

Management of Idiopathic Segmental Axillary to Brachial Artery Thrombosis With Upper Limb Ischemia In A Newborn: A Case Report and Algorithm for Care

Brian H. Gander, MD¹, Alexander Davit, MD¹, Sabri Yilmaz, MD², Lorelei Grunwaldt, MD¹

1. Division of Pediatric Plastic Surgery, Children's Hospital of Pittsburgh of UPMC
2. Division of Interventional Radiology, Children's Hospital of Pittsburgh of UPMC

INTRODUCTION

Literature regarding limb ischemia in the pediatric population is controversial and sparse; management of acute limb ischemia in neonatal patients is even less well described. Most of the literature in regards to the latter focuses on iatrogenic causes. We report a case of idiopathic segmental axillary to brachial artery thromboses in a neonate; we also report the successful management of this problem and suggest a protocol for the further treatment of such cases.

METHODS

Case Report

A full-term male with an uneventful prenatal course was born by elective C- Section at an outside institution. At birth the left upper extremity was noted to be white. Radiographs were negative for fracture or dislocation. The extremity progressively became completely ischemic from the mid-humerus distal. There were no palpable or dopplerable pulses in the limb and capillary refill was > than 10 seconds. Bedside duplex US showed obstructive clot from the axillary artery to the brachial artery with no arterial flow in the limb.

RESULTS

Clinical Course

The patient's clinical picture deteriorated with increasing lactates and ventilator requirements, and the patient was transferred to the IR suite for intervention given the long segment of clot. Angiography showed thrombosis of the axillary artery with further thrombosis just distal to the profunda brachii. Reconstitution was seen at the brachial artery, and contrast was seen in the radial artery and palmar arch. Tissue plasminogen activator was then introduced into the clot in the axillary artery. After a delay, repeat angiogram showed increased perfusion. A heparin bolus and drip were started. Prophylactic fasciotomy was performed in IR by the plastic surgery team from the carpal tunnel to the antecubital fossa. At the end of the procedure the muscle was pink and the skin edges were bleeding. Over the ensuing 24 hours a triphasic signal was found on handheld Doppler in the palmar arch and there was normal capillary refill. At day of life 10, duplex US showed resolution of the thrombus in the left upper extremity.

CONCLUSION

Acute upper limb ischemia in the neonate and small child require prompt assessment and team care for treatment and optimal outcome. Often, in an acute traumatic iatrogenic injury that is isolated to a small segment of the artery, surgical exploration by a surgeon comfortable with microsurgery is best. If the thrombosis is congenital or is a long segment of thrombosis then an interventional radiological approach with angiogram and an attempt at thrombolytics may be prudent.

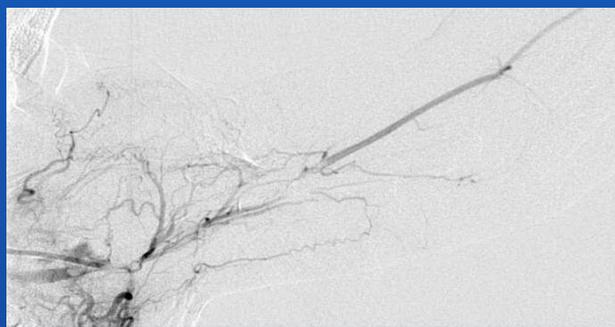


Figure 1. Angiography of Extremity Prior to Intervention



Figure 3. After Thrombolysis and Fasciotomy



Figure 2. Clinical Picture of Extremity Prior to Intervention



Figure 4. Seven Months Post Procedure

