OBJECTIVES

Pigmented villonodular synovitis (PVNS) is a benign proliferative synovial disorder characterized by hemosiderin-laden villous and nodular lesions. It is most commonly reported to occur in the knee of adults, and is less commonly reported in the hip. The etiology of PVNS is unclear, with postulated mechanisms ranging from inflammatory to neoplastic. Literature describing PVNS in the pediatric population is limited to two small case series1,2 and a handful of single patient case reports. Within these studies, there are only two pediatric patients with PVNS of the hip3,4.

The purpose of the study is to describe the presentations, management, and outcomes of a single-center series of pediatric patients with PVNS of the hip treated with arthroscopic synovectomy.

METHODS

All patients diagnosed with PVNS between January 2011 and December 2016 at a single center were retrospectively identified in this IRB-approved study. Patients were identified by ICD-9, ICD-10, and CPT codes, as well as by keyword search of radiology and pathology reports. Inclusion criteria were patients less than 19 years of age with a histologic diagnosis of PVNS of the hip treated surgically. Patients with PVNS of joints other than the hip were excluded. Chart review, including clinical, imaging, and operative reports, was performed for all patients to determine age at the time of presentation, joint involvement, duration and description of symptoms, previous diagnoses, physical exam findings, MRI characteristics, surgical intervention, histologic diagnosis, clinical follow-up, and disease persistence and/or recurrence. The primary outcome was disease persistence/recurrence.

RESULTS

5 pediatric patients with an average age of 11.0 years were treated for PVNS of the hip. The average duration of symptoms from onset to surgical treatment was 247 days (range 3–933 days). Seven surgeries were performed in 5 patients. All therapeutic procedures were arthroscopic synovectomies. Nodular PVNS was present in 4 patients and diffuse disease in 1 patient. The patient with diffuse PVNS at the time of arthroscopy had degenerative changes and joint space narrowing noted on pre-operative radiographs. At an average 32-month follow-up (range 12–63 months), all patients were considered to be free of recurrence based on clinical exam and/or follow-up MRI. The patient with diffuse PVNS demonstrated progressive joint space narrowing and a non-congruent femoral head with serial radiographs over 4 years. The other four patients were asymptomatic and returned to their previous sports activities.

DISCUSSION

This pediatric case series represents a single center’s experience with the treatment of PVNS of the hip with arthroscopic synovectomy. Young age at the time of diagnosis is a point to be highlighted in this cohort and symptoms may be present for many months prior to diagnosis. In patients with “atypical” presentations or lack of improvement with treatment for rheumatologic, bleeding, or infectious disorders, PVNS should be strongly considered. MRI with gradient echo sequences is the diagnostic imaging study of choice and should be performed early to evaluate for this disease process. Failure to consider PVNS as a diagnosis results in delayed treatment and potentially progressive functional impairment and degenerative changes. Hip arthroscopy with exam of the central and peripheral compartment, nodule excision, and synovectomy results in good outcomes with no evidence of symptomatic or radiographic disease persistence in our case series.


A 4 year-old male presented with left leg pain and a limp for 1 month. MRI was consistent with nodular PVNS and this was treated with arthroscopic synovectomy.