

## SYNOVIAL SARCOMA: A CASE REPORT

JAN THUNOLD & GISLE BANG

Department of Surgery, Haukeland Sykehus and Gades Institute, Department of Pathology, University of Bergen, Bergen, Norway.

The case described, of a 40-year-old woman with a 26-year history of a chronic, non-specific knee disorder, is a rather typical example of synovial sarcoma, according to the information given by other authors over the past three to four decades. The diagnostic difficulties and failures are clearly illustrated. It must be emphasized that severe, obscure joint symptoms such as our patient presented over the many years before death should have led to a proper surgical exploration of the knee. Furthermore, it should be unnecessary to stress the importance of performing a histological examination whenever excising abnormal tissue.

*Key words:* sarcoma; synovia; knee

Accepted 20.xi.75

Synovial sarcoma is a rare tumor. The symptoms are non-specific and may develop insidiously over many years. There are often diagnostic problems and commonly the tumor has reached a stage beyond radical cure before the true nature of the disease is revealed (Haagen- sen & Stout 1944, Tillotson et al. 1951, Ackerman & del Regato 1970).

We report a case which clearly demonstrates these typical features.

### CASE REPORT

M.R., a 40-year-old woman who had sustained at the age of 14 a distortion injury to her right knee. No distinct lesion was detected, but she developed a chronic, painful condition with limited extension ability, from which she suffered until the final diagnosis was made 26 years later.

Five years after the injury a small X-ray visible, flat, calcified tumor was excised from

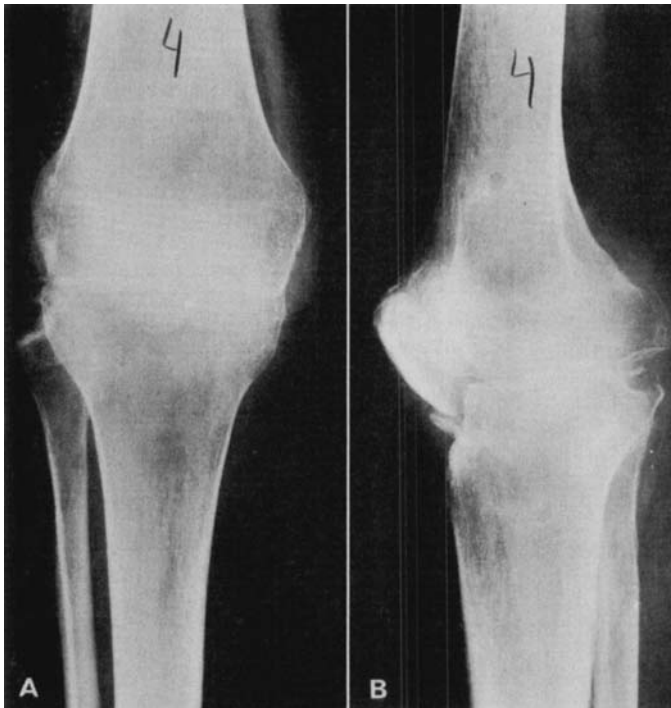
the popliteal fossa. It was not examined histologically. Two years later another tumor was excised from the scar line but again no microscopy was performed.

Eighteen years of relapsing knee disorder followed. Some improvement was achieved by physiotherapy, and various drugs (salicylates, antiflogistics, hydrocortisone etc.) also gave her some short periods with improved function and relief. Finally, the knee became very painful and almost completely stiff in 40° of flexion and an arthrodesis was performed. The knee films showed no distinct articular changes (Figure 1). Bony union was achieved (Figure 2 A, B) and the patient was able to walk without pain after 3 months. Six months after this operation, however, the knee became swollen, red and painful and the patient was admitted to our hospital for the first time.

The temperature was elevated to 38° C, SR 40 mm, WBC 8000/mm<sup>3</sup> and knee films revealed pathological changes interpreted as signs of chronic osteitis (Figure 3 A, B). An exploratory incision revealed no pus, however, and a biopsy showed fibrous tissue with calcifications and some signs of chronic inflammation. Antibiotics

*Figure 1. Lateral roentgenogram of the right knee. No specific articular changes can be detected.*

seemed to improve the situation, but after 2 weeks the symptoms recurred and a new X-ray examination now displayed the true, malignant nature of the disease with numerous spherical translucent lesions in the knee region (Figure 4) and also the indisputable spread to both lung fields (Figure 5). Furthermore, a group of enlarged, firm nodules were detected in the right groin, and a biopsy from this region showed a tumor tissue with dense sheets of malignant spindle-cells and areas with more epitheloid-like cuboidal cells, often lining slit-like clefts (Figure 6 A, B). A diagnosis of synovial sarcoma was made. A mid-thigh amputation was performed (Figure 7) and microscopic examination showed details as described above. The patient was given methylaminopterine (Methotrexate, "Lederly") combined with local radiation of the groin and the mediastinum. Gradually, however, pulmonary insufficiency and cachexy developed and the patient died some 6½ months after the amputation.



