



Intramuscular myxoma of a thigh: A case report

Intramuskularni miksom natkolenice

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Abstract

Introduction. Myxoid lesions may present as benign, locally invasive, or malignant tumors. The incidence of intramuscular myxoma is nearly 1 case in 1,000,000 inhabitants.

Case report. A 73-year-old man presented to our clinic with a painless, subcutaneous tumor of the adductor region of the left thigh. Computed tomography and magnetic resonance imaging showed a cystic tumor with thin septae located in the adductor muscles. The tumor was extirpated *in toto*, with the histopathological confirmation of an intramuscular myxoma.

Conclusion. This example may serve to increase the awareness of a successful intramuscular myxoma treatment among surgeons and radiologists in small countries.

Key words:

diagnosis; magnetic resonance imaging; myxoma; surgical procedures, operative; thigh; tomography, x-ray computed.

Apstrakt

Uvod. Miksoidni tumori mogu biti benigni, lokalno invazivni ili maligni. Incidenca intramuskularnog miksoma je oko jedan slučaj na 1 000 000 stanovnika. **Prikaz bolesnika.** Prezentovan je slučaj 73-godišnjeg muškarca sa bezbolnim, potkožnim tumorom aduktorne regije leve natkolenice. Kompjuterizovanom tomografijom i magnetnom rezonancom otkriven je cistični tumor sa tankim septama, lociran u aduktornoj muskulaturi. Tumor je ekstirpiran u celosti, a patohistološki nalaz je pokazao da se radi o intramuskularnom miksomu. **Zaključak.** Prikazani slučaj može pomoći hirurzima i radiolozima u malim zemljama da sagledaju mogućnost uspešnog lečenja intramuskularnog miksoma.

Ključne reči:

dijagnoza; magnetska rezonanca, snimanje; miksom; hirurgija, operativne procedure; natkolenica; tomografija, kompjuterizovana, rendgenska.

Introduction

Myxoid soft tissue tumors represent a group of neoplasms consisting of a rich extracellular gelatinous mucopolysaccharide matrix actively secreted by tumor cells¹. They usually affect the extremities and can be benign (including the locally invasive tumors) or malignant^{2, 3}. Among benign and locally aggressive myxomas, intramuscular myxoma is the most frequent type, while aggressive angiomyxoma, superficial angiomyxoma, myxolipoma, and dermal myxoma are less common². The incidence of intramuscular myxoma is around 1 case in 1,000,000 inhabitants⁴. Due to the hypocellularity of the lesion, excisional biopsy is indicated (instead of fine needle aspiration cytology), while complete excision is almost always

curative⁵. We presented a patient with an asymptomatic intramuscular myxoma diagnosed and treated at a tertiary care center in Podgorica, Montenegro.

Case report

A 73-year-old man presented to our clinic with a tumor in the left thigh. He stated that the mass had been growing slowly for several years. He felt no pain and had no other symptoms. His previous medical history included: arterial hypertension, transurethral resection of the prostate for benign prostatic hyperplasia, laparoscopic cholecystectomy for chronic calculous cholecystitis, right-sided inguinal hernia repair, and extirpation of the right great saphenous vein due to venous varices. The laboratory results were unremarkable.

The physical examination revealed a subcutaneous tumor on the medial aspect of the superior third of the left thigh. The tumor was solid, irregularly ball-shaped, and around 6–7 cm in its widest diameter. It was not painful on palpation, and there was no neurovascular deficit on the affected leg. Ultrasonography of the left thigh showed a tumor located among the adductor muscles, heterogeneous in echo sonographic appearance. Color Doppler imaging did not show any tumor blood vessels, and there were no pathological findings on the arterial or venous vessels of the left leg. Computed tomography (CT) showed a 95 x 90 mm tumor in the adductor region of the left thigh adjacent to the inferior *ramus* of the left pubic bone resembling a cystic lesion (Figure 1). Magnetic resonance imaging (MRI) also suggested the cystic nature of the tumor, with thin septae (Figures 2 and 3). No bone or vascular lesions were seen on CT or MRI.

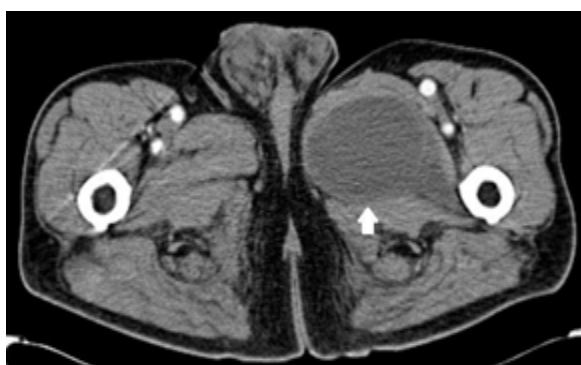


Fig. 1 – Axial computed tomography scan (white arrowhead indicating the tumor).

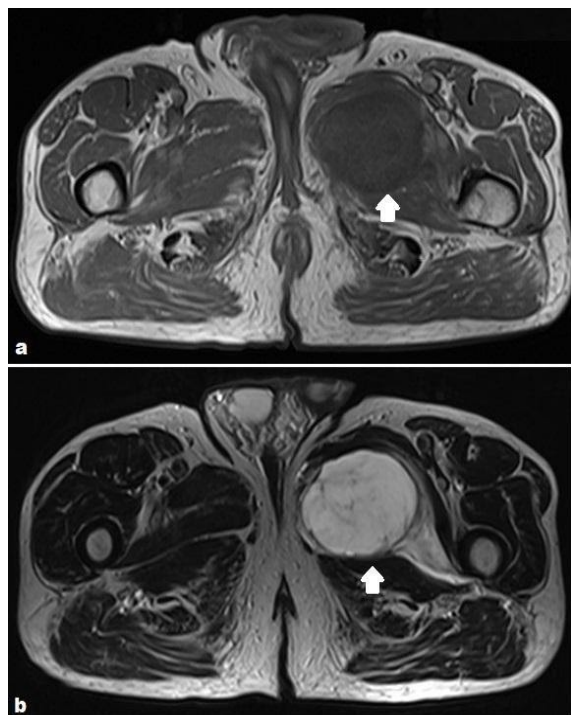


Fig. 2 – Axial magnetic resonance image (white arrowhead indicating the tumor): a) T1 sequence; b) T2 sequence.



