

# Synovial Hemangioma of the elbow: An uncommon lesion to be considered

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## Citation

A Mohammadi, M Rosa, D Wolfson. *Synovial Hemangioma of the elbow: An uncommon lesion to be considered*. The Internet Journal of Pathology. 2007 Volume 7 Number 2.

## Abstract

Synovial Hemangioma is a rare benign vascular lesion. They are usually monoarticular and mostly seen in children or adolescents. We report the case of a 30 year-old patient, who presented with a one year history of pain and swelling in her left elbow. Histopathological examination of the excised lesion revealed synovial hemangioma with associated thrombosed vessels.

## INTRODUCTION

Synovial Hemangioma is a rare benign vascular proliferation arising in a synovium-lined surface, including the intra-articular space and bursa. They are generally seen in children or adolescents, but sometimes occur in patients older than 50 years with a predilection for males (1). Synovial hemangioma may cause bone erosion, periosteal new bone formation, articular destruction, soft tissue extension (2), and has also been reported causing spontaneous posterior interosseous nerve palsy in the elbow joint (3). The most common site of involvement is the knee, followed much less commonly by the elbow, wrist, and ankle.

Plain X-ray also confirmed this finding and showed that the defect in the distal humerus appeared to have sclerotic, well-mineralized edges to it (Figure 1).

## CASE REPORT

A 30 year-old white female was referred to our institution for evaluation of intra-articular mass of the left elbow. She had a one year history of intermittent episodes of pain and swelling in her left elbow without a prior history of trauma.

Physical examination revealed a loss of the terminal 5-10 degrees of extension on the left compared to the right arm, but there was a full flexion, pronation and supination. There was no epitrochlear adenopathy or effusion. She had normal neuromuscular function distally with regards to strength and sensation. Capillary refill was normal and there were no skin lesions.

Imaging studies including magnetic resonance imaging (MRI) performed in another institution, revealed a well-delineated, intra-articular mass, which was considered to be a poorly pigmented villonodular synovitis. The lesion had eroded through the olecranon fossa and extended anteriorly.

**Figure 1**

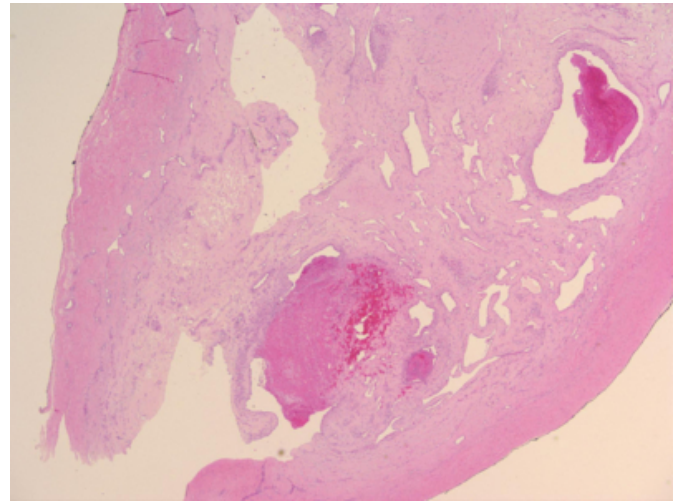
Figure 1: Plain X-ray of the elbow showing a defect in the distal humerus with a sclerotic rim.



Under general anesthesia, complete excision of the mass was performed. The lesion was stuck to the anterior capsule and had eroded through the olecranon fossa. Histologically, the tumor was well circumscribed and composed of thin-walled vascular spaces underneath the synovial membrane. A single layer of endothelium without papillary excrescences or atypia lined the vascular channels, some of them with associated thrombi. The surrounding stroma had a fibrotic appearance (Figure 2, 3).

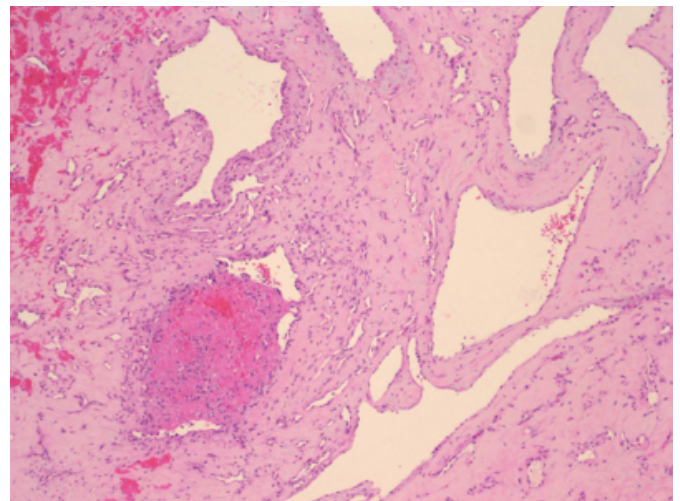
**Figure 2**

Figure 2: Well-circumscribed lesion composed of a fibrotic stroma and thin walled capillary vessels, with associated thrombi formation. (H&E 20X).



