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Case report

Intramuscular myxoma of the left leg—Case report of the lesion observed for several years

Arkadiusz Spychała*, Dawid Murawa, Aleksander Niziołek

Ward I of Surgical Oncology, Greater Poland Cancer Center, ul. Garbary 15, 61-866 Poznań, Poland

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ABSTRACT

Aim: The aim of this study was to present the process of diagnosis and treatment of a patient with diagnosed intramuscular myxoma in the left lower limb.

Background: Myxomas are benign neoplasms which can be found within large muscle groups. Histologically, these neoplasms are composed of a few elongated or star-shaped cells lying in abundant mucoid stroma. These tumours are characterized by expanding growth without forming distant metastases.

Case description: A man, 58, came to the Surgical Oncology Outpatient Clinic due to pain ailments and a growing tumour located in the rear group of the left shank muscles. The patient had been observing the lesion for several years, but related the occurrence of pain to the change in the nature of his job – from sedentary to standing. The patient underwent diagnostic imaging, a magnetic resonance imaging test, in which a tumour was described. A surgery was carried out where the tumour was resected together with the lateral head of the gastrocnemius muscle. No significant walking disorders, neurological deficits, either sensory or motor were observed. The follow-up imaging examinations, which were carried out a year after the surgery, did not reveal a relapse. The patient remains under the care of the Surgical Oncology Outpatient Clinic.

Conclusion: Myxomas are a group of benign neoplasms whose first symptom is the appearance of a palpable tumour whose stretching growth causes painful ailments. After magnetic resonance imaging and a diagnosis, it is necessary to plan the surgery. Radical resection of the lesion is a method of choice which guarantees long-lasting recovery.

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1. Background

Myxomas belong to the group of benign neoplasms which can be found within muscles. Similarly to the entire group of pseudosarcomatous lesions, these neoplasms may imitate soft tissue sarcoma. Their rapid growth, cellular atypia and increased

mitotic activity may cause a wrong diagnosis. However, they are benign neoplasms. Myxomas were first described by Stout in 1948.¹ They are characterized by slow growth. The most frequent location of those neoplasms is the cardiac muscle, where they account for 50% of all benign lesions.² Apart from the cardiac muscle, more than a half of all myxomas can be found within thigh muscles. Some other much less fre-

* Corresponding author. Tel.: +48 0 602 746 714.

E-mail address: a.spychala@wp.pl (A. Spychała).

quent locations include: the buttocks, shoulder girdle, shank, arm and trunk. In very rare cases myxomas may also be located within the neck (about a dozen cases described in the literature).^{3,4} Some tumours in this group, especially the aggressive angiomyxoma, may be characterized by predisposition for local relapse. The incidence is one in a million population per year.⁵ Most frequently, they occur in patients aged between forty and sixty years, more often in women. The average size of diagnosed lesions ranges between 1.5 and 17 cm.⁶ Myxomas are also found in fibrous dysplasias such as Mazabraqua or McCune–Albright syndromes. The basic treatment of this type of neoplasms is radical removal of the whole lesion. At present neither neoadjuvant nor adjuvant therapy is applied.

2. Aim

Below, we present a patient diagnosed and treated for a shank tumour diagnosed as myxoma, which had been observed by the patient for many years.

3. Case description

A man, 58, came to the Surgical Oncology Outpatient Clinic due to painful ailments and a growing tumour located in the rear group of the left shank muscles. The patient had been observing the lesion for several years, but he related the occurrence of pain to the change in the nature of his job – from sedentary to standing. There were no cases of soft tissue neoplasms or other neoplasms in the patient's family. The patient did not report any injury around the tumour. The physical examination within the rear group of the left shank muscles revealed a palpable lesion sized about 10 cm, painless, hard and movable against the base. The patient underwent diagnostic imaging – a magnetic resonance imaging test, in which a tumour was described. It was hypointense in T1 and hyperintense in T2. Its longitudinal dimension was 12 cm, the sagittal diameter was 6.8 cm and the frontal diameter was 10 cm. After an intravenous administration of a contrast medium a slight homogeneous enhancement of the tumour became visible. The lesion with expanding growth did not infiltrate the vasculo-nervous bundle; it consisted of three sections separated from each other by septums. In the upper pole there was a focus with a cross-section of 2 cm and in the lower pole, 5.0 cm. In the laboratory investigations, no significant abnormalities were observed. An open surgical biopsy was carried out. During the surgery, a tumour was diagnosed with a hard, white capsule with gelatinous, mucous contents after cutting. The collected biopsy specimens were sent for histopathological evaluation. Immunohistochemical examinations CD 34, Vimentin, S100 were made. On their basis, an intramuscular myxoma was diagnosed. Having obtained the final histopathological diagnosis, a decision to carry out another surgery was made in order to perform a radical resection of the lesion. A partitioning surgery was carried out where the tumour was resected together with the lateral head of the gastrocnemius muscle. No infiltration of the posterior tibial artery, peroneal artery or tibial nerve was diagnosed.

