Management of major vascular injury during pedicle screw instrumentation of thoracolumbar spine

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1. Introduction

Pedicle screw fixation is a well-established technique to treat degenerative spine disease, trauma, neoplasms, deformity, and other pathological conditions of the thoracolumbar spine [1,2]. Various vascular structures are at risk during pedicle screw insertion including the azygos vein, intercostal artery, inferior vena cava, and aorta for thoracic spine procedures and the aorta and common iliac vessels for the lumbar spine surgeries.

Vascular injury is a rare but significant complication of spinal instrumentation [4]. Presentation can vary from immediate hemorrhage to pseudoaneurysm formation. There have been several reports published describing such cases and the various approaches treatment. However, the presentation and complications can be varied. Additionally, as vascular traumatic treatment has evolved to less invasive therapies, multiple methods for repair exist.

2. Patients and methods

We report our institutional experience of three cases of pedicle
screw involvement with major arterial and venous structures and their management. We also reviewed the literature for current practices of management of such injuries.

3. Results

3.1. Case 1

3.1.1. Presentation

A 56-year-old male presented with back pain and chills in the setting of paraplegia due to a remote history of spinal cord injury at T6-T7
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