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Intraarticular synoviosarcoma of the knee presenting as a nodular synovitis and meniscus rupture: case report

M. Bergovec¹, M. Smerdelj¹, F. Bacan¹, D. Herceg², S. Seiwerth³

¹ Department of Orthopaedic Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

² Department of Medical Oncology, University Hospital Centre Zagreb, Zagreb, Croatia

³ Institute of Pathology, School of Medicine, University of Zagreb, Zagreb, Croatia

Introduction: Synovial sarcoma (SS) is a rare mesenchymal tumor, accounting for less than 10% of soft tissue sarcomas. It is considered that SS is the result of the SYT-SSX gene fusion, detected in more than 95% of all SS cases. Primary intraarticular SS is extremely rare: less than 5% of synovial sarcomas arise within the joint space. We report a case of intraarticular SS mimicking nodular synovitis and meniscus rupture in 26 year old male patient.

Case Report: The patient had 6 months of knee swelling and pain on the lateral side. MRI indicated nodular synovitis and lateral meniscus rupture. According to arthroscopy finding of suspected nodular synovitis over the lateral meniscus, synovectomy was performed, and lateral meniscus was sutured. Histology analysis confirmed the suspected diagnosis of nodular synovitis.

After four years, due to progression of swelling, pain and decreased range of motion of the knee, the second arthroscopy was performed, and a part of synovium over the lateral meniscus was sent for analysis. Histology examination demonstrated a monophasic SS, and molecular analysis showed translocation SYT/SSX1 which confirmed the diagnosis. Repeated histology of the first specimen confirmed appearance of nodular synovitis, with no histology criteria for sarcoma, but molecular analysis of the first biopsy showed positive SYT/SSX1 translocation.

Following surgical treatment consisted of extraarticular knee resection, including resection of all biopsy tracts from arthroscopies. Reconstruction was made with a knee megaprosthesis, and a homologous patella - tibial tuberosity allograft. Resected specimen had tumor-free margins, and there was no tumor present in biopsy tracts; SS size was 2cm. Adjuvant therapy was not conducted. After two years the patient has good knee function, and no evidence of local recurrence or metastases.

Conclusion: This case report showed that in a case of benign histological appearance, underlying sarcoma is possible and could be identified with advanced pathology methods. It remains unclear at what amount should the pathologist use molecular and immunohistochemical analysis in seemingly histology benign cases. A true extraarticular knee resection and reconstruction with megaprosthesis and extensor allograft seems to work well in this patient in a short term follow-up.