

Arthroscopic Treatment for Intra-articular Lipoma Arborescens of the Knee Joint

Chun-Chi Hung¹, Tsu-Te Yeh^{1*}, Yao-Feng Li², Ru-Yu Pan¹, and Leou-Chyr Lin¹

¹Department of Orthopaedic Surgery, ²Department of Pathology, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan, Republic of China

We present a case of a patient with lipoma arborescens who was treated using an arthroscopic procedure. Lipoma arborescens is an uncommon pseudo-tumoural synovial lesion that usually develops in the suprapatellar pouch of the knee. Magnetic resonance imaging helped to confirm the lipomatous nature of the synovial proliferation. Arthroscopic synovectomy can be performed when lipoma arborescens is confined to the anterior knee compartment.

Key words: lipoma arborescens, arthroscopy, knee joint, synovectomy, magnetic resonance imaging

INTRODUCTION

Lipoma arborescens is an uncommon benign synovial neoplasm, and in most cases, the condition develops in the knee. However, it may develop in the wrist¹, shoulder^{2,3}, elbow⁴, ankle⁵ and hip.⁶ The condition is characterized by prominent villous proliferation in the synovium and extensive replacement of the subsynovial tissue by mature adipose cells. Synovectomy is the recommended for treatment of lipoma arborescens. We present a case of lipoma arborescens treated using arthroscopic synovectomy.

CASE REPORT

A 58-year-old woman presented with a 2-month history of pain and swelling in the left knee. Physical examination showed swelling of the suprapatellar pouch of the knee. Radiography showed osteoarthritis of the left knee. Routine laboratory tests results were normal. Magnetic resonance imaging showed a frond-like synovial proliferation in the suprapatellar pouch with joint effusion. Sagittal T1-weighted images showed a well-demarcated synovial proliferation that was well demarcated in the



Fig. 1 T1-weighted Magnetic Resonance Imaging scan shows villous synovial proliferation within the suprapatellar pouch (white arrow).

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*Corresponding author: Tsu-Te Yeh, Department of Orthopaedic Surgery, Tri-Service General Hospital, National Defense Medical Center, No. 325, Sec. 2, Cheng-Gong Road, Taipei 114, Taiwan, Republic of China. Tel: +886-2-8792-7185; Fax: +886-2-8792-7186; E-mail: tsutey@gmail.com

suprapatellar pouch (Figure 1). On axial T2-weighted images, the signal intensity of the proliferation was similar to that of subcutaneous fat (Figure 2). Complex tear of the medial meniscus and horizontal tear of the lateral meniscus were also noted. Therefore, arthroscopic surgery was performed. During the surgery, a yellow-white synovial proliferation with frond-like projections was observed in the suprapatellar pouch (Figure 3). The pro-

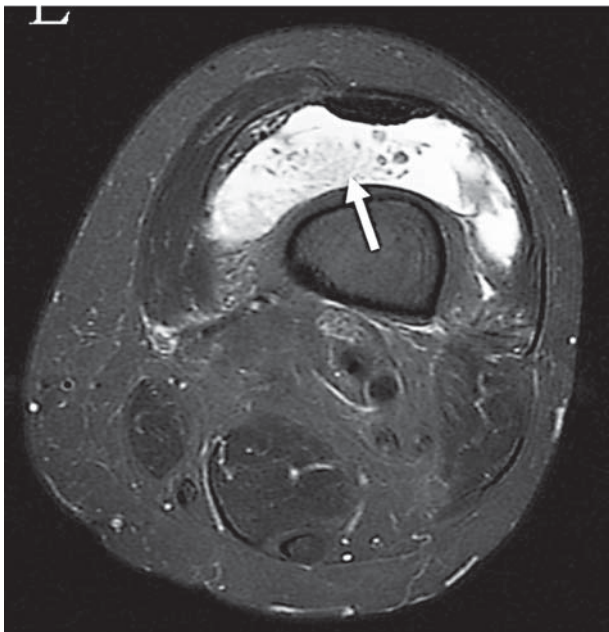


Fig. 2 T2-weighted Magnetic Resonance Imaging scan shows a frond-like morphology of the synovial mass that is isointense relative to subcutaneous fat (white arrow).

