

Chronic Synovitis after Synovial Sarcoma Resection: A Case Report

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ABSTRACT

We present a diagnostic course and treatment of synovial sarcoma in a young 16-year-old male patient. The clinical course with special emphasis on the imaging techniques is presented here, providing an overview of this subject and offering a useful educative material. The course of the follow-up is also described, largely relying on MRI in diagnosis course. Changes in the synovial tissue of the knee were recorded, later to be classified as the sarcoma. Post-operative course suggested the existence of chronic synovitis. Further studies are needed to fully understand the changes that may affect knee mechanics after surgery and/or inflammation factors secreted by tumor cells.

Key words: *synovial sarcoma, chronic synovitis, knee joint*

Case Report

The aim of this case report was to show a case of a synovial sarcoma diagnosed in 2006, in a 16-year-old boy. The first contact with the patient was recorded in October 2006, when the patient visited a physician's office for the first time because of knee pain which had started a month ago. A swelling of the medial knee side had been noticed a year ago. During the examination a tumorous formation of 5×3 cm in growth was found. It was painful to palpation. Further physical examination as well as thoracic organ scans and blood exams were within the referent range. Knee X-ray scan was done and it showed only a slight soft tissue swelling on the medial knee side (Figures 1 and 2). Other findings were not unusual.

In October 2006 a MRI scan of the knee was done. Findings referred to an intraarticularly located tumor formation (Figures 3 a and b and 4 a and b). According to MRI scans characteristic, suspicious diagnosis of synovial sarcoma was established (Figure 5). Tumor cells were seen along the resection edge. A control MRI scan was done in November 2007, which showed synovial changes without certain signs of relapse (Figures 6 a and

b). Thus, a surgical treatment was performed and anterior synovectomy was indicated. PHD findings showed synovial changes as a result of chronic synovitis without any tumorous cell infiltration.

Discussion

Synovial sarcoma is a malignant tumor affecting more often joints of lower extremities than other bones. The knee is the most frequent tumor location¹. The tumor presents in most cases as a painful and tender swelling in the region of a big joint as well as it was the case with our patient. The recurrence after surgical procedure which is the treatment of choice is still high and metastases, especially pulmonary ones occur with 55% of patients surviving a 5-year period². Synovial sarcoma can occur in every age but most commonly in young adults with slight male predominance³. Surgical removal is the treatment of choice whereby a free resection margin is aspired. In our case on the resection margin several tumor cells were seen. In the follow up MRI scans after a year synovial



Fig. 1. Knee X-ray profile scan.

thickening and effusion were visible. Chances that this morphologic finding in the MRI represented a relapse were small but very important for the general outcome. The boy underwent a second surgical procedure, this time anterior synovectomy. Pathohistological findings led to the diagnostics of chronic synovitis and the idea of relapse was recalled. Why would an adolescent have chronic synovitis? All serum and radiological tests except his knee scans were within normal range and rheuma-



Fig. 2. Knee X-ray AP scan – soft tissue swelling on medial knee side (arrow).

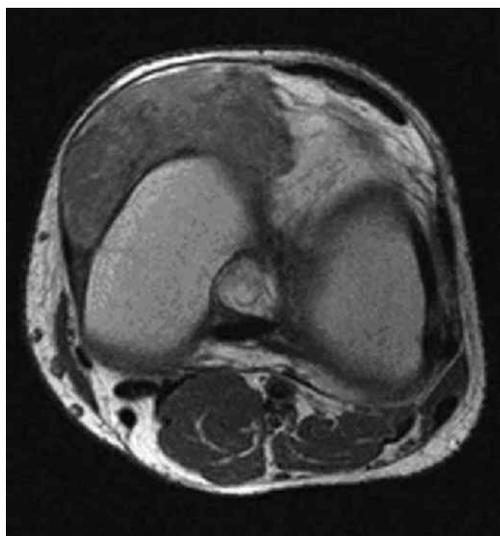


Fig 3. An ovoid multiloculated mass with thick septation and homogeneous low intensity signal is seen anteriorly of the knee. a) T1 se sag sequence, b) T2 fs tse axial.

toid etiology as well as hemophilia could be excluded. One explanation would be inflammatory factors secreted by tumor cells. Inflammatory cells are attracted by molecules produced by tumor, they migrate and infiltrate the region near the tumor. Another explanation is of mechanical or traumatic origin. After surgery the knee joint mechanics were slightly altered as the tumor mass was removed. This new state of mechanical forces as well as the surgical intervention could have stimulated the inflammatory process to develop.