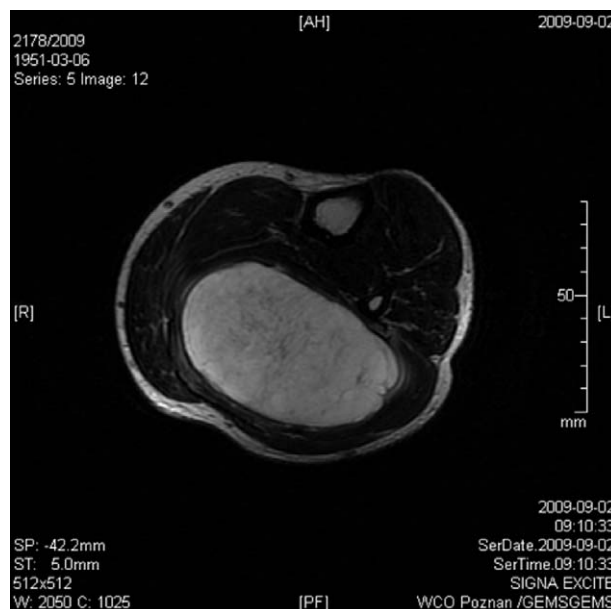


Fig. 1 – Horizontal cross-section of the tumour in MRI.

The post-operative course did not have any complications. On the third day following the surgery, the patient was discharged from hospital. When the patient was still at hospital, he started motorial rehabilitation. Finally, no significant walking disorders, neurological deficits, either sensory or motor were observed. The follow-up imaging examinations, which were carried out a year after the surgery, did not reveal a relapse. The patient remains under the care of the Surgical Oncology Outpatient Clinic (see Figs. 1–4).

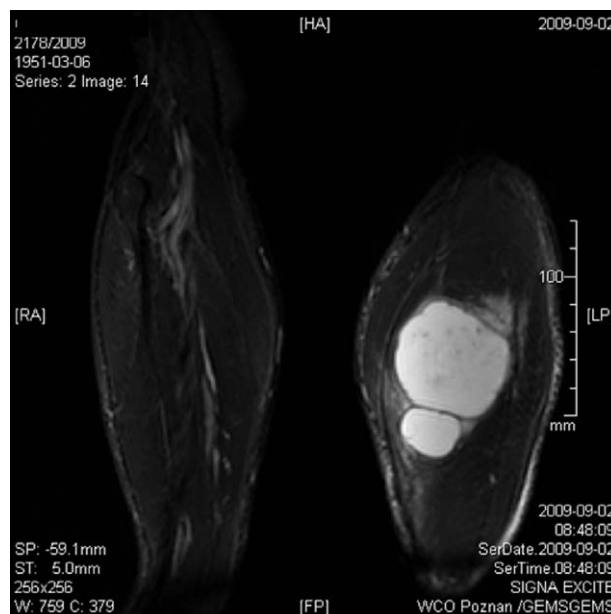


Fig. 2 – Vertical cross-section of the tumour in MRI.

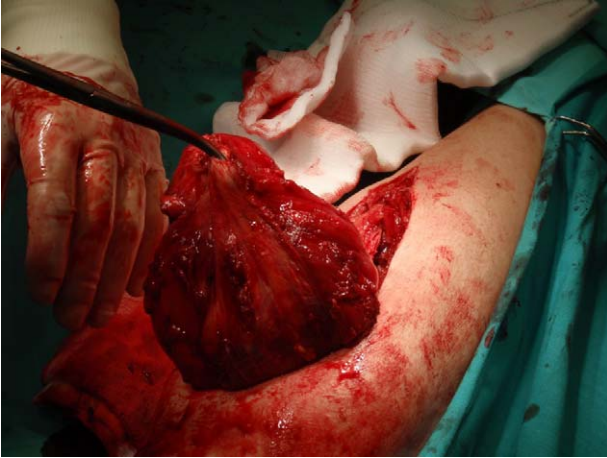


Fig. 3 – Intraoperative view of the tumour.