Fig. 3 – Coronal magnetic resonance image (white arrowhead indicating the tumor): a) hypointense lesion – T1 sequence; b) hyperintense lesion – T2 sequence.

Surgery revealed an encapsulated tumor measuring 9 × 7 × 6.5 cm in size, located in the adductor muscles of the thigh, arising from the medial plane of the femoral sheath (adjacent to the adventitial layer of the femoral vein) (Figure 4). The tumor was extirpated *in toto* and sent to



Fig. 4 – Intraoperative view of the tumor.

histopathological examination. The patient's recovery was uneventful, and there was no recurrence of the tumor in the next 6 months after surgery. Histopathology showed an overall regular histological and cytological appearance – a tumor consisting of myxomatous stroma, oval and spindle cells without mitoses. Immunohistochemistry was negative for CK, S100, CD34, and actin, while it was positive for vimentin (Figure 5). Therefore, the tumor was diagnosed as a benign myxoma.

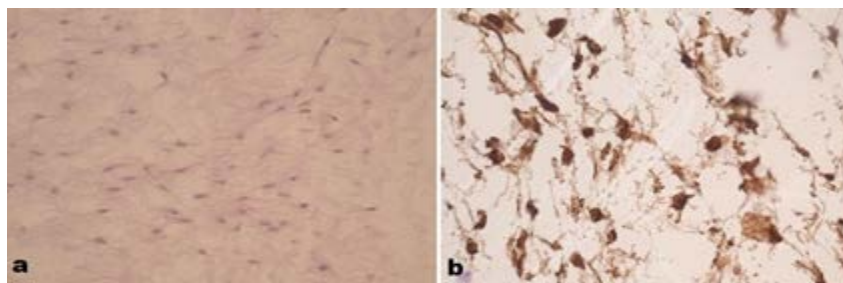


Fig. 5 – a) Uniform tumor cells without mitoses (hematoxylin and eosin, $\times 200$); b) Vimentin positivity on immunohistochemistry ($\times 400$).

Discussion

Intramuscular myxoma usually occurs in patients 50–60 years of age, somewhat more often in women⁵, most commonly affecting the muscles of the thigh. The tumor is rarely located in the intermuscular planes and more often in the muscle tissue itself². CT image is nonspecific, showing a well-defined hypodense lesion in the intramuscular space. MRI shows homogeneous (81–100%), hypointense lesions on the T1 sequence and hyperintense lesions on the T2 sequence owing to the liquid contents of the tumor, as well as the perilesional rind of fat or edema^{6,7}.

Aggressive angiomyxomas usually occur in women, affecting the pelvis or perineum. They exhibit a swirling pattern of infiltration without visceral involvement². Myxofibrosarcoma is a malignant lesion affecting the extremities, with equal sex predilection and common local recurrence due to incomplete resection. It exhibits an infiltrative border with centrifugal spreading along fascial and vascular planes. The tumor is heterogeneous on both T1 and T2 sequences, with a T2-hyperintense curvilinear “tail sign” projection from the primary lesion into the adjacent tissue. The “tail sign” has moderate sensitivity (64–77%) and specificity (79–90%) for this diagnosis⁸, and it should be differentiated from perifocal edema by the presence of contrast enhancement⁹. Due to its heterogeneity, myxofibrosarcoma is most difficult to distinguish from myxoid liposarcoma (intralesional hemorrhage might mimic

fat tissue, but fat-suppressed T1 images are of great value in these cases)⁴.

In order to help determine malignant from benign cyst-like lesions on MRI, Harish et al.¹⁰ proposed several factors: heterogeneity on T1 sequence, average tumor size ≥ 7 cm, with the largest tumor size ≥ 10 cm. Peterson et al.¹¹ suggested that benign myxoid lesions exhibit the following characteristics: uniform low signal intensity on T1 sequence and increased signal intensity on T2 sequence, homogeneous

enhancement, sufficient circumscription, and intramuscular localization. In a 2016 study on 95 myxoid tumors (26 benign and 69 malignant), Crombe et al.³ identified several MRI characteristics of malignant lesions: ill-defined margin, hemorrhagic component, fibrosis, “tail sign”, and intratumoral fat. In their study, malignant lesions were misdiagnosed due to the concomitant absence of all the aforementioned characteristics³. The radiographic and histopathologic descriptions of the tumor presented herein implied that it is a benign intramuscular myxoma. The absence of distant metastases, as well as the lack of local recurrence after resection, confirmed the nature of the tumor.

Montenegro has roughly 600,000 inhabitants, and the aforementioned incidence of intramuscular myxoma makes it a unique case in this country. While there is a sufficient number of case reports and research articles published on benign and malignant myxoid tumors worldwide, there are not many case reports on this subject originating from the Balkan countries.

Conclusion

The awareness of intramuscular myxomas and a possibility of their successful treatment among the surgeons and the radiologists from that region should be increased.

Conflict of interest

None declared.

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