*Figure 2 A, B. Roentgenogram showing a solid bony union between the condylar parts, 3 months after arthrodesis ad modum Charnley. The lateral projection (B) reveals traces of the removed steel rods in the metaphyseal regions of tibia and femur, otherwise no pathological changes are visible.*

*Figure 3 A, B. Roentgenogram showing marked general osteoporosis, and in addition some irregular, small, translucent areas in the lateral condylar part. The changes were considered to represent a chronic osteitis.*



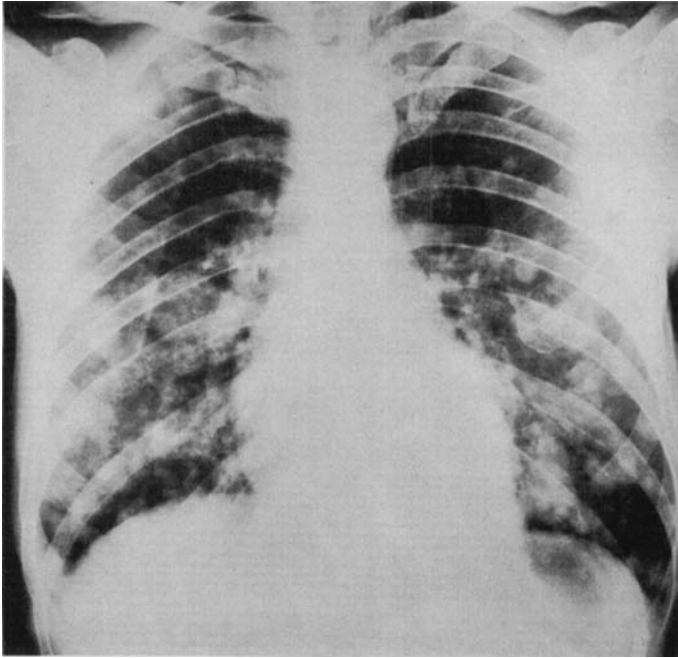
*Figure 4. A frontal planigram revealing multiple, spherical, translucent spots throughout the condylar areas, interpreted as a massive tumor infiltration.*

## DISCUSSION

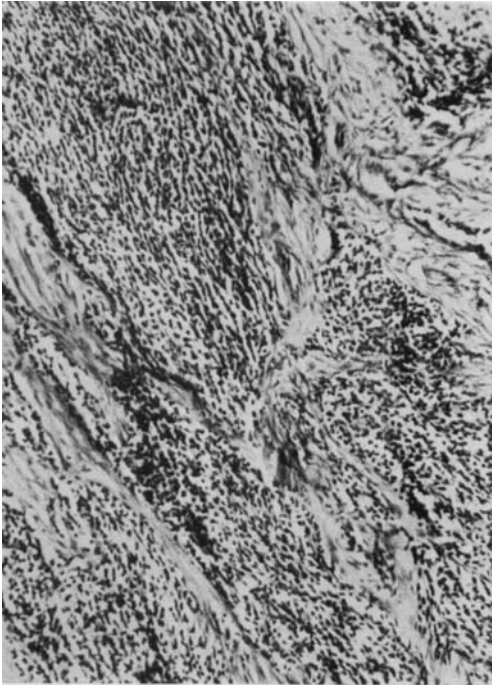
A history of trauma is often present in cases of synovial sarcoma, but any real etiological connection between trauma and the tumor formation has never been proved (Ackerman & del Regato 1970). We cannot prove the existence of synovial sarcoma in our patient at the first operation more than 20 years before death, but the localization in the popliteal fossa is common, and similar long-lasting case histories have been reported previously (Haagensen & Stout 1944, Tillotson et al. 1951, Cadman et al. 1965).

Our case clearly demonstrates the non-specific joint symptoms making the diagnosis difficult and leading to repeated, misleading surgical explorations (Haagensen & Stout 1944, Tillotson et al. 1951, MacKenzie 1966).