**Figure 3**

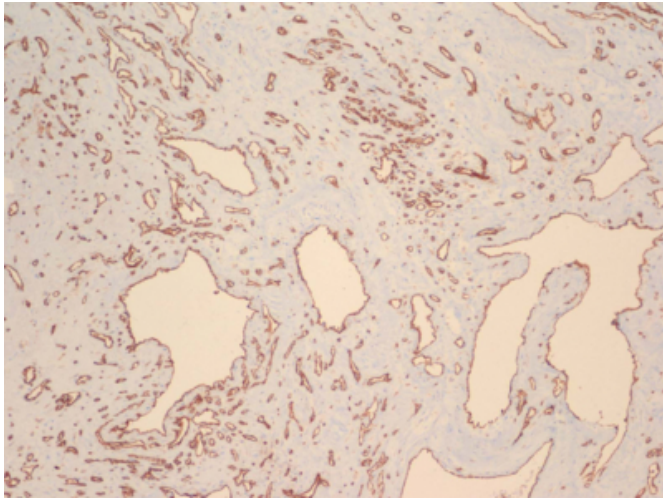
Figure 3: A closer view of the lesion showing the presence of organized thrombi in the lumen of some vessels and a flat layer of benign endothelial cells (H&E 100X).



These microscopic findings led to the diagnosis of synovial hemangioma, which was confirmed by immunohistochemistry showing intense positivity of the endothelial cells for CD 31 (Figure 4).

**Figure 4**

Figure 4: CD-31 special stain demonstrating strong reactivity of the lining endothelium (100X).



Following surgical resection the patient had an uneventful recovery without recurrence after two years of follow up.

**DISCUSSION**

Synovial hemangioma is a rare vascular tumor that constitutes less than 1% of all hemangiomas (4). The first case of synovial hemangioma was reported by Bouchut in 1856, and involved the synovial membranes of knee (5).

The clinical picture has a variable duration and almost always includes intermittent localized pain, sensitivity, recurrent effusion, and reduction in the range of motion. Spontaneous recurrent bleeding into the joint (hemarthrosis), which radiographically may have the appearance of a hemophilic arthropathy can also occur (6). In the absence of coagulopathy and in cases of recurrent hemarthrosis, synovial hemangioma should be considered in the differential diagnosis.

Clinical diagnosis is difficult because the majority of patients present with non-specific symptoms and signs. Synovial hemangiomas are frequently misdiagnosed, leading to a treatment delay that is problematic in terms of loss of function and pain experienced by patients. Magnetic resonance imaging is the best imaging study to identify the lesion particularly with regards to the extent of involvement (7). In comparison to Computed Tomography (CT), MRI also offers superior tissue contrast in defining the size and the extension of the tumor, the relationship with the joint, and evidence of any chondral degeneration. It is noninvasive, non-irradiating study, which allows an earlier diagnosis. Variations in signal intensity on the T1- and T2 can provide

helpful hints about the nature of the mass including the potential for malignancy.

It is believed that the use of arthroscopy in association with MRI is of major guidance in the decision on treatment and modality of management (8). Clinically synovial hemangiomas have a broad differential diagnosis, which includes pigmented villonodular synovitis, synovial osteochondromatosis, loose bodies, osteochondral fractures, ligament rupture, osteochondritis dissecans, juvenile rheumatic arthritis, xanthoma, and malignant tumors (9).

Grossly, the tumor appears to be congested and normally is fairly circumscribed. Synovial hemangiomas may extend into bone, soft tissue or the meniscal structures (of knee). Synovial hemangiomas that cause cortical bone invasion, bone erosion and periosteal reaction have also been reported (2, 7,10). Final diagnosis can only be made with histological examination, which reveals multiple dilated thin-walled vascular spaces. The hemangiomas can be subdivided, based on the size of the vessels, as capillary, cavernous, arteriovenous, and venous. The vascular channels are located underneath the synovial membrane and are surrounded by myxoid or dense connective tissue.

Treatment is usually surgical excision via arthroscopy or open resection. Arthroscopic excision is the treatment of choice when the lesion is completely intra-articular, well circumscribed, apparently encapsulated, and attached to the synovial membrane by separable adhesions. Radiation therapy is reserved for cases in which surgical excision is not possible (11).

Small lesions are usually removed entirely and do not recur. In cases of diffuse joint involvement, surgical resection can be challenging and recurrences can occur (12).

In conclusion, we describe an interesting case of a common tumor at an unusual location. Synovial hemangiomas are rare tumors that can lead to pain and significant mobility limitations. Diagnosis is commonly difficult and a combination of MRI and arthroscopy can be used for detection, diagnosis and treatment. There is a need for greater awareness of this lesion by both clinicians and radiologists.

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