

Painful Patellar Partita Complicated with Intraarticular Ganglion

Keywords: Patellar partita; Ganglion cyst; Arthroscopy

Abstract

Painful patellar partita complicated with intraarticular ganglion cysts arising from the cruciate ligament is difficult to diagnose from the symptoms alone. In the patient reported here, knee pain was caused by patellar partita and by cysts attached anteriorly to the posterior cruciate ligament (PCL). The fragment of the bipartite patella was excised, and the cysts were resected arthroscopically in a piecemeal fashion. Knee pain and limitation of motion both resolved after surgery. We hypothesize that the pain and restricted range of motion were caused by both the bipartite patella and impingement of the ganglion cysts between the anterior cruciate ligament (ACL) and PCL. In particular, sudden onset of vague pain in this patient was likely to be due to impingement of the ganglion cyst between the ACL and PCL.

Introduction

Patellar partita is a well-known disease among young athletes. Bipartite patella has long been noted as a cause of anterior knee pain. In most patients with symptomatic patella partita, improvement is achieved by conservative management. On the other hand, a ganglion cyst is rarely encountered within the cavity of the knee joint and the prevalence of intraarticular ganglion was reported to be 0.2%-1.3% on knee magnetic resonance imaging [1-3]. A ganglion may be asymptomatic, but can also cause considerable morbidity and present with pain or mechanical symptoms. The main treatment for patellar partita and ganglion of the knee joint is surgical excision. Here we report a case of knee pain caused by bipartite patella associated complicated with an intraarticular ganglion.

Case Report

A 29-year-old man has had right knee pain since junior high school. The pain usually occurred while climbing stairs or doing hard exercise. Marked exacerbation of his knee pain suddenly occurred 2 months ago. For one week, his pain had been exacerbated by knee motion and while walking. He could not flex and extend his left knee completely. The Marked exacerbation of the symptoms had appeared twice in a month, but he could perform normal activities easily when symptoms were absent. There was no history of trauma to the knee. The symptoms had resolved when he presented to hospital.

Physical examination revealed no knee effusion, quadriceps atrophy, or joint line tenderness. Tenderness and percussion pain were present in superolateral portion of the patella. The patella compression test was positive. The range of motion was full. The results of Lachman's test, the anterior drawer test, and the posterior drawer test were normal. McMurray's test did not cause pain or a clicking sound. The knee pain was reproduced on forced knee extension and flexion.



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Radiographs showed bipartite patella affecting the superolateral portion of the patella. CT showed unhealed fragment of bipartite patella.

Magnetic resonance imaging revealed oedema and bone cyst within the bipartite fragment. And magnetic resonance imaging revealed oval well-demarcated cystic mass (15 mm × 15 mm × 24 mm) anterior to the proximal third of the PCL, with the ligament

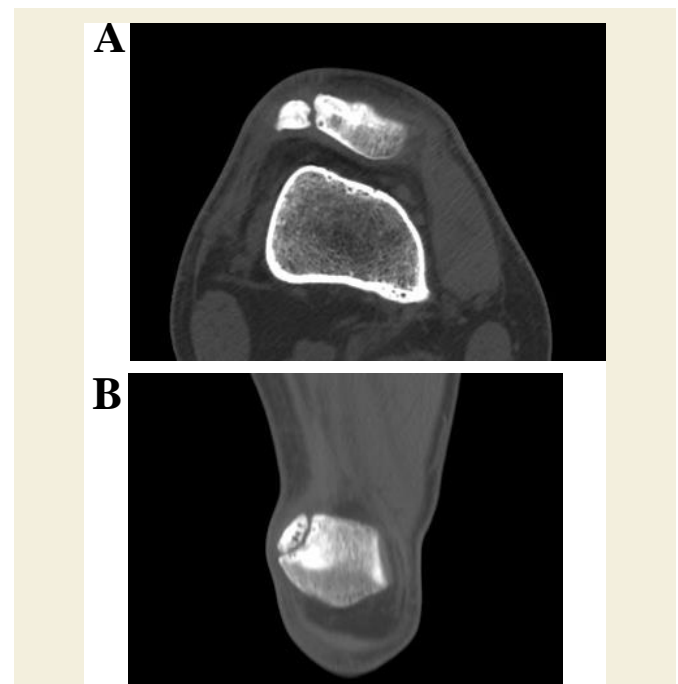


Figure 1: CT (A) Axial image. (B) Coronal image. Unhealed fragment of bipartite patella.

