Case Report

Clustered Localized Pigmented Villonodular Synovitis

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Abstract: The localized form of pigmented villonodular synovitis (PVNS) is a rare pathologic entity characterized by limited involvement of the synovium. In the knee joint, which is the most commonly affected joint, the disorder generally presents as a single nodular lesion, or rarely as 2 or 3 multiple nodular lesions into the joint. We report 2 cases of localized PVNS in which multiple nodules were clustered in a limited patella fat pad area. Clustered, multiple nodular lesions in a limited area suggested to us to consider a variant of localized forms. **Key Words:** Localized pigmented villonodular synovitis—Clustered multiple nodules—Knee.

Pigmented villonodular synovitis (PVNS) most commonly occurs in the knee as a monoarticular proliferative process involving the synovial membrane.[1-3] Although the etiology and pathogenesis of PVNS remains unclear, it occurs in 2 forms: diffuse and localized. The diffuse form (DPVNS), as the name implies, involves virtually the entire synovial lining of the affected joint. The localized form (LPVNS) is characterized by local involvement of the synovium as a nodule or pedunculated mass. The localized form is usually a single mass of pedunculated or, less frequently, 2 to 3 nodules that are yellow-brown in color.[3-7] When LPVNS affects the knee, it is usually found in the anterior compartment,[6,7] and less frequently, in the patellar fat pad.[7-15] We report 2 cases of LPVNS in which multiple nodules were clustered in the patella fat pad area without hypertrophic villous projections. Clustered, multiple nodules suggested that we consider a variant of localized forms.

CASE 1

A 40-year-old woman presented with a 5-year history of palpable lump in the infrapatellar area of the right knee and a 4-month history of gradually increasing discomfort according to knee flexion and eliciting pain with full flexion. She recalled no trauma episode and denied mechanical symptoms such as locking and giving way sensation.

Physical examination showed slight joint effusion and a palpable, ill-defined lump at the lateral border of the patellar tendon with mild tenderness. McMurray, patella compression, and patella gliding tests all produced negative results. Radiographs revealed neither bone abnormalities nor loose body.

Magnetic resonance imaging (MRI) of the right knee, performed at a local clinic, showed well-demarcated, multiple, clustered, variable-sized nodules in the infrapatellar area, ranging from 2 to 10 mm in dimension. The nodules were well demarcated, iso- to low-signal intensity on T1-weighted images compared with that of the muscle, and relatively low signal

