

## Arthroscopic Treatment of Synovial Osteochondromatosis of the Elbow

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### ABSTRACT

A 40-year-old man presented with complaints of pain that continued to increase over a year. There was swelling and limitation of motion in his right elbow. There was an increase in the diameter of the right elbow, painful joint movements, and 30-degree extension loss in the physical examination of the patient. Direct radiography and computed tomography scans of the right elbow showed calcified joint mouses three in front and one at the back of the elbow. Magnetic resonance imaging (MRI) showed the increment of fluid and free hypodense objects in front of the elbow. Following an initial diagnosis of synovial chondromatosis, arthroscopic surgery was performed. Three dirty white colored free bodies were removed with partial synovectomy by reaching front and back of the elbow from standard inputs. The diagnosis of synovial chondromatosis was confirmed with pathological examination. The patient's pain recovered in the first postoperative week, and the full range of motion reached in the third week. At the end of the 1-year follow-up, the patient's complaints completely disappeared, and there was no evidence of recurrence.

*Key words: Elbow joint, synovial chondromatosis, arthroscopy*

### INTRODUCTION

Synovial osteochondromatosis is a rare condition consisting of cartilage metaplasia of mesenchymal remnants of snovya tissue (1). These cartilagenous tissue foci with metaplasia, lenghtens and falls into the joint and becomes free bodies after ossification (2). Although it mostly involves the knee joint mostly, it may involve all the joints including hip, shoulder, elbow and ankle joints (3-5). It is usually detected in men between 20- and 50 years of age (6). Although synovial osteochondromatosis originates from synovia tissues of joints (intra-articular), it can also originate from the serosa of the bursa or the tendon sheath (7). Patients usually presents with pain in the joints, swelling, limitation of motion, and repetitive locking of joints. In the late period, they present with degenerative joint disease (3,8). Treatment includes open or arthroscopic removal of free bodies and partial synovectomy. In this paper a synovial osteochondromatosis case treated with arthroscopic removal of free bodies and partial synovectomy is reported.

### CASE REPORT

A 40-year-old male patient with pain in his right elbow, continued for 1 year, was admitted to our clinic with complaints of swelling and limitation of movement. There was no previous trauma and metabolic disorders in the patient's history. In the patient's physical examination, diameter increase on the right elbow, pain with joint movement, and 30-degree

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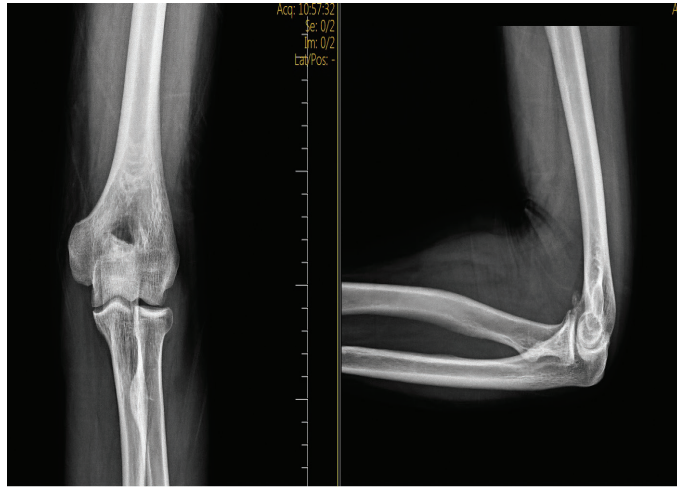


FIGURE 1: Preoperative radiography image.