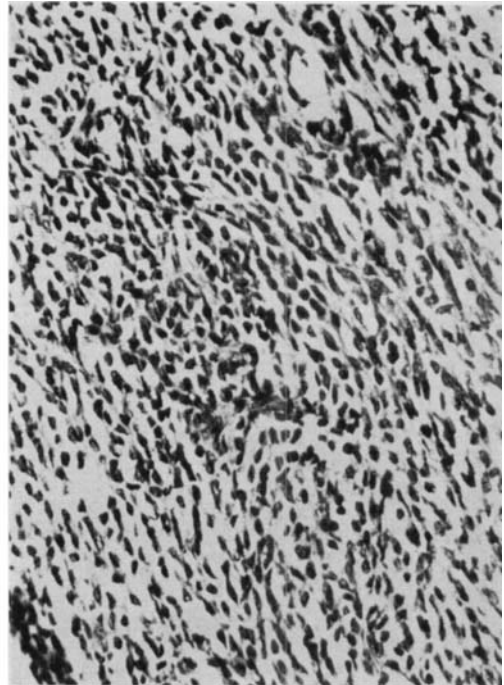
The tendency to recurrence after local excision is well known, and the tumor sooner or later spreads to the lungs and also frequently to the regional lymph nodes (Haagensen & Stout 1944, Ackerman & del Regato 1970). In our patient



*Figure 5. Frontal chest roentgenogram, showing multiple, "snow ball"-like shadows scattered all over both lung fields.*



*Figure 6 A. Synovial sarcoma in a 40-year-old woman. There are groups of polyhedral and spheroidal as well as spindle-cells lying in a fibrous stroma. (Hematoxylin and eosin,  $\times 89$ ).*



*Figure 6 B. Higher magnification of area of tumor shown in Figure 6 A. The tissue is cellular with small clefts lined by cuboidal cells simulating epithelial lining cells. (Hematoxylin and eosin,  $\times 223$ ).*

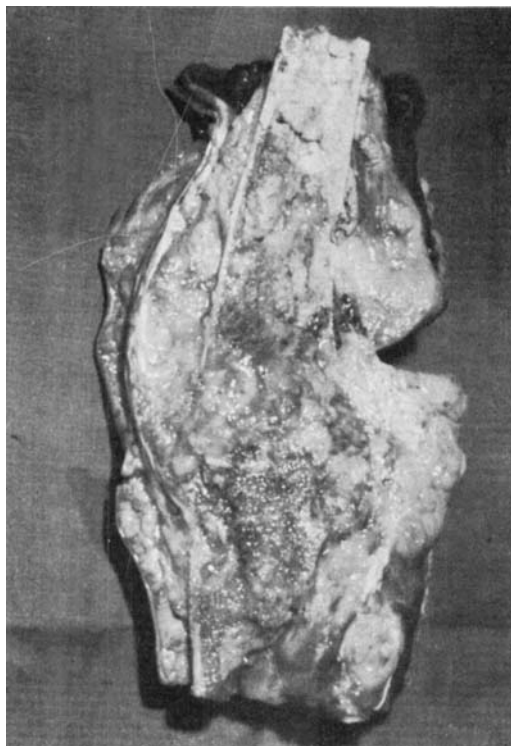


Figure 7. The macroscopic appearance of a frontal section, posterior view, of the right knee specimen after mid-thigh amputation. There is a massive infiltration of sarcomatous tissue throughout most of the bony parts, spreading diffusely into the adjacent soft tissue.

the diagnosis was not made before wide spread dissemination was evident.

In general, surgery is the main treatment, and the only accepted measure is high amputation where this is possible, otherwise radical excision. The radio-

sensitivity of the tumor is disputed (Ackerman & del Regato 1970), but radiation is probably of some value both pre- and postoperatively, and some arrest of growth in the metastases have been observed (Haagensen & Stout 1944, Tillotson et al. 1951). In our patient radiation and cytostatic drugs seemed to improve the general condition for a couple of months, but no objective proof of regression could be detected.

The prognosis is poor but many reports of long-lasting remissions indicate a better outlook if proper, radical treatment is instituted early enough (Pack & Ariel 1950, Cadman et al. 1965, Moberger et al. 1968).

#### REFERENCES

- Ackerman, L. V. & del Regato, J. A. (1970) Sarcoma of the soft tissues. In: *Cancer, diagnosis, treatment and prognosis*. 4th ed., pp. 936-955. The C. V. Mosby Company, St. Louis.
- Cadman, N. L., Soule, E. H. & Kelly, P. J. (1965) Synovial sarcoma. An analysis of 134 tumors. *Cancer (Philad.)* **18**, 613-627.
- Haagensen, C. D. & Stout, A. P. (1944) Synovial sarcoma. *Ann. Surg.* **120**, 826-842.
- MacKenzie, D. H. (1966) Synovial sarcoma. *Cancer (Philad.)* **19**, 169-180.
- Moberger, G., Nilsson, U. & Friberg Jr., S. (1968) Synovial sarcoma. *Acta orthop. scand.*, Suppl. 111.
- Pack, G. T. & Ariel, I. M. (1950) Synovial sarcoma (Malignant synovioma). *Recent Adv. Surg.* **28**, 1047-1084.
- Tillotson, J. F., McDonald, J. R. & Janes, J. M. (1951) Synovial sarcomata. *J. Bone Jt Surg.* **33**, 459-473.

Correspondence to: Dr. Jan Thunold, Hospitalet Betanien, 5000 Bergen, Norway.