Surgical Treatment of Angiography-Negative, Ruptured Isolated Spinal Artery Aneurysm: A Case Report

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Background

Background: Isolated spinal artery aneurysms are rare vascular lesions of the spinal cord. Due to its rarity, the natural disease course and treatment guideline have not been clearly defined to date. Here, we report a case of angiography-negative isolated spinal aneurysm in the thoracic spine surgically treated without neurological compromise with the employment of Indocyanine Green (ICG) and intraoperative neurophysiological monitoring (IONM).

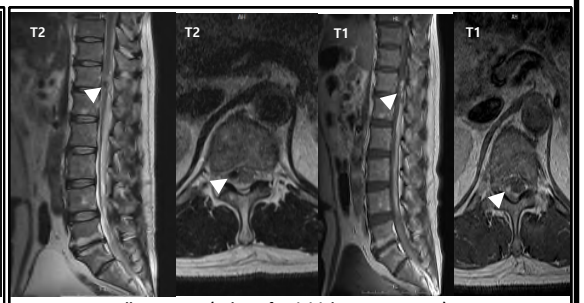
Case Description

Case Description: A 52 year-old male without any prior medical history presented to the emergency room (ER) with acute, lower back and bilateral leg pain accompanied by worsening of voiding and defecation difficulty. MRI scan of the lumbar spine showed diffuse subarachnoid hemorrhage at the lumbar spine. Initially treated conservatively with pain killers, the patient experienced rapid recurrence of symptoms. A follow up MRI scan showed subacute transformation and expansion of the subarachnoid hematoma, as well as a nonenhancing, intradural, extramedullary lesion at the T12/L1 level. Angiography did not show any remarkable findings and surgical exploration was performed, which revealed a thrombosed aneurysmal lesion. The lesion did not show ICG uptake, and temporary clipping of the caudal end of the lesion did not show changes in MEP signals. Pathological examination revealed capillary vascular structure in granulation tissue with organizing thorombi, favoring a thrombosed, granulated lesion over a vascular neoplasm.

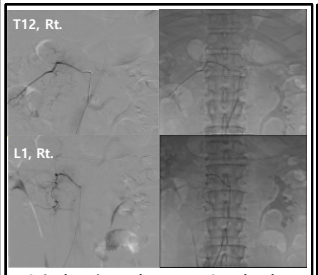
Case Presentation



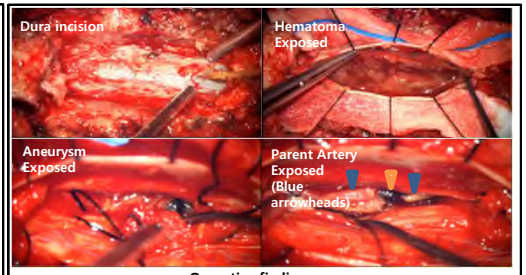
MRI at initial symptom presentation



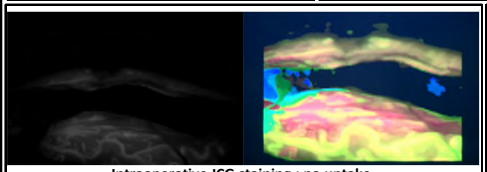
Follow up MRI (7 days after initial symptom onset)



Spinal angiography at at T12, L1 level



Operative findings

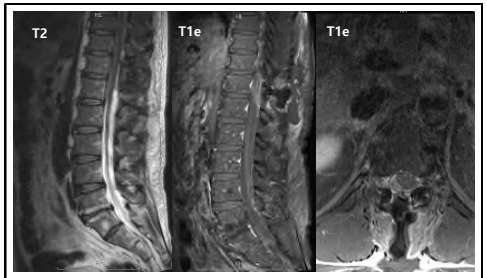


Intraoperative ICG staining : no uptake

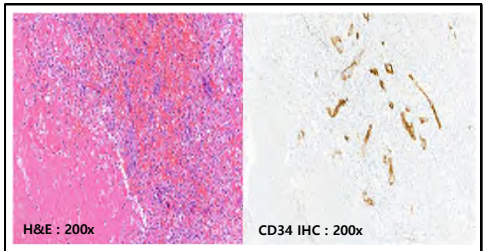


Intraoperative temporary clipping: no MEP changes

Case Presentation (cont.)



Postoperative MRI



Histological Diagnosis: Capillary vascular structure in granulation tissue with organizing thorombi

Conclusion

Conclusion: Ruptured, isolated spinal aneurysms can be especially difficult to diagnose and treat when the angiography finding is negative. We report that spinal artery aneurysms can be safely excised with the use of intraoperative ICG and IONM.