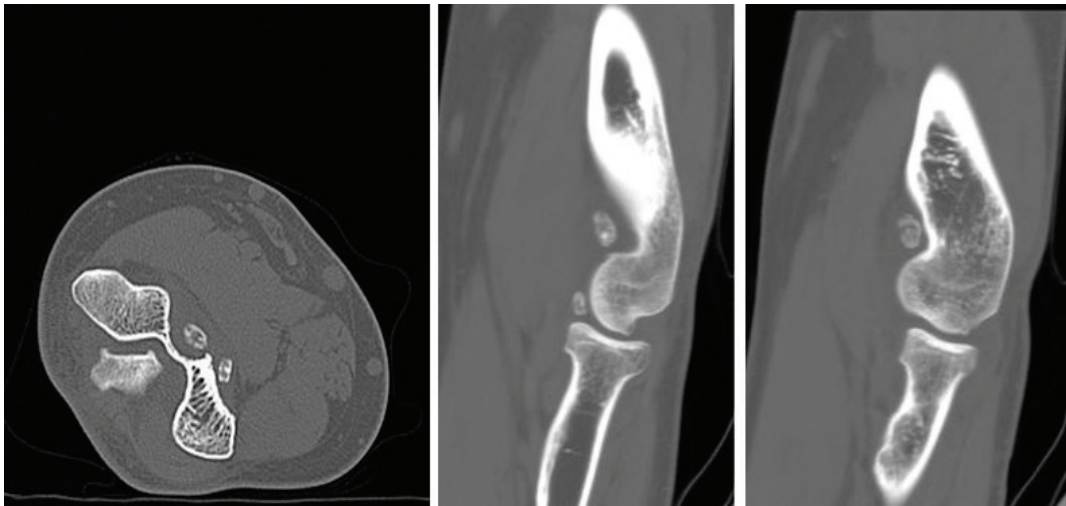


FIGURE 2: Preoperative computed tomography image.

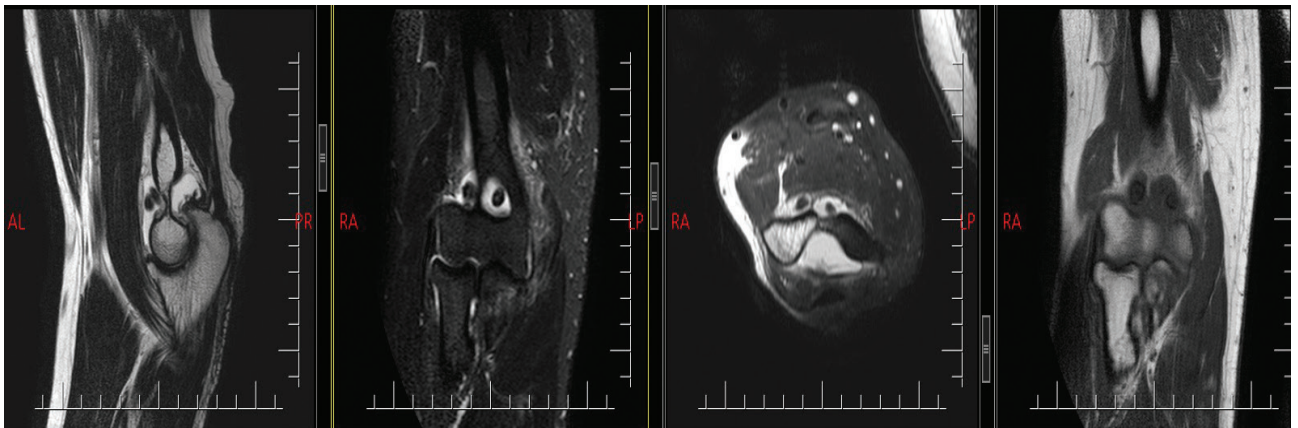


FIGURE 3: Preoperative magnetic resonance image.



FIGURE 4: The standard portal entrance points for the elbow joint.

extension loss were reported. There was no restriction of the elbow flexion, forearm pronation and supination. The patient's neurological examination was normal. On the right elbow, direct radiography and computed tomography revealed, three round, free elbow mice located anterior of to the elbow were detected, with (smallest 6 x 4.5 mm<sup>2</sup> and biggest 9 x 6.5 mm<sup>2</sup> in size) and, at posterior an ellipsoid calcified free joint mouse with size of (5 x 2 mm<sup>2</sup> in size closer to olecranon type) at the posterior to the elbow was detected (Figures 1 and 2). On the MRI of the right elbow, at the front of the elbow hypointense free bodies were observed at the front of the elbow without round round-shaped cartilage hat, with smooth borders in T1 and T2 sequence, and with minimal fluid increase (Figure 3). Nonspecific increased activity was detected in scintigraphy in

