



INTRODUCTION

Spinal ischemia is a rare complication with its prevalence not well-known. It carries a poor prognosis, and accounts for approximately 1%-2% of all vascular neurological pathologies (1). It is known that sequential deployment of endovascular aortic devices in thoracoabdominal aortic repair helps to decrease the devastating risk of spinal cord ischemia. Despite the decrease of this adverse event, there continues to be the risk of spinal cord ischemia. There are multiple approaches, including simultaneous or sequential treatment of multilevel aortic disease which have shown to decrease the long-term risk; however, no individual strategy is best known to reduce the risk of spinal cord ischemia (2). The risk of spinal cord injury remains substantial at 8% in patients with multilevel disease (3).

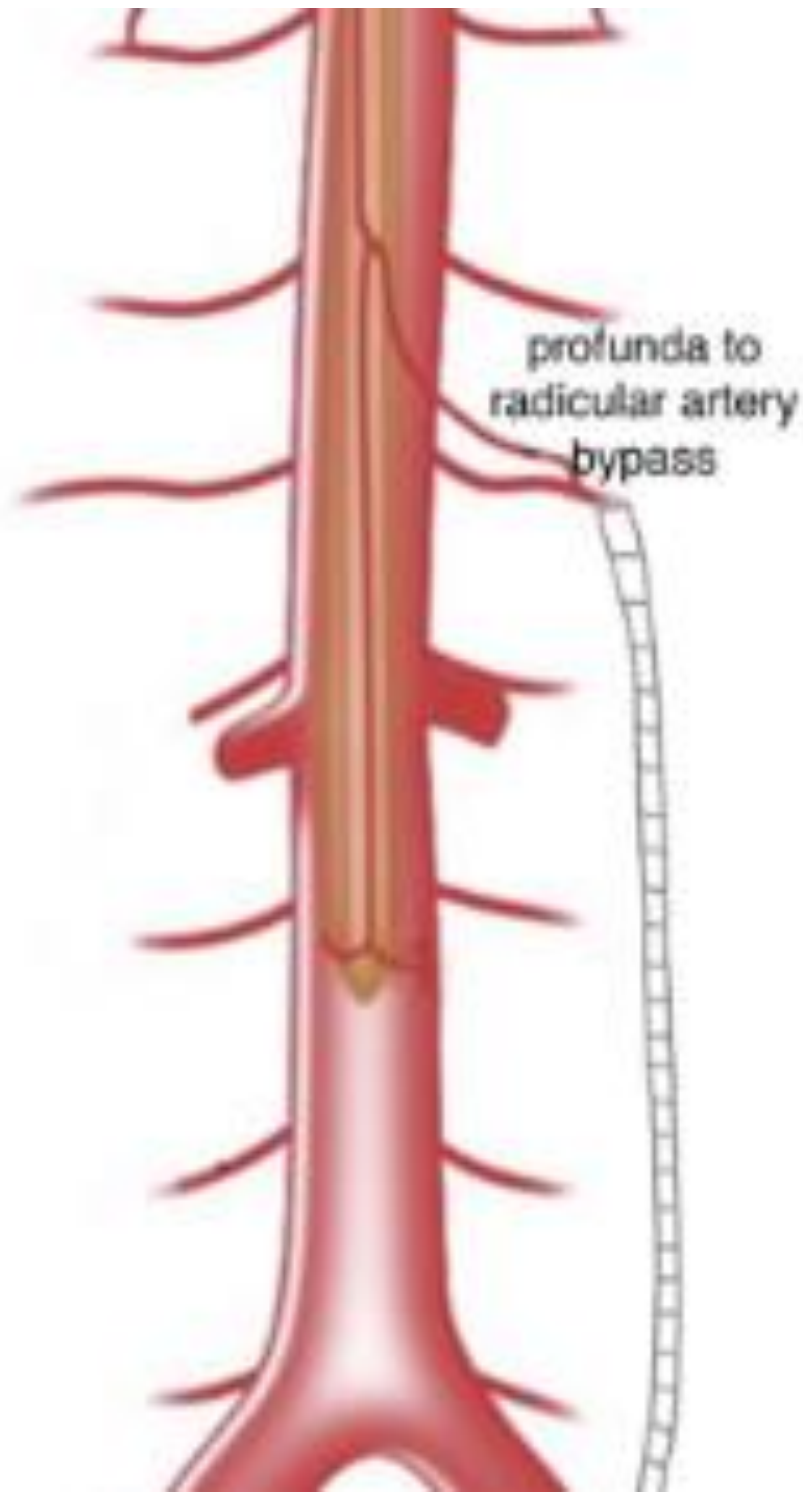
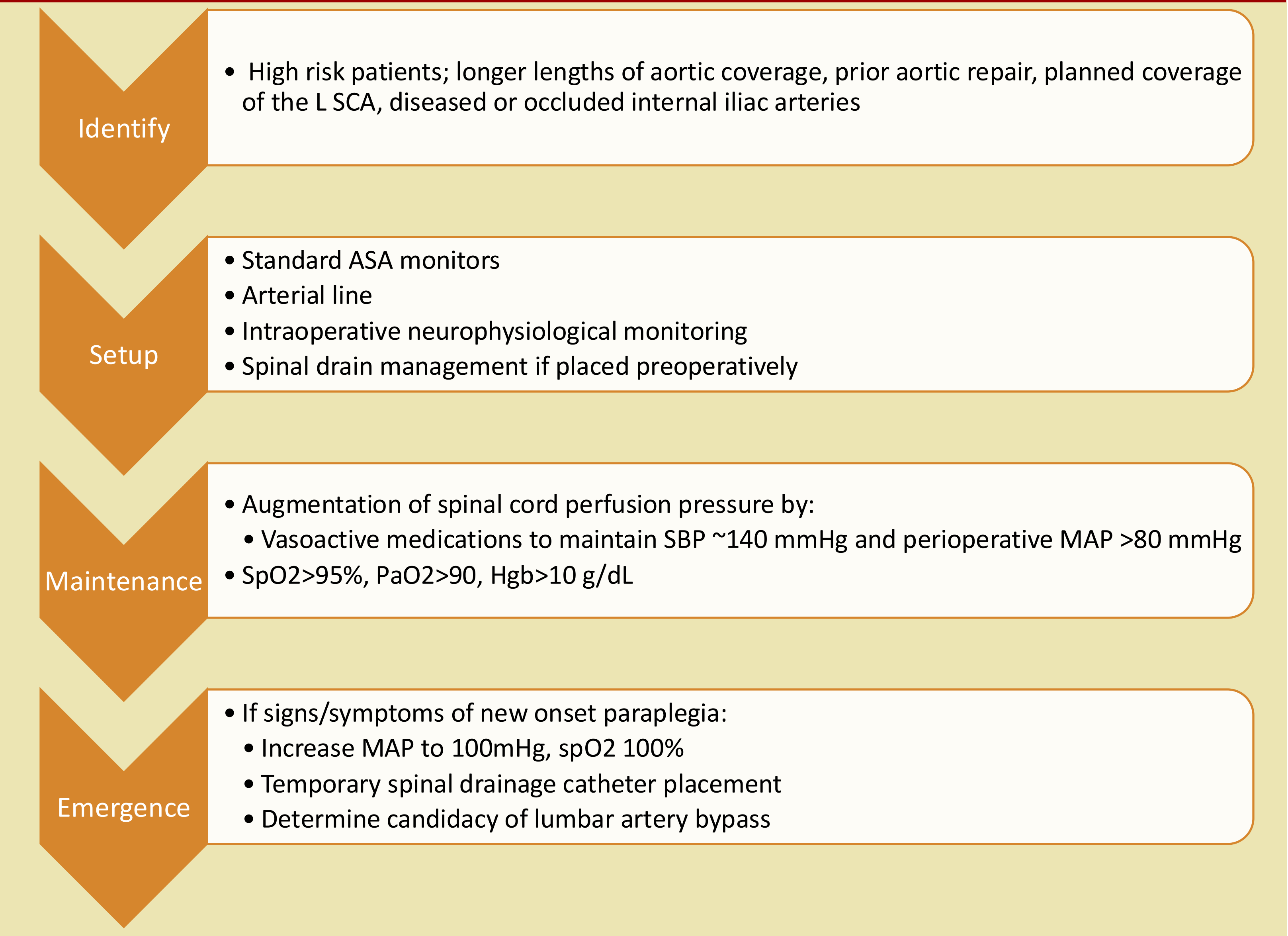
LEARNING OBJECTIVES

