

Limb Conservation in Extremity Soft Tissue Sarcomas with Vascular Involvement: A Case Report

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Abstract

The major neurovascular involvement and large primary tumors are indication of amputation. This study is an attempt to explore the feasibility of a limb salvage surgery in extremity sarcoma cases with major vessel involvement. Oncological outcomes and surgery-related morbidities are compared with those reported in literature. We report a case of limb salvage surgery done in our department with thigh extremity sarcoma of lower limb involving femoral vessels analyzed. Interpretation of data from the cases, along with a review of literature, is done. In this case, a wide monobloc excision was done adhering to oncological principles. This required resection of superficial femoral artery alone in two cases, resection of superficial femoral artery along with common femoral vein and femoral nerve in another, and of common femoral vein alone in yet another. Reconstruction was done in all these cases with reversed long saphenous vein graft. Histopathology of resected margins was free of tumor in all the four patients. One patient developed local recurrence and one developed distant metastasis. Two were disease-free for 1 year with good functional limb, one has been disease-free for 3 years, and another was disease-free for 2 years, after which he defaulted further follow-up. One patient developed arterial blowout which required ligation of common femoral artery which resulted in gangrene of the limb. He underwent amputation.

Keywords: Limb salvage surgery, Major vascular infiltration in sarcomas, Vessel reconstruction

INTRODUCTION

Limb salvage surgery has become the standard of care in managing extremity sarcomas. With recent advances in radiotherapy and chemotherapy, 95% of patients with extremity sarcomas will have limb conservation surgery, but 5% of these patients will still require amputation. Common indications for amputation are major neurovascular involvement and large primary tumor where resection would leave a functionless limb. We offered limb salvage in our patient who had major vascular involvement; who was successfully treated with limb conservative surgery along with vascular reconstruction.

CASE REPORT

A 55-year-old female patient presented with complaints of painless swelling in the thigh since 3 months. With diffuse swelling of the right lower limb on examination hard swelling on the right upper part of thigh 10 cm × 12 cm, restricted mobility and ill-defined borders. Magnetic resonance imaging (MRI), which included fat-suppressed images, obtained with gadolinium, revealed a 14 cm × 12 cm mass encasing the femoral vein. Histological diagnosis was made by trucut biopsy of the lesion preoperatively, and distant metastasis was ruled out (Figures 1-3).

Received Adjuvant Radiation

Patient received external beam Rt for 5 weeks after 6 weeks of the post-operative period.

DISCUSSION

Vascular involvement by soft tissue sarcomas is diagnosed preoperatively with MRI and MR angiogram. MRI is considered the gold standard in diagnosing vascular involvement by soft tissue sarcoma.^{1,2} Literature

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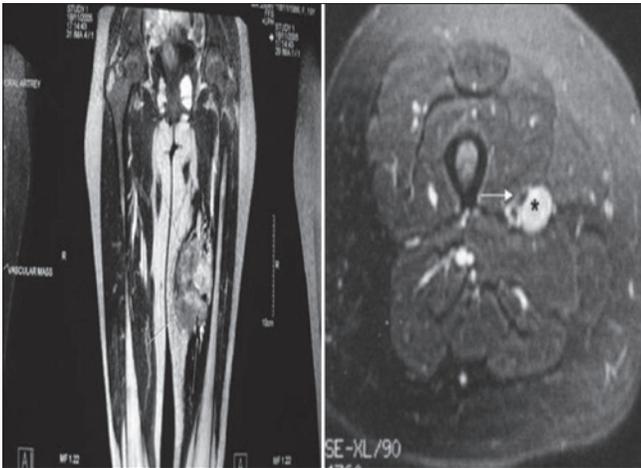


Figure 1: Magnetic resonance imaging shows the mass encasing the femoral vein

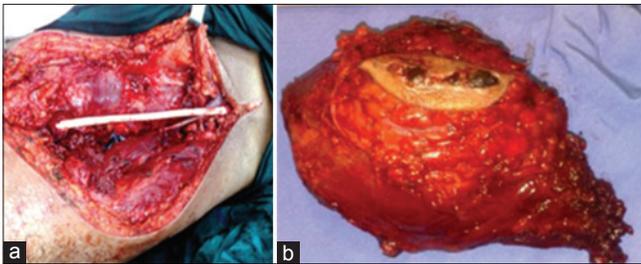


Figure 2: (a) A wide monobloc excision, along with resection of the involved vessel, was done. (b) Femoral vein was reconstructed with a polytetrafluoro ethylene graft

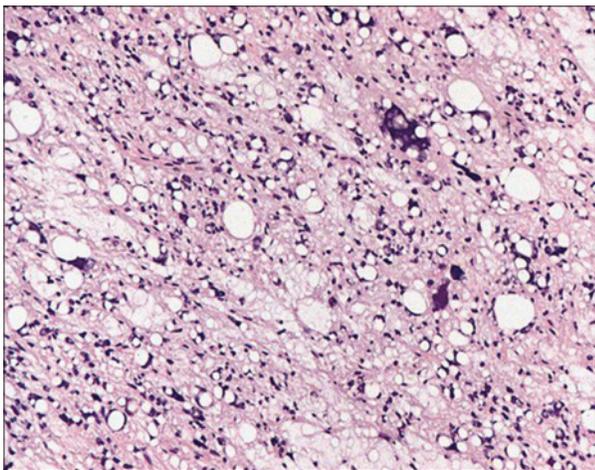


Figure 3: Histology of soft tissue sarcoma

review suggests a high probability of achieving negative surgical margin even in the presence of vascular involvement requiring resection and reconstruction of the involved vessel. Autologous reversed saphenous vein graft is the most commonly used for reconstructing the vessel. In cases where the vein is not available artificial grafts made of polytetrafluoro ethylene or Dacron can be used.

The incidence of graft-related complications is more with artificial grafts. Frequency of amputation following vascular reconstruction in literature is 15-25% which is much higher than limb salvage surgeries without reconstruction (5%). Higher incidence of wound-related complications, as high as 68% after vascular reconstruction. Extensive skeletonization of the vessels which lead to de-vascularization of the flaps.

Long term goals are to achieve good oncological and functional outcome. Review of the literature reveals a local recurrence rate of 0-20%³⁻¹⁰ in most large series of limb salvage surgery requiring vascular reconstruction which is similar to the recurrence rate following limb salvage surgery without vascular reconstruction.¹¹

Limb salvage surgery in the presence of neurovascular bundle infiltration necessitating vascular reconstruction is a well-established procedure in western literature. Oncologically, sound resection is possible despite the aggressive presentation of these tumors. With the addition of radiotherapy good local control can be achieved in good number of these patients.

CONCLUSION

Limb salvage surgery in the presence of major vascular infiltration necessitating vascular reconstruction can be safely performed.

Post-operative wound-related complications are more in these patients.

Long-term functional outcome is acceptable. Multimodality treatment approach is needed in this group of patients to achieve optimal oncological outcome.

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