Case report

Uterine sarcoma – time is worth its weight in gold

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Leiomyosarcoma is one of the most common types of soft tissue sarcoma in adults, and it can occur in almost any part of the body.
Uterine leiomyosarcoma constitutes 1% of all gynaecological tumours. Most diagnosed sarcomas are not even suspected before surgery. However, in recent years, awareness of their presence in society has increased.
Our case aims to draw attention to the need for better cooperation between pathologists and clinicians and reduce the time from suspicion of the disease to final diagnosis.

Key words: LMS, uterine sarcoma.

Introduction

Non-epithelial tumours of the uterus constitute 1% of genital malignancies in women worldwide and 3–7% of all uterine cancers [1]. Sarcomas are a heterogeneous group of tumours. We distinguish endometrial stromal sarcoma, high-grade endometrial stromal sarcoma, undifferentiated uterine sarcoma, and leiomyosarcoma (LMS). The knowledge about sarcomas comes especially from retrospective studies because of their rarity. Studied groups of patients are not numerous, which makes it difficult to generalize and collect all clinical information. The variety depends on both the histological origin and the ways the tumour spreads. Due to the clinical course and adjuvant treatment, sarcomas are still a considerable therapeutic challenge [2].

Case report

We present a description of a 52-year-old woman who reported to the provincial hospital under the emergency procedure due to an enlarged abdominal circumference and intensification of pain. The patient had a history of Crohn's disease, which led to a right-sided hemicolectomy with end-to-end anastomosis. Additionally, the patient administered uterine fibroids and reported curettage of the uterus due to abnormal bleeding in the past.

Magnetic resonance imaging (MRI) demonstrated a pathological litho-liquid mass measuring 0.19 ´ 0.12 ´ 0.32 m, filling the entire minor pelvis. The significantly enlarged uterus was displaced to the right, with a heterogeneous low signal in the body. A mass was filling the lumen and communicated with the one present in the pelvis (Fig. 1, 2). The compressed bladder was not easy to expose, and the ureters were probably drawn into the tumour. Moreover, the radiologists found neither metastatic lesions nor signs of lymph node invasion. The initial diagnosis of the MRI radiologist indicated that uterine sarcoma was suspected of differentiating from advanced endometrial cancer.

The patient underwent surgery. The doctors removed a pelvic tumour, performed a modified radical hysterectomy with appendages, and removed an

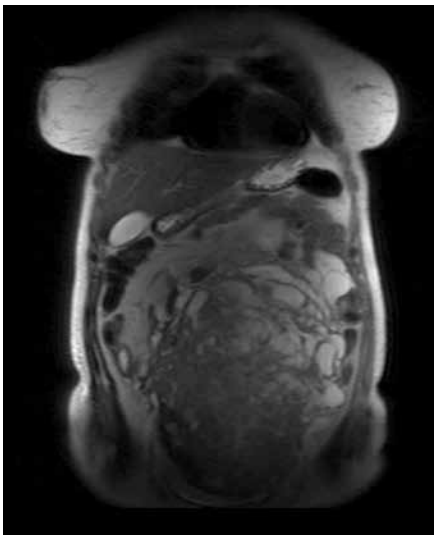

Fig. 1. Magnetic resonance image of the patient in the sagittal section

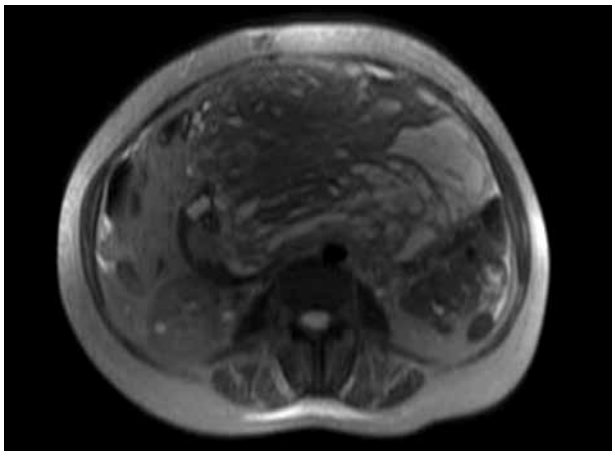

Fig. 2. Cross-sectional magnetic resonance image of the patient

omentum. Additionally, a fragment of the left ureter was resected and replanted to the urinary bladder. No neoplastic infiltration into the intestines was found. Due to postoperative respiratory failure and post-haemorrhagic shock, the patient stayed in the intensive care unit. The pathologists sent paraffin blocks with suspicion of G3 LMS to consult the centre with higher reference. We received the final histopathological result 2 months after the surgery. Afterwards, a computed tomography (CT) scan showed a pathological mass in the smaller pelvis and metastatic lesions in both lungs at the oncology consulate. The doctors qualified the patient for adjuvant treatment. After 3 doses of gemcitabine and docetaxel, a CT scan showed progression. Subsequent chemotherapy included anthracyclines and cisplatin. In the meantime, the patient was admitted to the ward for acute renal failure (CREA 962 μmol/l). Because of the implementation of a Nephrofix and the slim chance of success of the following line of chemotherapy, the doctors disqualified the patient from further treatment. The 52-year-old woman was transferred to a home hospice.