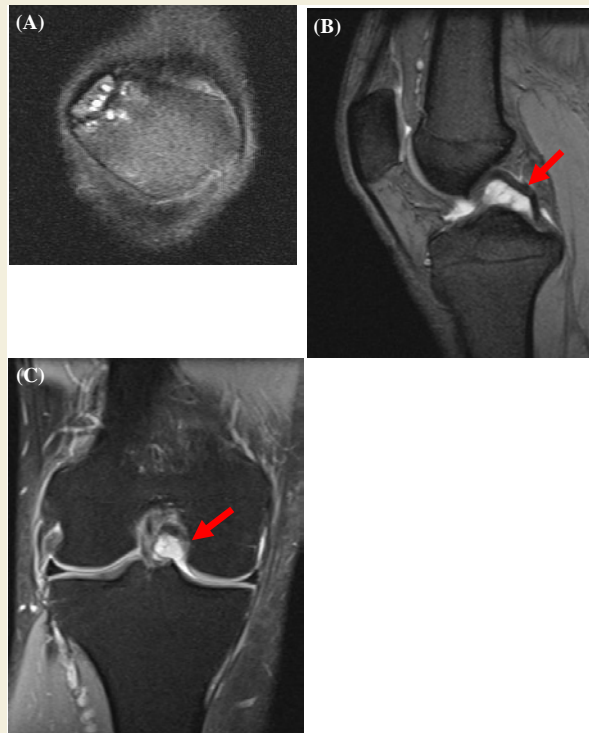


Figure 2: Preoperative MRI (A) Coronal proton density-weighted image oedema and bone cyst within the fragment of bipartite patella. (B) Sagittal T2-weighted image. (C) Coronal T2-weighted image. The cyst with a homogenous high-intensity signal adjacent to the PCL.



Figure 3: Arthroscopic view from an anterolateral portal. Intraoperative view of the ganglion located between the ACL and PCL.

being flattened and deformed by the mass. The ACL was compressed laterally and deformed too. The mass showed low signal intensity on T1-weighted images (Figure 1A), while it had a uniform high signal intensity on T-2 weighted images (Figure 1B).

Arthroscopic examination identified cysts lying anterior to the proximal third of the PCL in the region between the ACL and PCL (Figures 2 and 3). These cysts were tightly attached to the PCL and could not be separated by probing. The ACL was slightly compressed

laterally and deformed. The cysts were excised arthroscopically in a piecemeal fashion.

Pathological examination revealed cystic spaces with walls composed of collagen fibers without an epithelial lining, findings consistent with a ganglion cyst.

His pain on knee motion disappeared after surgery. The patient was asymptomatic and displayed a full range of knee motion when reviewed 12 months postoperatively.

Discussion

Patella partita is known as a developmental anomaly of ossification. The incidence of bipartite patella has been reported to be 0.2-1.7% [4-7], but only 1-2% of these anomalies are symptomatic [8]. Weaver reported two characteristic modes of symptom onset, which were gradual onset during sporting activities or sudden onset after an injury [8]. Symptomatic bipartite patella is observed in young athletes who participate in strenuous sports. The most common symptom is pain at the separated fragments during sporting activities. In adults, bipartite patella occasionally becomes symptomatic following a minor injury. However, our patient had no history of trauma. His symptoms were vague pain and limitation of ROM. We hypothesize that the pain and restriction of motion were not only caused by the bipartite patellae, but also by impingement of his ganglion cysts between the ACL and PCL.

The prevalence of intraarticular cystic knee masses (mostly as incidental findings) was reported to be up to 1.3% on MRI and 0.6% by arthroscopy [1-3,9]. Ganglion cysts of the cruciate ligaments not only expand outward along the fibers (anterior to the ACL and posterior to the PCL), but also expand between the two cruciate ligaments (inter-cruciate distension) and are sometimes interspersed within the fibers [3,10-13]. Symptoms and signs that can be caused by an intraarticular ganglion cyst include pain, swelling, joint line tenderness, a positive meniscus injury sign, and limitation of the range of motion [14]. The influence on the range of motion appears to be related to the location of the cyst. Cysts mainly located anterior to the cruciate ligaments tend to limit extension of the knee, whereas those mainly located posterior to the cruciate ligaments tend to limit knee flexion [2,15,16]. However, the limitation of motion cannot be completely explained by the location of the cyst alone. Kim suggested that changes in the shape and dimension of the ganglion cyst with knee motion and posture stimulated nerve endings in the stretched synovial membrane, thereby provoking knee pain and limiting flexion and extension [17]. In this case, the symptoms had appeared twice in a month, but he could perform normal activities easily when symptoms were absent. The reason of this phenomenon cannot be explained by the location of the cyst and changes in the shape and dimension of the cyst. We considered the symptoms were caused by impingement of ganglion cysts between the ACL and PCL.

Our patient had two types of pain, with one being the usual pain on stair climbing that is caused by bipartite patella and the other being sudden vague pain that interfered with ADL. We hypothesize that the first type of pain was caused by his bipartite patella, while the vague pain and limitation of motion were due to impingement

of ganglion cysts between the ACL and PCL. The pain and limitation of knee motion caused by the ganglion cysts seemed to be relatively more severe than that due to the patellar deformity.

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