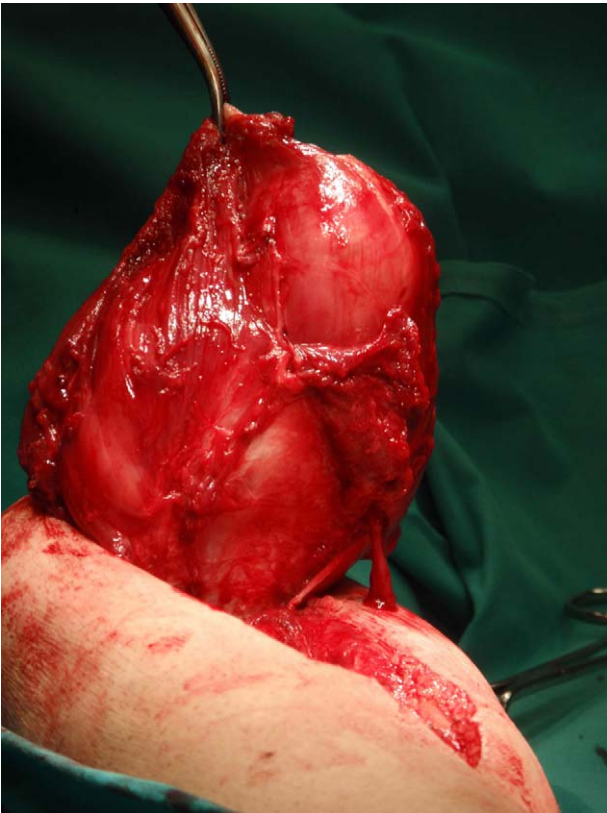


Fig. 4 – Intraoperative view of the tumour.

4. Discussion

Myxomas occurs within various groups of skeletal muscles, about 51% within the thigh, 9% in the arm muscles, 7% in the calf muscles and 7% in the buttock muscles.⁶ Clinically, these neoplasms most frequently appear in the form of a painless, palpable, well-limited lesion. However, in consequence of a constant, slow growth the surrounding tissues are stretched and pressed on, which results in pain. The occurrence of pain draws patients' attention to the lesion and encourages further diagnostics. In the available literature, pain is described as the

first symptom of the neoplasm, which is observed in 6–34% of patients.⁷ In the described case, the patient began to suffer from pain when the nature of his job changed from sedentary to standing. It was also then that he noticed the growth of the lesion.

Appropriate imaging examinations are a significant stage of myxoma diagnostics. A plain X-ray may be normal or rarely makes the lesion within soft tissues visible as shading with calcifications inside.^{8–10} An ultrasonographic examination usually visualises hypoechogenic lesions with fluid compartments located within muscles. The ultrasound image is not specific enough and it does not enable diagnosis. The next stage of diagnostics may be computer tomography, which usually shows a well limited mass with absorption density contained between the muscle and water. The most precise examination, which enables diagnosis, is magnetic resonance imaging.^{11,12} The radiological diagnostic criteria for soft tissue myxomas were specified by Peterson¹³ and then modified by Bancfort¹⁴ and Murphey.⁶ A typical image of intramuscular myxoma in magnetic resonance imaging is a lesion within a muscle, which has fluid signal intensities, fatty tissue capsule and T2 hyperintense signal from the surrounding muscle. The magnetic resonance image in the presented case was fairly characteristic. The lesion within the muscle was described with typical enhancements and inhomogeneous character (fluid compartments). Carrying out magnetic resonance imaging is a necessary stage of preoperative diagnostics in the case of suspected myxoma located inside muscles.¹⁵ It also makes it possible to plan the range of a surgery.

In order to define the character of a tumour located within muscles, it is necessary to make a histopathological examination. The first stage may be fine needle aspiration biopsy. In the cytological smear spindle cells with long cytoplasmic microfootlets and histiocytes in mucoid stroma can be seen.¹⁶ Unfortunately, a fine needle biopsy very often fails to bring diagnosis or brings one that is uncertain. It is then recommended to carry out a core needle biopsy or an open surgical biopsy.