Material and methods

Postoperative tissue was placed in formalin and then transferred to the pathology laboratory. The pathologist pre-cut the tissues into 3-mm slices. After washing, the tissues were soaked in alcohol of gradually increasing concentration. The material was then placed in xylene and embedded in paraffin. Then, paraffin blocks of the desired thickness (usually 4–5 μm) were sectioned on a microtome and float on a 40°C water bath containing distilled water. Afterwards, they were transferred onto a Superfrost Plus slide. The dried slides were then ready for immunostaining for SMA, h-caldesmon, Desmin, CD10, and Ki-67. Interphase fluorescent in situ hybridization was performed on 5-μm paraffin-embedded tissue sections using the LSI SS18 (18q11.2) Dual Colour Break Apart Rearrangement Probe set. The pathologists prepared everything according to the manufacturer's protocol. The slides were mounted and counterstained with anti-fade DAPI visualized using an epifluorescent microscope (Olympus BX61). The pathologist analysed at least 300 interphase nuclei.

Results

The histopathological examination performed in the haematoxylin-eosin staining showed the presence of a pathological mass, significantly different from healthy smooth muscle tissue. It revealed tumor muscle cell proliferation with high – grade nuclear atypia, tumor cell necrosis and a mitotic index of 9 in 10 high power fields (HPF). Immunohistochemically, the tumour cells were strongly positive for smooth muscle actin and h-caldesmon but presented no reaction against CD10 or desmin. The Ki-67 mitotic index was > 90%. Figures 3–8 shows microscopic images of tumor cells showing different immunohistochemic reactions.

Discussion

Uterine sarcomas are a rare group of tumours, which have the potential for local recurrence and distant metastases. The general outcome is poor. Leiomyosarcoma is especially prone to early distant metastases, especially to the lungs. On the other hand, in this type of sarcoma, lymph nodes are less frequently involved – in 7–11% of patients [2, 3].

We present a case to show how close the cooperation between the clinicians and the pathologists should be. Although diagnoses of sarcomas are not frequent in medical practice, they should be of great oncological concern.

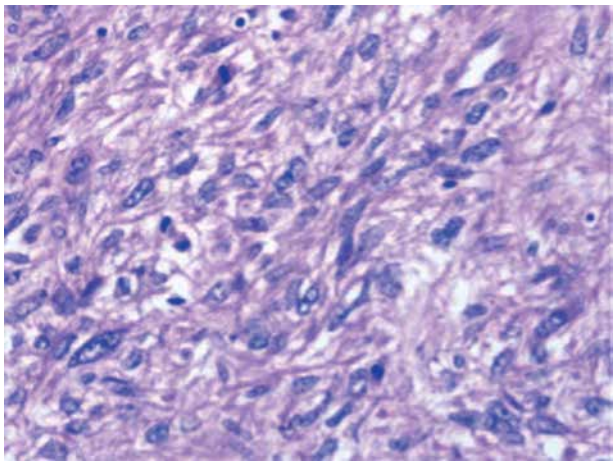

Fig. 3. Spidle cells with severe nuclear atypia

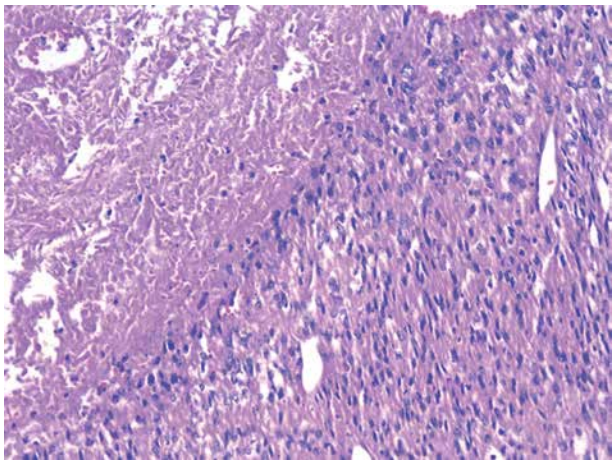

Fig. 4. Tumor cell necrosis – abrupt transition from viable to necrotic tumor with no intervening area of granulation tissue