patient's right elbow. All three imaging modalities showed no detectable symptoms suggestive of cartilage degeneration. No pathology was detected in routine biochemical analysis. The patient underwent elbow arthroscopy in the lateral decubitus position, under general anesthesia. The front of the joint was reached from anteromedial and anterolateral portals (Figure 4). Three off-white white-colored rigid free bodies in the joint were excised (Figures 5 and 6). The intra-articular synovial tissue was observed hypertrophic, and partial synovectomy with motorized equipment was applied. Then olecranon fossa was entered from posterior and posterolateral portals. Olecranon type free body was excised, and synovectomy was applied. After hemorrhage control, postoperative elastic bandage, cold application, and elevation were performed. Hemorrhage control was achieved with postoperative elastic bandages. Postoperative neurological or vascular complications were not encountered. Pain control was performed by oral administration of nonsteroidal antiinflammatory drugs (NSAIDs). The active range of motion exercises began 24th hour post-operation. The patient's complaint of the elbow pain was fully resolved in the first post-operative week. Three weeks after surgery, a full range of motion was reached. The pathological examination showed condroid tissue developing bone tissue at the end zones, consisting of chondrocyte cells with hyperchromatic nuclei, consistent with diagnosis of synovial osteochondromatosis (Figure 7). In the first year of follow follow-up, the patient had no complaints about elbow, and there was no evidence of recurrence.



FIGURE 5: Arthroscopic image of the lesion during surgery.



FIGURE 6: The image of removed loose bodies.

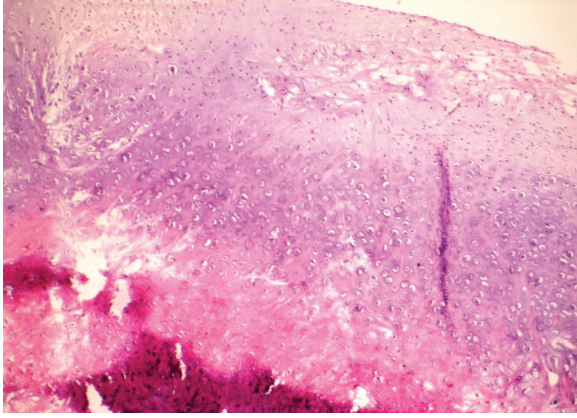


FIGURE 7: Pathological lesion in the 40 times magnified image.

## DISCUSSION

Synovial osteochondromatosis is a benign, progressive lesion usually seen in big joints, characterized with intra-articular free bodies involving one joint. The etiology is not fully known, but it is considered that trauma has a triggering role (8,9).

This disease is of two types: primary and secondary. The primary form is the cartilaginous metaplasia of synovial tissue and post-treatment recurrences are seen. The rate of degenerative joint disease development rate is higher. There is no histological atypia in the form secondary to trauma, arthritis, or neurological diseases. Synovial osteochondromatosis is also divided into three stages. There are active synovitis in early stages. Free bodies overlap to an active synovitis picture in the transitional phase. There is no active synovitis in the late stages, but many joint mouses emerge (11).

In the differential diagnosis of degenerative joint disease, osteochondritis dissecans, pigmented villonodular synovitis, synovial hemangioma, synovial chondrosarcoma, neuropathic joint, and tuberculous arthritis should be taken into account (12-14). In the pathological examination, the central cartilage material accompanied with endochondral ossification coated with synovial membrane is diagnostic (15).

Synovial osteochondromatosis is treated surgically with the excision of free bodies and partial synovectomy. Treatment can be done open or through arthroscopic surgery depending on the involved joint or surgeon's experience.

A total of 21% of synovial osteochondromatosis cases involve the elbow (17). In the study by Müller et al., 20 cases with synovial osteochondromatosis were reported in a 40-year frame (18). In a study comparing open and arthroscopic elbow surgery of patients with synovial osteochondromatosis, it was reported that rehabilitation is easier, and there is shorter time required to reach the range of motion in patients underwent arthroscopic surgery (16).

Finally, arthroscopic intervention for symptomatic free bodies in elbow joints is a low-morbidity, high-satisfaction method if done according to the technique. Excised loose bodies must surely be sent to pathological examination, and synovial osteochondromatosis cases should be monitored for recurrence.

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