Following imaging diagnostics and histopathological diagnosis, it is necessary to deliver appropriate therapy. In view of the fact that myxomas are benign neoplasms, which are not capable of forming distant metastases, and the percentage of local relapses of cellular myxoma is less than 10%, radical resection of the lesion is recommended.^{17–19} So far, the available literature has described no case of distant metastases in a patient with a myxoma. However, there have been descriptions of relapses after non-radical resection. Neoplasms from the myxoma group are capable of penetrating the surrounding muscle. Therefore, in the case of an uncertain macroscopic margin, resection of the tumour with the surrounding muscle is recommended. No benefits resulting from either preoperative or postoperative radiotherapy in the treatment of intramuscular myxomas have been proved.²⁰ Another fundamental method of treating myxomas located within the cardiac muscle is a surgical resection of the whole lesion with a healthy tissue margin. Such a procedure extends the symptom-free period and guarantees a low percentage of local relapses.²¹ Thus, regardless of the location, surgical resection is the most effective method of treating myxomas. In the presented case, the diagnosis was followed by a partition-

ing surgery with a radical resection of the lesion, which was confirmed by a histopathological examination. A year after the surgery no relapse of the growth process was observed in imaging examinations.

5. Conclusion

Myxomas are a group of benign neoplasms, whose first symptom is the appearance of a palpable tumour, whose stretching growth causes pain. After magnetic resonance imaging and a diagnosis, it is necessary to plan the surgery. Radical resection of the lesion is a method of choice, which guarantees long-lasting recovery.

REFERENCES

1. Stout AP. Myxoma, the tumor of primitive mesenchyme. *Ann Surg* 1948;127:706.
2. Reynen K. Cardiac myxomas. *N Engl J Med* 1995;333:1610-7.
3. Allen P. Myxoma is not a single entity: a review of the concept of myxoma. *Ann Diagn Pathol* 2000;4:99-123.
4. Falavigna A, Righesso O, Volquind D, et al. Intramuscular myxoma of the cervical paraspinal muscle. *Eur Spine J* 2009;18(Suppl. 2):245-9.
5. Miettinen M, Hockerstedt K, Reitamo J, et al. Intramuscular myxoma—a clinicopathological study of twenty-three cases. *Am J Clin Pathol* 1985;84:265-72.
6. Murphey D, McRae G, Fanburg-Smith J, et al. Imaging of soft-tissue myxoma with emphasis on CT and MR and comparison of radiologic and pathologic findings. *Radiology* 2002;225:215-24.
7. Enzinger F. Intramuscular myxoma: a review and follow-up study of 34 cases. *Am J Clin Pathol* 1965;43:104-13.
8. Ireland D, Soule E, Ivins J. Myxoma of the somatic soft tissue. *Mayo Clin Proc* 1973;48:401.
9. Kinflom K, Stener B, Angerball L. Intramuscular myxoma. *Cancer* 1974;34:1737-44.
10. Mc Cook T, Martinez S, Korobkin M, et al. Intramuscular myxoma: radiographic and computed tomographic findings with pathologic correlation. *Skeletal Radiol* 1981;7:15-9.
11. Luna A, Martinez S, Bossen E. Magnetic resonance imaging of intramuscular myxoma with histological comparison and a review of the literature. *Skeletal Radiol* 2005;34:19-28.
12. Murawa D, Gowin E, Pawelska A, Murawa P. Cases of giant retroperitoneal liposarcomas. *Rep Pract Oncol Radiother* 2005;10(3):147-51.
13. Peterson K, Renfrew D, Feddersen R, et al. Magnetic resonance imaging of myxoid containing tumors. *Skeletal Radiol* 1991;20:245-50.
14. Bancfort L, Kransdorf M, Menke D, et al. Intramuscular myxoma: characteristic MR imaging features. *AJR* 2002;178:1255-9.
15. Papadogeorgakis N, Petsinis V, Nikitakis N, et al. Intramuscular myxoma of the masseter muscle. A case report. *Oral Maxillofac Surg* 2009;13:37-40.
16. Fornage B, Romsdahl M. Intramuscular myxoma: sonographic appearance and sonographically guided needle biopsy. *J Ultrasound Med* 1994;13(2):91-4.
17. Van Roggen J, McMenamin M, Fletcher D. Cellular myxoma of soft tissue: a clinicopathologic study of 38 cases confirming indolent clinical behavior. *Histopathology* 2001;39:287-97.
18. Yao M, Chen C, Chien J, et al. Magnetic resonance imaging of gluteal intramuscular myxoma. *Clin Imaging* 2007;31:214-6.
19. Hassan F, Shomaf M. Intramuscular myxoma of the hypothenar muscles. *Strat Traum Limb Recon* 2009;4:103-6.
20. Charron P, Smith J. Intramuscular myxomas: a clinicopathologic study with emphasis on surgical management. *Am Surg* 2004;70:1073-7.
21. Piazza N, Chughati T, Toledano K, et al. Primary cardiac tumors: 18 years surgical experience on 21 patients. *Can J Cardiol* 2004;20(14):1443-8.