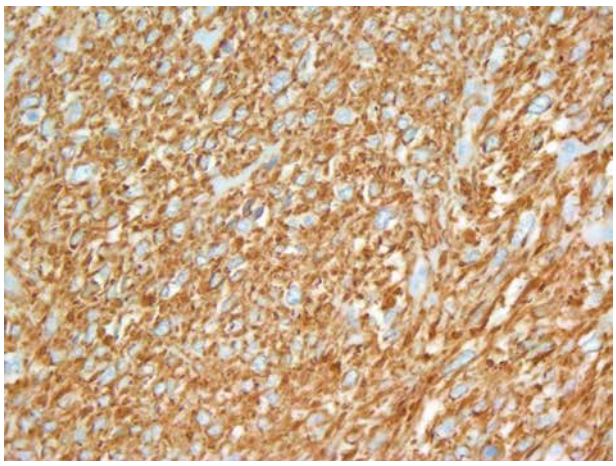

Fig. 5. Extensive smooth muscle actin positivity

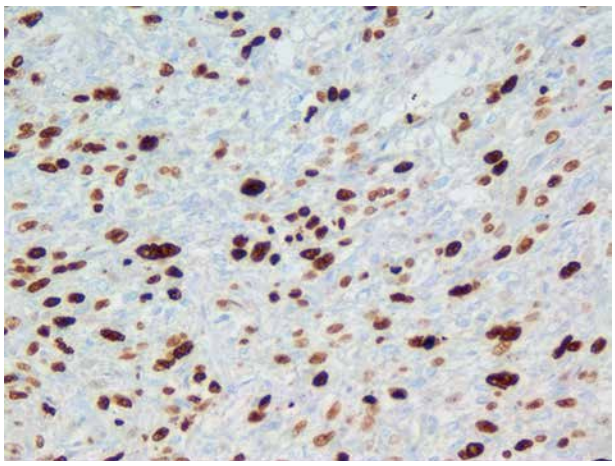

Fig. 6. Tumor shows high index of Ki-67

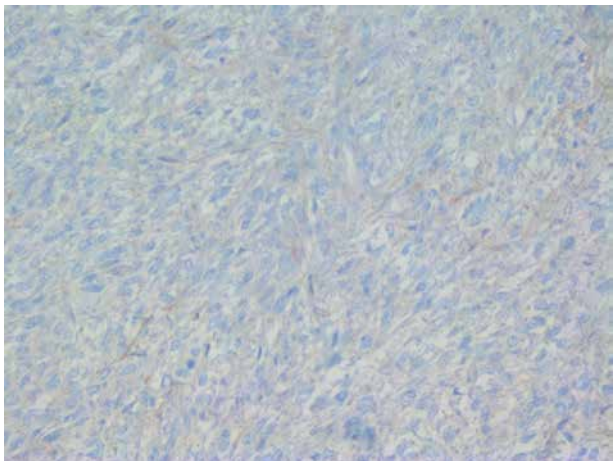

Fig. 7. Negative reaction with anti-CD10 antibody

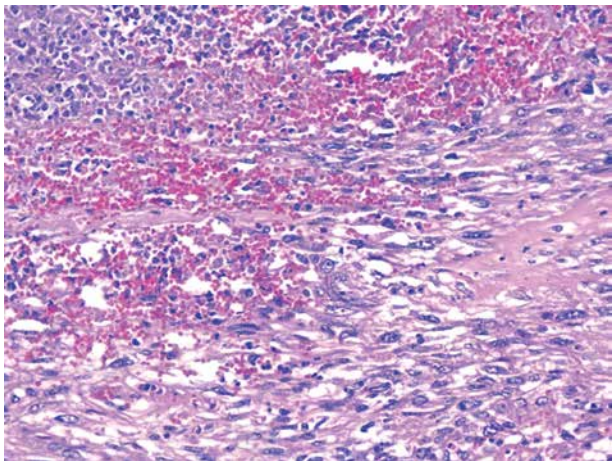

Fig. 8. Spidle cells with severe nuclear atypia

Research shows what percentage of patients with a definitively diagnosed sarcoma are previously suspected of it. Neither preoperative ultrasonography nor positron emission tomography scan are able to differentiate between benign and malignant smooth muscle masses [4]. Malignancy should be suspected when intrauterine masses previously treated as benign fibroids increase after menopause. One study of preoperative MRI for patients with uterine mesenchymal neoplasms demonstrated poor accuracy in distinguish-

ing leiomyomas with atypical features from malignant mesenchymal neoplasms [5]. In a more recent study, the authors identified MR features that differentiate LMS from atypical leiomyoma [6].

Therefore, even a hint of suspicion should accelerate diagnostic and therapeutic processes. In the presented case study, the decision to transfer the paraffin blocks for consultation in another centre extended the final diagnosis by one month. During this time, the patient should have been undergoing postoperative treatment. An additional factor influencing the treatment process is that the lesion was so advanced that the ureters were drawn into the tumour mass. It resulted in the need for fragmentary tumour dissection, which also has a proven negative prognostic effect. Research conducted by George *et al*. showed that either morcellation or breaking up of the malignant mass raises the risk of abdominal recurrence [7], which is related to the spread of tumour cells.

To sum up, the above work aims to draw attention to the need for closer cooperation between doctors of various specializations, and to shorten the time to obtain a histopathological diagnosis.

The authors declare no conflict of interest.

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