

A CASE OF AN AGGRESSIVE INTRAOSSEOUS ARTERIOVENOUS MALFORMATION IN THE LOWER EXTREMITY: SPECIAL CONSIDERATIONS FOR COMPLETE RESECTION

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Background: Arteriovenous malformations (AVMs) are congenital vascular malformations in which arterial blood flow directly connects to venous drainage. Intraosseous AVMs most frequently arise in the head and neck, and rarely occur in the extremities. Herein, we report a combined soft tissue and intraosseous AVM involving the lower extremity. This case highlights the necessity of interdisciplinary approach for the effective management of these rare vascular anomalies, and the benefit of multimodal interventional strategies for curative intent.

Materials/Methods: A 14-year-old female presented with a four-year history of intermittent pain and swelling over her lateral malleolus. The patient was initially evaluated by Rheumatology and MRI/MRA was obtained revealing an AVM involving the distal leg, ankle, and hindfoot with intraosseous involvement of the tibia and talus. She was then referred to the Vascular Anomalies Center. Based on interdisciplinary review, an angiogram was performed demonstrating shunting from the anterior tibial, peroneal, and posterior tibial arteries to the AVM. Venous drainage was to the anterior tibial and greater saphenous veins. Three planned embolizations were performed over the course of 6 months. Following the third embolization, the patient was taken to the operating room where Plastic and Orthopedic Surgery performed total resection of the nidus and involved bone which was then grafted with calcium phosphate bone graft.

Results: Successful resection of the nidus was achieved, and the patient had an uncomplicated recovery. Within six months postoperatively, the patient demonstrated full range of lower extremity motion. Radiologic evaluation seven months postoperatively showed no evidence of recurrence of the nidus and incorporation of the bone graft material.

Conclusions: Intraosseous involvement of AVMs is rare and presents a therapeutic challenge due to its invasive potential, necessity for detailed, individualized treatment plans, and high incidence of recurrence. Embolization followed by wide local excision as well as interdisciplinary management are paramount for complete and successful resection.