Mediapatellar plica syndrome is an uncommon diagnosis in the rheumatology clinic. Medial plica is an embryologic synovial remnant that originates from the medial wall of the knee and inserts obliquely into the fat pad. Although the medial plica is a common arthroscopic finding in adults, it only causes discomfort once it becomes irritated.1

We do not have knowledge of previous reports of an acute painful effusion attributable to mediopatellar plica after protracted travel sitting.

**CASE REPORT**

The patient is an 18-year-old woman who developed pain and swelling of the right knee after approximately 6 hours of sitting in a school bus. She denied fever or history of trauma. She did not complain about giving way, clicking, or pseudolocking. Physical examination of the knee revealed warmth, patellar ballottement, and a diffuse tenderness on palpation, with a very tender spot on the area of the medial femoral condyle. Restriction of joint flexion up to 90 degrees was also observed. The extension was not affected.

X-ray of the knee and the C-reactive protein level and erythrocyte sedimentation rate were within normal parameters. A guided ultrasound aspiration of the knee was performed, and 50 mL of synovial fluid with clear appearance was obtained. The noninflammatory nature of synovial fluid was corroborated by the presence of 500 white blood cells/mm³ and a differential of 20% polymorphonuclear cells; it showed no crystals. The Gram stain was negative, and the cultures grew no organisms.

A moderate effusion and a thickness of synovium in the suprapatellar pouch were observed by ultrasound. During dynamic ultrasonographic exploration with the probe placed over the anterior medial aspect of the patellofemoral area described by Paczesny and Kruczyński,2 a disconnected hyperechoic band compatible with a mediopatellar plica was observed (Fig. 1). The ultrasonography assessment of the femoral sulcus and a patellar position was within normal parameters.

Because no improvement was obtained after 2 weeks with nonsteroidal anti-inflammatory drugs and physical therapy, an arthroscopy was performed. A large thickened and fibrotic fenestrated medial plica (Figs. 2A, B) was documented by arthroscopy. The impingement mechanism by the medial plica in an area of approximately 2 cm² of neovascularization and softening on the medial femoral condyle (Fig. 2C) was demonstrated during the flexion of the knee by arthroscopic visualization.

No arthroscopic evidence of patellofemoral malalignment or excessive lateral pressure syndrome was observed, and both menisci were intact. A biopsy of the trimmed tissue from the medial femoral condyle showed synovial tissue with nonspecific inflammatory changes.

One year after surgery, the patient was asymptomatic, and physical examination was completely normal. No restriction of range of motion was observed at this time.

**DISCUSSION**

The medial plica is a mesenchymal tissue remnant from embryonic development of the knee, which originates from the medial wall of the knee and inserts obliquely into the synovium covering the infrapatellar fat pad. This structure is a well-known proposed cause of anterior knee pain.1

Most patients with a symptomatic plica give a history of repetitive sporting activities or blunt trauma. They often report intermittent pain, sensation of catching, locking, and giving way.1,3 However, we do not know of any similar case with abrupt onset of knee pain and swelling after prolonged-sitting travel.

Yamamoto et al.4 reported a young truck driver with a painful knee and atraumatic hemarthrosis due to medial plica. In this case, the author considered a repetitive trauma provoked by the plica and fat pad with pulling and catching in the patellofemoral joint. Conversely, in our young patient with acute pain...
and swelling of the knee after a prolonged-sitting trip on a school bus, her symptoms were probably triggered by severe and maintained acute, rather than chronic, impingement.

Regarding the physiopathology of the medial plica, its kinematic relationship with the medial femoral condyle during knee flexion has been recognized as a critical factor because it shears the cartilage. The severity of cartilage damage has been correlated with increased age of the patient and fiber content of the plica.5,6

In addition, it is hypothesized that during walking an irritated plica provokes a contracture of the medial knee muscles, thereby, increasing adduction and internal rotation moment as well as the medial compartment load causing osteoarthritis at the medial compartment.7

Our patient, who did not have any discomfort before traveling, was found to have a neovascularization and softening on the medial femoral (Fig. 2C). We believe that compression during the prolonged-sitting position by the medial plica in a previously damaged medial femoral condyle triggered an acute episode. Recently, Guney et al.8 attributed their high rates of degeneration in the medial femoral condyle (96%) and patella (97%) in patients with medial plica to activities involving hyperflexion, very common in daily life of eastern populations.

In addition, it is important to consider the fenestrate plica in 2 ways. First, our patient denied a history of trauma; however, some authors consider fenestrated plica as a result of trauma.9,10

Second, a fenestrated plica might have an additional increased stiffness because the cordlike structure detached from the medial wall is under tension in both extremes, in the medial wall and in the fat-pad insertion. The cordlike structure of fenestrate plica rather than a nonfenestrated plica might also create a major area of impingement by an entrapment of the medial femoral condyle into the hole during the flexion of the knee. These mechanisms can contribute to degenerative changes and acute painful feature without the presence of an initiator traumatic event.

Mediopatellar plica can mimic several mechanical disorders of the knee such as meniscal injuries and patellar maltracking. These disorders were ruled out in our patient, who showed no arthroscopic evidence of patellofemoral instability or meniscal tears. She showed a normal femoral sulcus and patellar position assessed by ultrasound.

Although the medial plica diagnosis and its pathologic appearance are usually recognized by arthroscopy, other imaging techniques such as magnetic resonance imaging and ultrasound can help in the diagnosis.2 Ultrasound can be helpful in the diagnosis, displaying a hyperechoic band running over the femoral condyle during dynamic exploration.2,11 The discontinuity of the hyperechoic band observed ultrasonographically (Fig. 1) probably corresponds with the aperture of the fenestrated remnant observed by arthroscopy (Fig. 2A).

Finally, an explanation for inflammatory changes in the synovial membrane biopsy as well as for vascular arthroscopic appearance on the medial femoral condyle lesion, might be related with an invasion or penetration by the synovial remnant. A similar histopathologic finding has been observed previously.12

We conclude that continuous compression on the medial femoral condyle by mediopatellar plica after prolonged-sitting during travel could explain an acute painful knee effusion mimicking an arthritic scenario. Although mediopatellar plica syndrome is an uncommon diagnosis in our practice, we rheumatologists should include it in the differential diagnoses of acute painful effusion of the knee, and ultrasound can be a useful diagnostic tool.

REFERENCES