Case study

Anterior Thigh Myxofibrosarcoma with Management of Wide Excision and Modified Anterior Thigh Compartment Resection : A Case Report

ABSTRACT

Introduction: Myxofibrosarcoma (MFS) is a type of malignancy from the group of malignant fibrous histiocytoma. Myfxofibrosarcoma is a type of soft tissue neoplasm that is aggressive. The clinical symptoms are not pathognomonic and the histological picture is very heterogeneous, often receiving delayed treatment and causing misdiagnosis. Complementary histochemical and immunohistochemical staining is mandatory to confirm the diagnosis of MFS. Extensive surgical treatment and followed by radiotherapy is the first choice of myxofibrosarcoma treatment.

Case Presentation: A 54-years old woman complained of a lump on her left thigh that had been getting bigger for the past 2 years. The lump initially looked the size of a marble, then grew to the size of a tennis ball in the last 7 months. On physical examination, a mass was found in the left thigh area, a hard, fixed mass, the size of a tennis ball. Fine needle aspiration examination showed suspicious results for myxofibrosarcoma. The patient underwent a Magnetic Resonance Imaging examination in the left lower extremity area and underwent wide excision and anterior thigh compartment resection surgery.

Discussion: Wide resection is the standard treatment for MFS.[4] The choice of procedure for each patient is different and should be based on tumor size, location, stage, surrounding neurovascular and bony elements, as well as functional and cosmetic considerations.[4] The minimum resection margin in MFS is at least 1 cm which aims to minimize the risk of local recurrence.[4] The recommended resection margin is at least 2 cm for MFS resection.[4] We had plan a 2 cm margin of the entire preoperative MRI enhancement area. It should be noted that the local recurrence rate for MFS in margin-negative resections is relatively high compared with other STS subtypes.

Conclusion: We recommend Wide Excison and Modified Anterior Thigh compartment Resectionis recommended procedure for anterior thigh

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myxofibrosarcoma. This procedure involves preserving uncontaminated thigh neurovascular, and only resecting one of the sarcoma-infiltrated muscle heads and preserving the other quadriceps muscle head of the thigh to maintain knee extension function. This paper is the first report on the successful treatment of anterior thigh myxofibrosarcoma without weakness of knee extension complication.

Keywords:thigh myxofibrosarcoma, wide excision, modified anterior thigh compartment resection

INTRODUCTION

Myxofibrosarcoma (MFS) is a type of malignancy from the group of malignant fibrous histiocytoma. Myfxofibrosarcoma is a type of soft tissue neoplasm that is aggressive.[1] The clinical symptoms are not pathognomonic and the histological picture is very heterogeneous, often receiving delayed treatment and causing misdiagnosis.[1] Complementary histochemical and immunohistochemical staining is mandatory to confirm the diagnosis of MFS.[1] Extensive surgical treatment and followed by radiotherapy is the first choice of myxofibrosarcoma treatment.[1]

CASE PRESENTATION

A 54-years old woman complained of a lump on her left thigh that had been getting bigger for the past 2 years. The lump initially looked the size of a marble, then grew to the size of a tennis ball in the last 7 months. Physical examination revealed a mass in the right anterior thigh region, solid, fixed, multiple masses of varying size. The patient's vital signs showed blood pressure 137/93 mmHg, heart rate 96 beats/minute, respiration rate 20 breaths/minute, temperature 36.0^{o}C. The patient's body mass index was in the underweight category (22,48 kg/m^{2}, weight: 56 kg; TB: 158 cm). On examination of the thorax and abdomen, there were no abnormalities.