To identify patients, that despite sequentially deployed fenestrated aortic devices, remain at elevated risk of spinal cord ischemia.
To employ a technique using direct extra-anatomic bypass for spinal revascularization as well as permissive hypertension to maintain adequate spinal cord perfusion by augmentation of spinal perfusion pressure.

CASE DESCRIPTION

A 65-year-old man with a complex cardiac and aortic history, including a residual thoracoabdominal aortic aneurysm status-post EVAR with proximal TEVAR in 2020, presented for redo FEVAR given degeneration of his perivisceral aorta. Due to elevated preoperative spinal-cord ischemia risk, the patient was selected for preoperative lumbar drain placement, but after lumbar drain was removed, the patient complained of paresthesia of lower extremities concerning for spinal cord ischemia. Spinal revascularization was accomplished with an extra-anatomic bypass from the profunda femoris artery to the L2 radicular artery using a saphenous vein graft. The bypass procedure was successful and patient experienced improvement in his spinal cord ischemia symptoms.

INTRAOPERATIVE MANAGEMENT



POSTOPERATIVE COURSE

The patient underwent successful profunda-radicular artery bypass with significant improvement in his lower extremity symptoms. Postoperatively, the MAP goal was >90 mmHg, which was achieved with phenylephrine temporarily. During his course, on POD 10 the patient developed significant bleeding from his radicular artery anastomosis necessitating operative ligation. Despite the need for ligation, this bridging method was believed to have promoted adequate neovascularization during this period to have prevented return of his ischemic symptoms.

DISCUSSION

This case demonstrates the use of a novel technique to create a direct extra-anatomic bypass to decrease the effects of spinal cord ischemia status-post FEVAR, thus bridging the time frame needed for revascularization. Despite the need for ligation of the bleeding lumbar anastomosis, this bridging method was believed to have promoted adequate revascularization to prevent return of the patient's ischemic symptoms. This is an exciting new approach that may prove to be useful in the postoperative FEVAR setting to further decrease the incidence of permanent spinal cord damage. Spinal cord ischemia is a devastating complication that carries a poor prognosis, with mortality rates of up to 75% within the first year after inciting event (4).

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