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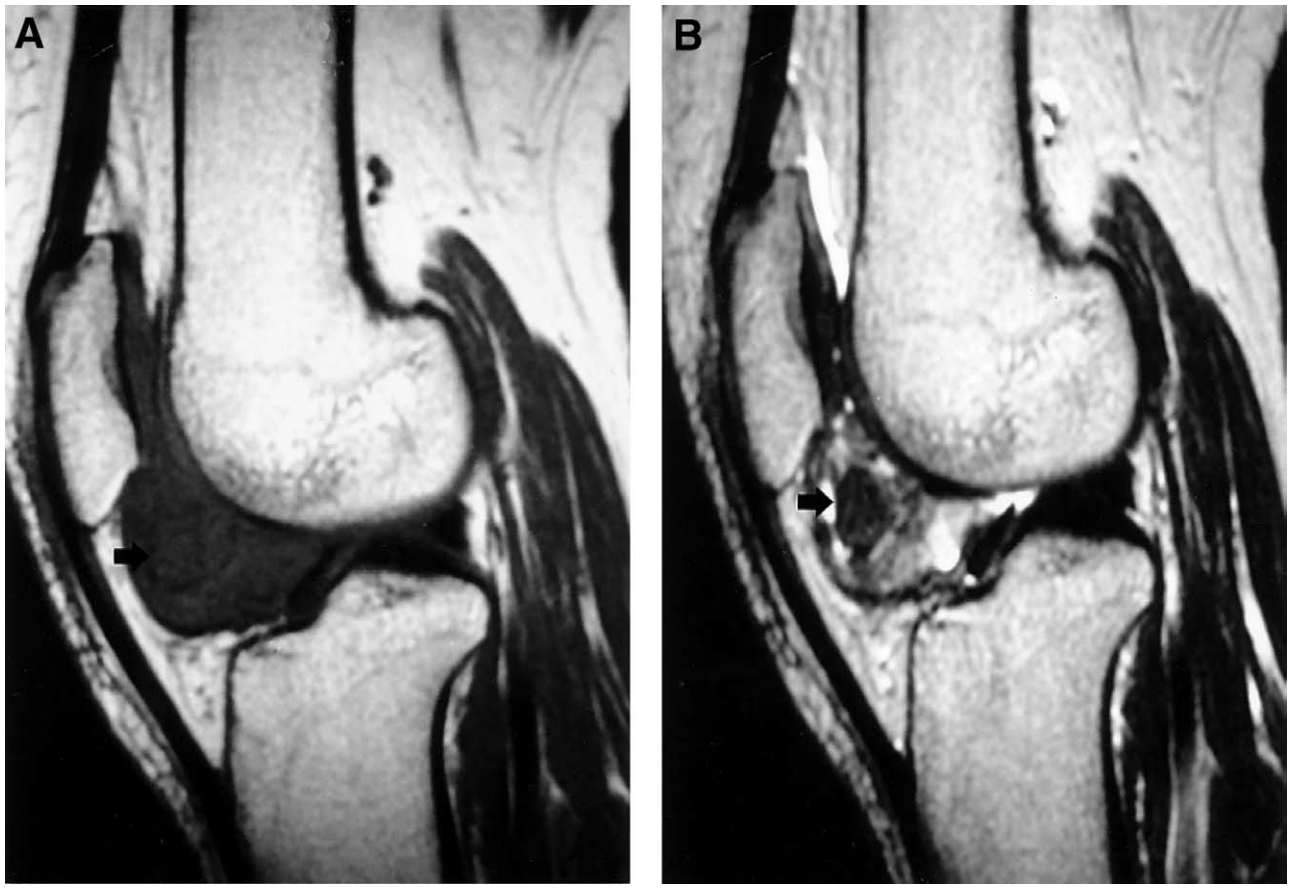

Figure 1. MRI findings of a 40-year-old woman reveal well-demarcated, multiple, clustered, variable-sized nodules in the infrapatellar area (arrows). (A) The sagittal T1-weighted MRI is iso- to low-signal intensity compared with that of the skeletal muscle. (B) The sagittal T2-weighted MRI is relatively low-signal intensity compared with that of the skeletal muscle.

intensity on T2-weighted images similar that of the skeletal muscle (Fig 1). An arthroscopic examination was performed, with difficulty entering the arthroscope into the anterolateral portal and advancing it into the medial compartment from the lateral compartment. To observe the patellofemoral area, a superolateral portal was made through which the clustered, multiple nodules were identified in the infrapatellar fat pad area. The surface of each nodule was well separated and no villi or synovitis was seen (Fig 2). No other synovial lesion was identified throughout the knee and all other intra-articular structures were noted to be normal. Nodules were easily resected and removed through the lateral and medial portals. The cluster nodules were easily excised in a piecemeal fashion (Fig 3). After aggressive debridement of the fat pad attachment site, arthroscopic inspection confirmed that the lesion was completely excised. Gross examination revealed multiple, soft, tan-brown, round masses with relatively uniform pigmentation. Pathologic evaluation of the masses confirmed the diagnosis of PVNS (Fig 4).

Postoperatively, the patient recuperated well and returned to normal activity without restrictions. At last follow-up, 1 year after surgery, no evidence of recurrence was noted and the patient appeared to be completely free of symptoms.

CASE 2

A 12-year-old boy presented with a 1-month history of aggravated pain when bending the left knee. He recalled a blunt trauma while roller skating 6 months previously and had experienced occasional vague pain in his left knee ever since. He indicated a worsening of the pain on knee flexion. He had not experienced locking or giving way sensation. Physical examination showed normal patella tracking