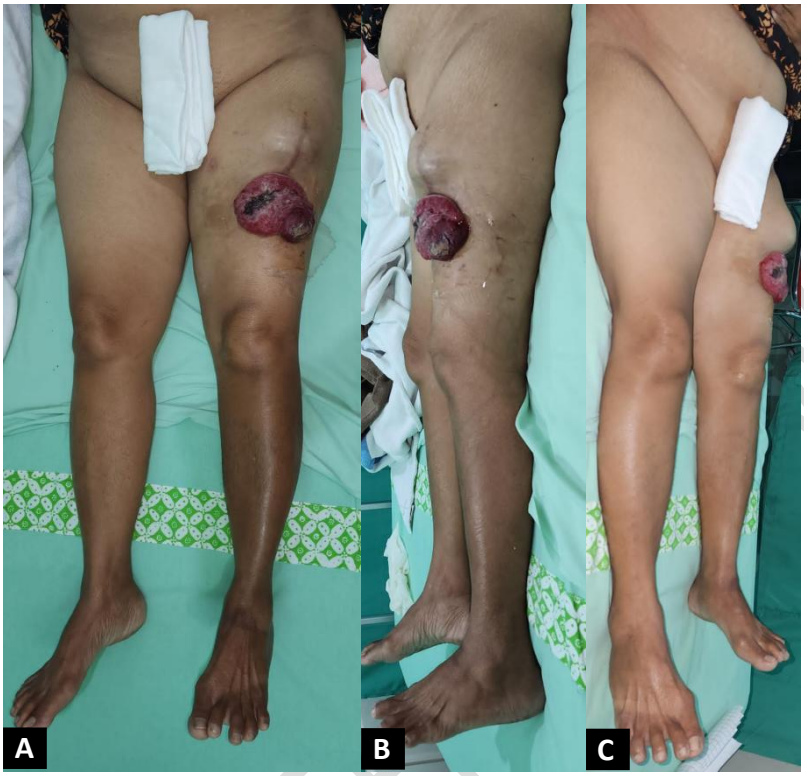

Fig. 1. Preoperative clinical picture (A, B and C)

The patient has a history of fine needle aspiration biopsyand immunohistochemistry examination with the results of myxofibrosarcoma was carried out in July 2023.The Extremity MRI with contrast in September 2023 showed asemisolid mass that infiltrates the rectus femoris muscle and part of the vastus lateralis muscle and the deep femoral artery The size of the mass was 17 x 7.4 x 6.8 cm appearances were consistent with a myxofibrosarcoma.

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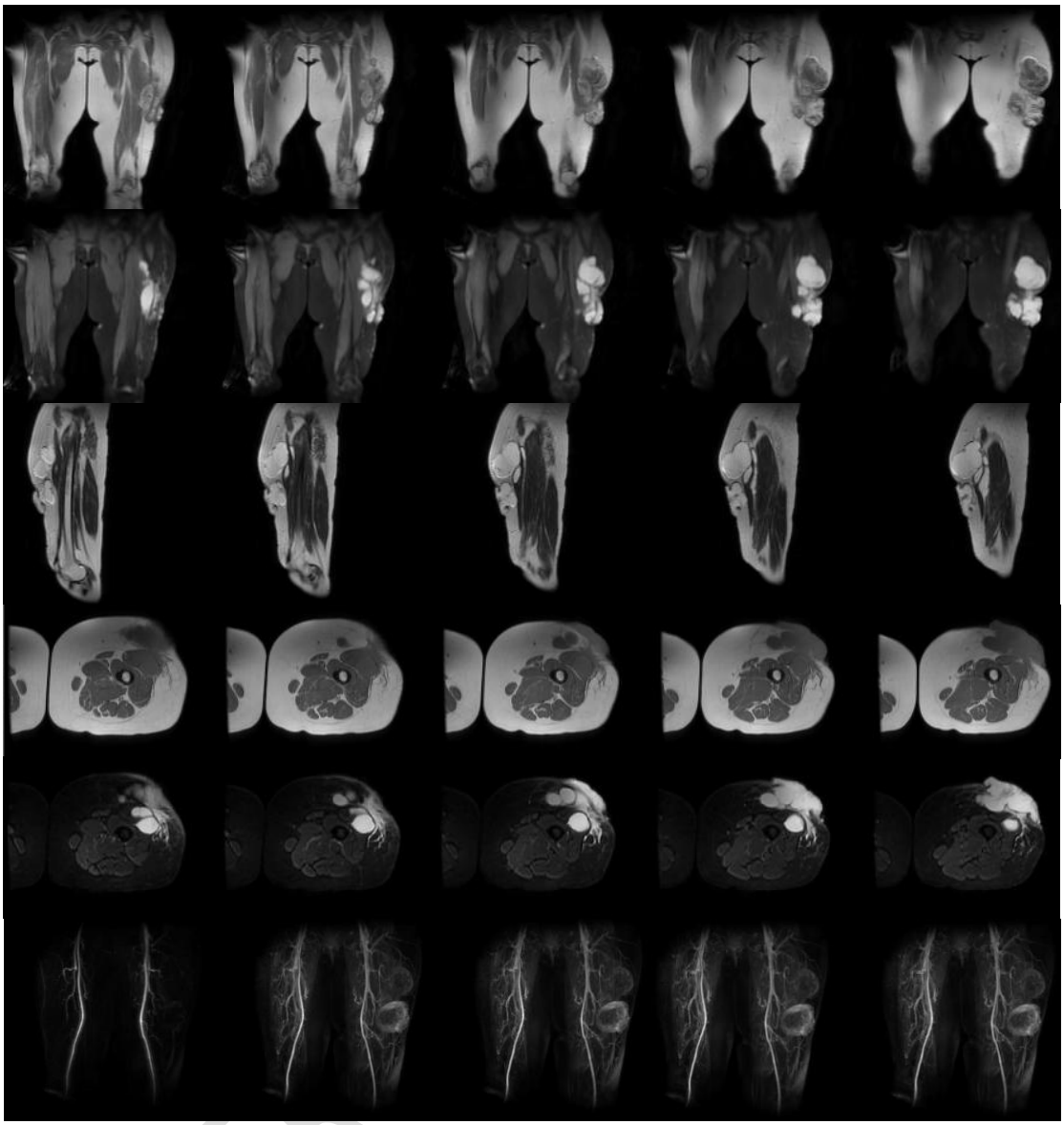

