases clinically present with pain, swelling, tension in the anterior knee and complaints, with aggravation of these symptoms during sports activities<sup>[8,9]</sup>.

In radiographs, irregular contour and fragmentation in tibial tuberosity with surrounding soft tissue swelling can be seen, especially on lateral radiograph. On magnetic resonance images, patellar tendinopathy can be detected better as increase in tendon thickness and signal pattern and in pathologies in tibial tuberosity, especially in the early period<sup>[3]</sup>. In the differential diagnosis of OSD, separate ossification centers, tibial tuberosity avulsion fractures, Sinding-Larsen-Johansson syndrome and jumper's knee can be thought.

In Sinding-Larsen-Johansson, chronic traction damage with patellar tendinopathy and bony findings, like OSD, can be seen in the inferior pole of patella. In jumper's knee, patellar tendinopathy is seen frequently in elderly adolescents and many authors suggest that it is the adult form Sinding-Larsen-Johansson disease<sup>[10]</sup>.

## CONCLUSION

Both patellar tendon ganglion and Osgood Schlatter disease are not uncommon. Co-existence of these two is a rare phenomenon but with no specific clinical implications. This case is presented for its rare occurrence.

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