

Synovial Hemangioma in a 2-Year Old Mimicking Synovial Osteochondromatosis

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ABSTRACT

We describe a rare synovial mass arising from the elbow of a 2-year old female. It was growing slowly for three months and there was no history of trauma or fever. Plain radiographs showed a soft tissue mass around the elbow with scattered nodular intraarticular calcifications. Ultrasound and MRI confirmed the synovial location of the mass and again showed the multiple calcifications, some of which suggested intraarticular loose bodies. The imaging findings were thought to represent synovial osteochondromatosis but subsequent biopsy revealed a synovial hemangioma and it is for this reason that we present our case.

Keywords: Synovial Hemangioma; Synovial Osteochondroma; Synovial Tumor

1. Case Report

This healthy 2-year old girl presented with painless right elbow swelling for 3 months with no history of fever, weight loss, or other constitutional symptoms. On physical exam there was non-tender swelling and boggy in the right elbow. The patient had full range of elbow motion and could use both extremities without difficulty. Pulses were strong and there were no sensory or motor deficits.

Initial elbow radiographs and ultrasound studies were obtained. The radiographs showed soft tissue swelling along the posterior aspect of the elbow with scattered, well defined rounded calcific densities (**Figure 1**). There were no underlying bony erosions, periosteal reaction, or signs of joint effusion. Ultrasound confirmed the presence of a lobulated mass with several punctuate calcification with extension into the joint (**Figure 2**). At this point the initial working diagnosis was synovial osteochondromatosis.

A subsequent contrast-enhanced MRI study was obtained to further define the mass. Non-contrast sagittal T1 and axial T2 MR images showed the posteriorly located mass to be connected to the joint (**Figure 3(a)**). After administration of gadolinium, enhancement was mostly peripheral and within the intervening septations. (**Figure 3(b)**). Excisional biopsy was performed and pathology confirmed a cavernous hemangioma.

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2. Discussion

Synovial hemangiomas are rare tumors of the joint. The knee is by far the most commonly involved joint. However, they also can occur in other joints such as the elbow, ankle and temporomandibular joint [1,2]. Typically patients are affected during the first and second decades of life [3] and symptoms are nonspecific, including swelling, pain, and limitation of joint motion [4].

In terms of imaging, plain films usually are normal except for the presence of non-specific soft tissue swelling. There usually is no bony erosion or bony destruction. Ultrasound evaluation of the lesion is sparsely documented [3]. In our case the lesion was homogenous with punctuate calcifications and was associated with intraarticular connection.

MRI documentation of the lesion also is somewhat scanty [3,5] however MR will demonstrate a lobulated soft tissue mass which is isointense, slightly hyperintense on non-contrast T1 weighted images and markedly hyperintense with scattered low-intensity septations on T2 weighted images. Similar findings are seen with STIR images and post gadolinium studies show intense and heterogeneous enhancement [6].

Our patient presented with nonspecific soft tissue swelling of the elbow with several well-defined and uniform-sized calcifications seen on the plain radiographs. These were confirmed by ultrasound which showed imbedded calcifications within the mass and extension of the mass into the joint. Subsequent MRI demonstrated multiple

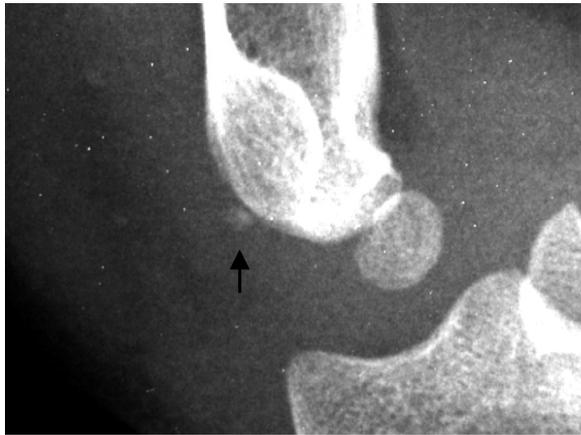


Figure 1. Lateral radiograph of the right elbow. Soft tissue swelling is mostly posterior with some nodular calcifications, one of which appears intraarticular (arrow).

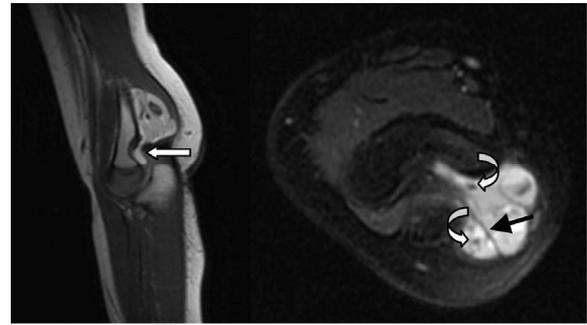


Figure 2. Axial sonogram through the elbow. The intraarticular soft tissue mass again shows the well defined and uniform calcifications (arrows).

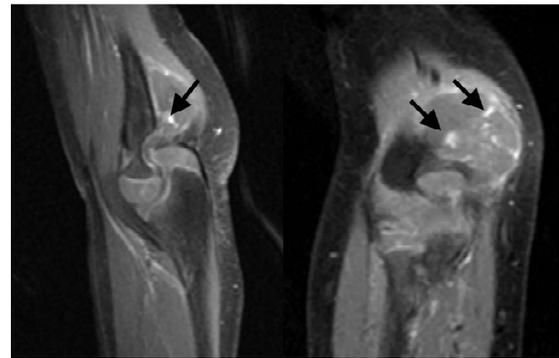
nodular hypodensities on T1 and T2 weighted images. Enhancement of the tumor was scant and patchy, mostly occurring peripherally and along the septations. This configuration is a little unusual for a hemangioma which usually demonstrates diffuse enhancement.

In terms of differential diagnosis, although the age of our patient would favor the diagnosis of a hemangioma, it is noteworthy that rare cases of synovial osteochondromatosis have been reported in the first decade of life [7]. Although there are certain similarities in the MR appearance of these two lesions it has been suggested that the presence of calcified or ossified free bodies within the joint is pathognomonic or at least highly suggestive of the diagnosis [8]. A similar statement can be made regarding plain films [9]. In our case, however, most of the lesion appeared to be outside the joint.

Synovial sarcoma, on the other hand, is a malignant neoplasm that is more common in young adults and chil-



(a)



(b)

Figure 3. (a) Sagittal T1 weighted MR image. The T1 hyperintense mass is seen arising from the posterior elbow and extends into the joint (white arrow). (b) Axial T2 weighted MR image. The lobulated mass is also hyperintense on T2 with low intensity septations (black arrow) and low density nodularities representing calcifications (curved arrows); (b) Post gadolinium T1 weighted and fat saturated MR images. A. Sagittal and B. Coronal images both show a minimally enhancing soft tissue mass; most of the enhancement is along the septations (arrows).

dren. Although it arises near a joint, it is very rare for this tumor to originate or extend intraarticularly [10]. Unfortunately, plain radiographs and even MRI show nonspecific characteristics and might even suggest a benign pathology such as a ganglion cyst if contrast is withheld. Calcifications can be present and could be mistaken for phleboliths of hemangioma, but they are uncommon. Again the key differential in this case would be the absence of intraarticular extension. Synovial hemangiomas are rather uncommon but do tend to occur in younger patients. Because they may demonstrate intraarticular calcifications they usually first are considered to be the lesion of synovial osteochondromatosis. However, ultrasound and MR imaging findings showing the paraarticular lesion with extent into the joint should enable one to accomplish the correct diagnosis.

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