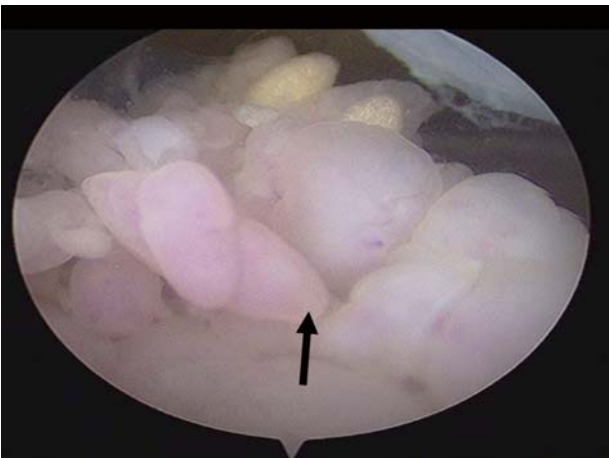


Fig. 3 Arthroscopic appearance of lipoma arborescens shows yellowish-white, frond-like synovial proliferation in the synovium (black arrow).

liferative lesion was removed by arthroscopic synovectomy. Histological examination showed hypertrophic villous projections of fat lined by synovial cells and scattered inflammatory cells of the tissue, indicating lipoma arborescens (Figure 4). The patient showed a favourable outcome after 2 months of follow-up.

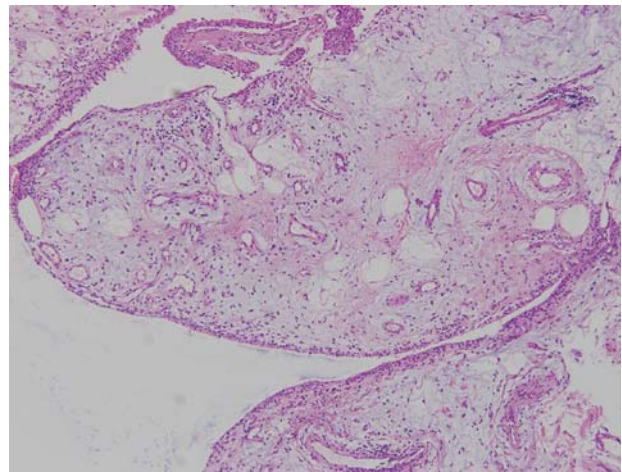


Fig. 4 Sections of hypertrophic villous projections of fat lined by synovial cells indicated lipoma arborescens (magnification, 200 $\times$).

DISCUSSION

Lipoma arborescens is a rare, benign intra-articular lesion with an unknown cause. The conditions associated with this lesion include osteoarthritis, joint trauma, and diabetes mellitus. In 20% of the cases popliteal cysts were noted.⁷ Patients with lipoma arborescens usually have a longstanding, slowly progressive swelling in the involved joint, which may be associated with effusion, decreased range of movement and pain.

Magnetic resonance imaging is a useful tool for establishing a diagnosis and evaluating the extent of joint involvement. A lack of magnetic susceptibility artefact and presence of a synovial mass with a frond-like architecture and signal intensity relative to that of fat and joint effusion on magnetic resonance imaging scans are pathognomonic for lipoma arborescens.^{8,9}

A lipoma arborescens lesion has a frond-like appearance with numerous broad-based polypoid or thin papillary villi composed of fatty yellow tissue on macroscopic examination.¹⁰ Histological examination reveals diffuse replacement of the subsynovial layer by mature fat cells, which form villous projections. A moderate infiltration of mononuclear inflammatory cells may be evident.

The treatment for lipoma arborescens is open or arthroscopic arthrotomy and synovectomy. Arthroscopic synovectomy can be performed in cases of lipoma arborescens when the proliferation is less extensive and confined to the anterior knee compartment (suprapatellar pouch, condylar gutters, and perimeniscal areas).¹¹ The lesion can be completely excised because it can be ac-

cessed through standard arthroscopic portals.¹² This minimally invasive method not only reduces soft tissue trauma but also facilitates postoperative rehabilitation. Although some patients may have recurrent knee effusions, actual recurrence of lipoma arborescens is rare.¹³ If the lesions are too extensive to be treated with arthroscopic surgery, open synovectomy is suggested.¹⁴ Open synovectomy does however carry some short-term morbidity.¹⁰

DISCLOSURE

All authors declare no competing financial interests.

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