Conclusion

MRI is of great importance in diagnostic algorithm of synovial sarcoma, as reported by some previous studies⁴.

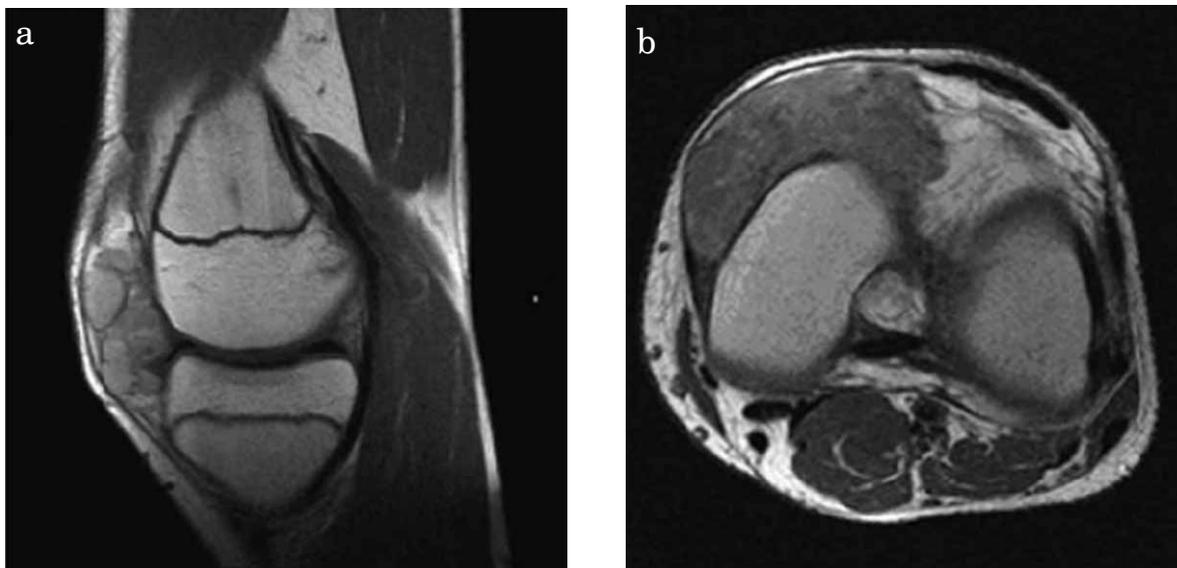


Fig. 4. After intravenous Gd-DTPA administration heterogeneous lesion of intermediate signal intensity is seen. a) T1 sequence sagittal and b) T1 sequence axial. During the surgical treatment in October 2006 tumorous mass was totally removed followed by a subtotal meniscectomy. Tissue sample was sent to PHD analysis which stated the diagnosis of biphasic synovial sarcoma.

After the diagnosis is set patients should undergo surgical treatment, which is the treatment of choice. Chronic synovitis may occur after surgery. Its etiology is not clear but possible explanation could be altered joint mechanics

after resection of the tumor resulting in new arrangement of forces in the joint. This possibility requires a scientific approach with a study on mechanical forces in joints after resection procedures.

