



Preoperative Particle and Glue Embolisation of Meningiomas: Indications, results and lessons learnt from 117 consecutive patients

jinendra ekanayake MBBS BSc MRCS; Anouk Borg MD MSc; Richard Mair MB ChB MRCS; Stefan Brew MB ChB MHB(Sci) MSc FRANZCR; Fergus Robertson MRCP FRCR; Neil Kitchen MD, FRCS; George Samandouras MD FRCS (SN)

Introduction

Preoperative embolization of meningiomas remains an enduringly controversial topic in intracranial surgery. The benefit of post-embolization reduction in intraoperative blood loss must be counterbalanced against increased hospital stay, and potential embolic complications.

We attempted to examine the safety and efficacy of pre-operative embolization in a series of 117 patients who underwent either glue or particle embolization. Factors assessed included (i) selection of embolic agent (ii) type of complication associated with embolic agent (iii) intraoperative blood loss(iv) extent of surgical resection.

Methods

Retrospective review of 117 consecutive patients between 2001-2010 undergoing pre-operative embolization prior to surgery for intracranial meningiomas. Imaging studies, operative reports, anaesthetic charts, and histology reports were examined for patient demographics, tumour size, location and vascular supply, as well procedural details including arterial territories targeted, embolic agent, degree of devascularisation, transfusion requirements and complications.

Results

107 patients underwent embolization under two operators (10 cases were abandoned). Mean blood transfusion requirement during surgery was 0.8 units per case (range 1-14 units). Blood transfusion was significantly lower in patients whose meningiomas were completely devascularized (P=0.35). The degree of devascularisation achieved (total or partial)(p = 0.76), and blood transfusion requirement (p = 0.29), did not vary significantly in relation to embolic materials. Four patients (3.7%) had neurological complications: 2 haemorrhagic, 1 ischaemic, 1 cranial nerve palsy.

Conclusions

The complication rate at our institution was 3.7%. No relationship between embolic agent and degree of devascularization was observed. Glue embolisation enabled a more tailored approach with regards to individual vessel morphology due to increased control over its delivery, and was used when surgical expedience was required. Complete devascularization resulted in lower blood transfusion requirements. This study demonstrates pre-operative embolization with glue and particle agents is a safe, useful adjunct in the neurosurgical management of intracranial meningiomas. A large scale randomised controlled trial is warranted.

Learning Objectives

- By the conclusion of this session, participants should be able to:
- 1) Consider the role and usefulness of pre-operative embolisation for intracranial meningiomas
  - 2) Discuss the indications, benefits and risks of pre-operative embolisation of intracranial meningiomas
  - 3) Describe the relative advantages and disadvantages of glue and particle embolisation

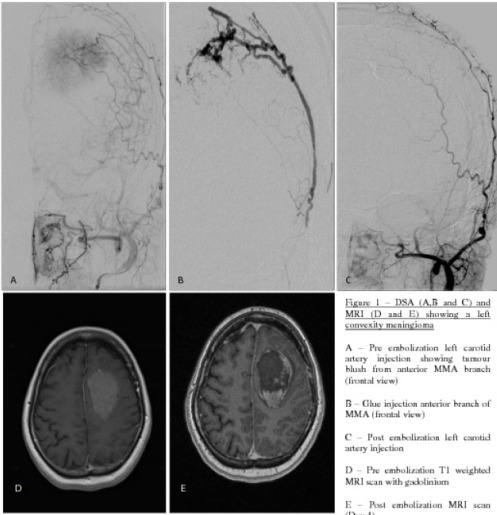
References

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Meningioma



Caption embedded in image (see annotations)

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