Fig. 2. Extremity MRI with contrast

Hematologic assessment in September 2023 showed that hemoglobin concentration was 10.9 g/L; mean cell volume was 31 fL, low white blood cell counts (9.6 g/L); platelet counts (584 g/L). Biochemical assessment based on Urea 27 mmol/L, Creatinin 1.6 µmol/L). The management was treated Wide Excison and Modified Anterior Thigh compartment Resection.

Fig. 3. Intraoperative : Desain Incision of tumor with 2 cm margin (A); Wide excision (B); preserving neurovascular and head of vastus medial muscle, vastus lateral muscle, intermedius muscle (C); anterior thigh compartment with rectus femoris muscle resection (D)

After wide excision and anterior thigh compartment resection procedure, the patient received painkiller ketorolac 30 mg injection / 8 hours and antibiotic ampicillin sulbactam 1.5 gr injection / 8 hours . The patient was recovered well for a day in treatment ward. After the patient in good condition, the patient was outward and advised to control the oncology surgery policlinic for evaluation.

DISCUSSION

For soft tissue sarcomas of the anterior thigh, resection of the entire anterior compartment is often performed. This results in the patient being unable to extend the knee.[3] To avoid this, we can preserve one of the heads of the quadriceps, usually the broadus medialis muscle, with intact innervation, and thus the extension function of the knee joint can be significantly preserved, while the requirements for radical oncological procedures are met.[3] Modified anterior compartment resection is a

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resection procedure that preserves one or more quadriceps heads and requires thorough knowledge of the course and distribution of the femoral nerve branches from the level of the inguinal ligament to its termination at each quadriceps femoral head.[3]

Wide resection is the standard treatment for MFS.[4] The choice of procedure for each patient is different and should be based on tumor size, location, stage, surrounding neurovascular and bony elements, as well as functional and cosmetic considerations.[4] Deep intramuscular masses often require combined reconstruction including muscle flaps and skin grafts. Resection with R0 margins is more challenging for MFS due to its infiltrative growth nature.[4] Adequate margins must take into account the width of the resection margin (quantity) and the type of anatomical obstruction (quality).[4] The minimum resection margin in MFS is at least 1 cm which aims to minimize the risk of local recurrence.[4] The recommended resection margin is at least 2 cm for MFS resection.[4] We had plan a 2 cm margin of the entire preoperative MRI enhancement area. It should be noted that the local recurrence rate for MFS in margin-negative resections is relatively high compared with other STS subtypes.[4] In addition, it should be considered that epithelioid subtype is an unfavorable prognostic factor for local recurrence.[4]

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CONCLUSION

We recommend Wide Excison and Modified Anterior Thigh compartment Resectionis recommended procedure for anterior thigh myxofibrosarcoma. This procedure involves preserving the thigh neurovascular, and only resecting one of the sarcoma-infiltrated muscle heads and preserving the other quadriceps muscle head of the thigh to maintain knee extension function. This paper is the first report on the successful treatment of anterior thigh myxofibrosarcoma without weakness of knee extension complication.

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