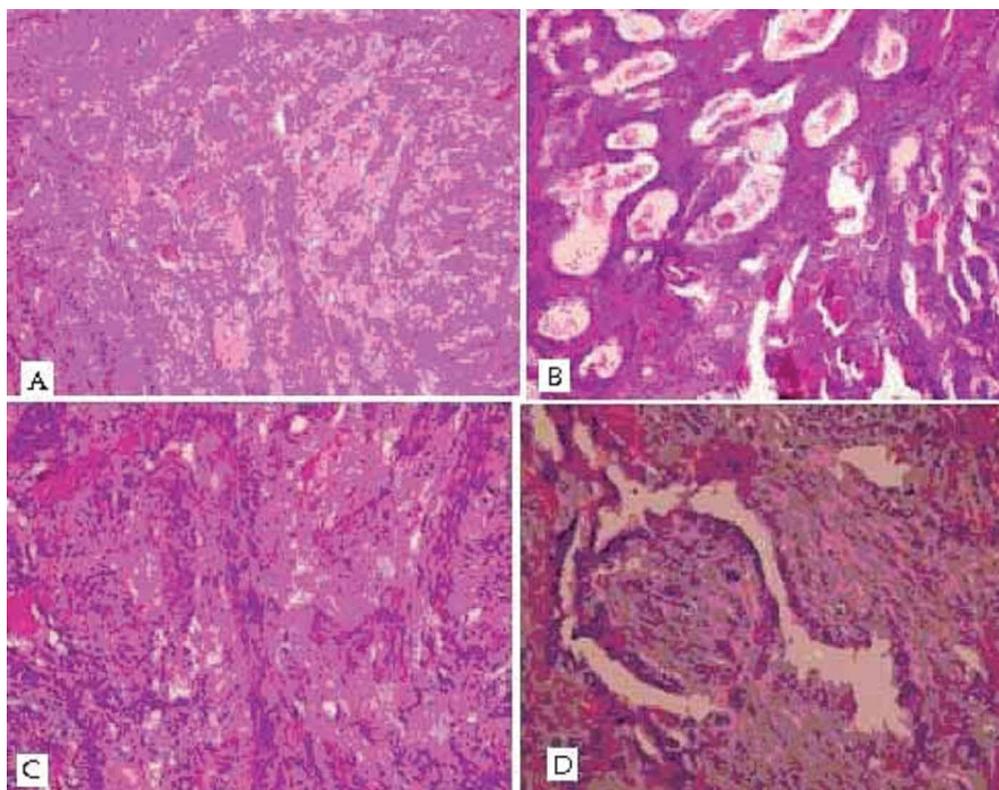


Fig. 5. Synovial sarcoma with distinctive biphasic pattern: columnar or cuboidal epithelial cells surrounded by fibrosarcoma-like spindle cell elements. a) x4, b) x10, c) x20 and d) x40.

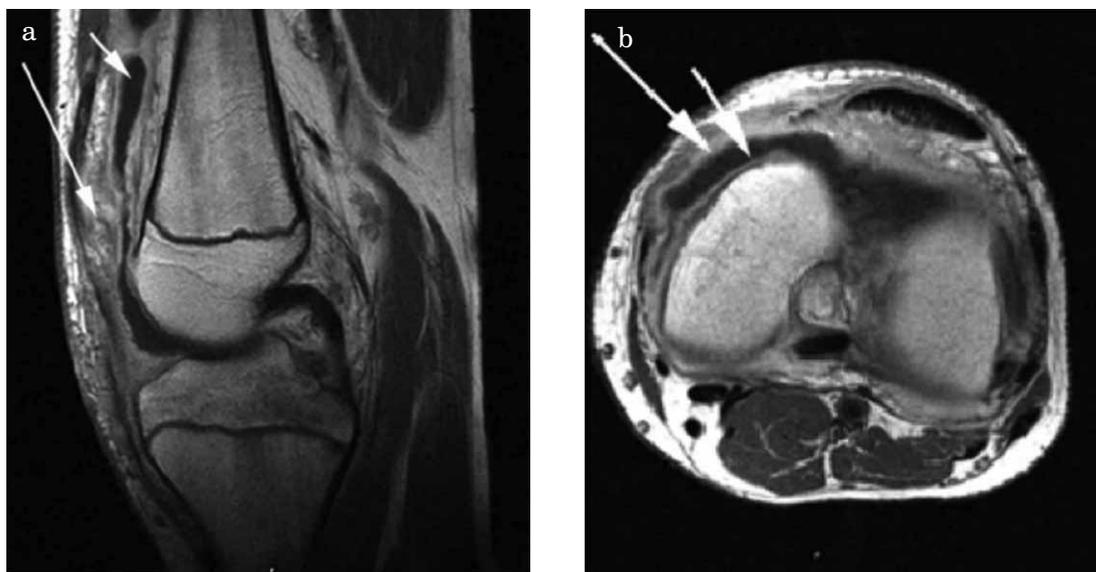


Fig. 6. Large joint effusion low signal intensity (small arrow) and thickened synovium high, homogenous signal intensity (long arrow) above and posterior to infrapatellar fat pad are shown. a) T1 se sag with contrast and b) T1 se tra with contrast.

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KRONIČNI SINOVIITIS NAKON RESEKCIJE SINOVIJALNOG SARKOMA – PRIKAZ SLUČAJA

SAŽETAK

Prikazali smo dijagnostički postupak i liječenje sinovijalnog sarkoma kod mladog muškog pacijenta starog 16 godina. Klinički tijek bolesti bio je posebno usmjeren na slikovne dijagnostičke metode, i predstavlja koristan izvor obrazovnog materijala. Redoviti prikaz MRI nakon zahvata ukazivao je na promjene u smislu kroničnog sinovitisa. Potrebna su daljnja istraživanja kako bi se razumjela promjena mehanike koljenskog zgloba nakon kirurškog zahvata i shvatila pojava lučenja čimbenika upale koje stvaraju tumorske stanice.