



Title:

Intraoperative direct embolization with N-butyl cyanoacrylate (NBCA) for vascular tumors of the spinal cord: a technical report

Authors and Institution:

Yat Hang TSE, Anderson Chun On TSANG, Wai Man LUI

Division of Neurosurgery, Department of Surgery, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Queen Mary Hospital, Hong Kong

Abstract:

Introduction

Intramedullary vascular tumors such as hemangioma or hemangioblastoma in the cervical cord are challenging lesions to remove surgically. The vascularity of the lesion can cause significant bleeding and difficulties during tumor debulking and dissection, and increase the risk of spinal cord damage. Pre-operative endovascular embolization is well described for intra-cranial lesions, but seldom used in intraspinal intramedullary tumors due to the technical difficulties and risk of spinal cord ischemia. We describe our experience of intra-operative direct embolization of difficult cervical cord vascular tumors with N-butyl cyanoacrylate (NBCA) glue in achieving prompt hemostasis and facilitating tumor removal.

Material & methods

Two patients with cervical cord hemangioblastoma and hemangioma who presented with cervical myelopathy were used as illustrative cases. Standard cervical laminectomy was carried out. Both tumors were found to be highly vascularized with initial dissection leading to significant hemorrhage. Intra-tumoral injection of NBCA glue via direct puncture intraoperatively enabled immediate hemostasis and provided a clean surgical field for controlled dissection.

Results

Intra-operative NBCA embolization to the vascular tumor facilitated gross total removal of both tumors with minimal blood loss, while preserving the spinal cord integrity. Detail description of the indication, technical nuance and precaution of intra-tumoral NBCA embolization in the spinal cord is discussed.

Conclusion

Direct intra-lesional embolization with NBCA in cervical cord tumors is safe and feasible. It may serve as a useful adjunct for hemostasis during surgical removal of difficult and highly vascular lesions in eloquent areas.

Keywords

Direct embolization, Spinal cord tumors, Intramedullary tumors, Hemangioblastoma