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ANAESTHETIC MANAGEMENT OF RECURRENT PARASAGITTAL MENINGIOMA WITH MASSIVE INTRAOPERATIVE BLOOD LOSS IN AN ELDERLY PATIENT

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ABSTRACT **Background:** Parasagittal meningiomas are intracranial tumors located adjacent to the superior sagittal sinus and are associated with significant anaesthetic challenges due to raised intracranial pressure (ICP), proximity to major venous structures, and risk of massive intraoperative blood loss. Maintaining cerebral perfusion pressure (CPP) while managing hemodynamic instability is crucial, particularly in elderly patients. **Case Presentation:** We report a 79-year-old female with a history of prior craniectomy for tumor excision who presented with progressive neurological deficits. Imaging revealed a recurrent parasagittal meningioma in the right parieto-occipital region. The patient underwent tumor excision under general anaesthesia. Intraoperatively, approximately 2000 ml blood loss occurred, requiring transfusion of 4 units packed red blood cells and 4 units fresh frozen plasma. Two episodes of hypotension and tachycardia were managed with fluids, transfusion, and noradrenaline infusion. The patient was electively ventilated postoperatively and had a favourable outcome with stable hemodynamics and Glasgow Coma Scale of 15.

KEYWORDS : Parasagittal Meningioma, Neuroanaesthesia, Massive Blood Loss, Intracranial Pressure, Elderly

INTRODUCTION

Parasagittal meningiomas arise from the meninges along the superior sagittal sinus and account for a significant proportion of intracranial tumors. Although often benign, their location makes surgical excision challenging due to involvement of critical venous structures and high vascularity.

From an anaesthetic perspective, these tumors pose challenges such as raised intracranial pressure (ICP), risk of massive intraoperative hemorrhage, and hemodynamic instability. The primary goals include maintaining cerebral perfusion pressure (CPP), preventing secondary brain injury, and ensuring adequate oxygen delivery.

Case Presentation

A 79-year-old female with a history of tumor excision with craniectomy in 2016 presented with complaints of generalized weakness in upper and lower limbs, more pronounced on the right side, difficulty in walking, and slurring of speech for three months.

CT brain and MRI revealed a large extra-axial dural-based lesion in the right parieto-occipital region. Histopathological examination confirmed parasagittal meningioma.

Preoperative preparation included informed consent, confirmation of nil per oral status, and arrangement of blood products anticipating significant blood loss.

Anaesthetic Management

Standard ASA monitoring was instituted and baseline vitals were recorded. A central venous catheter was inserted in the left internal jugular vein.

The patient was preoxygenated with 100% oxygen for 4 minutes. Anaesthesia was induced with fentanyl 80 mcg, midazolam 1 mg, propofol 100 mg, and atracurium 30 mg. The trachea was intubated with a 6.5 mm flexometallic endotracheal tube.

Anaesthesia was maintained with oxygen–air mixture (50:50), sevoflurane (0.2–2%), and atracurium infusion. Volume-controlled ventilation was used (tidal volume 380 ml, respiratory rate 14/min, PEEP 3 cm H_2O).

Intraoperative blood loss was approximately 2000 ml and was managed with transfusion of 4 units packed red blood cells and 4 units fresh frozen plasma conference post.

Two intraoperative episodes of hypotension and tachycardia were noted and managed with intravenous fluids, blood transfusion, and noradrenaline infusion.

Blood glucose levels were monitored hourly and insulin was administered as required. The duration of surgery was approximately 6 hours.

Postoperative Course

After completion of surgery, the patient was shifted to the intensive care unit under elective mechanical ventilation. The postoperative period was uneventful. The patient was hemodynamically stable and had a Glasgow Coma Scale score of 15.

Discussion

Parasagittal meningiomas are associated with significant intraoperative challenges due to their vascular nature and proximity to the superior sagittal sinus. Massive blood loss remains a major concern and requires adequate preparation with blood products and rapid transfusion strategies.

The primary anaesthetic goals include:

- Control of intracranial pressure
- Maintenance of cerebral perfusion pressure
- Prevention of hypoxia, hypercapnia, anemia, and hypotension
- Brain autoregulation must be preserved to ensure adequate cerebral blood flow. Intraoperative hemodynamic instability should be promptly managed to avoid secondary brain injury.
- Elderly patients pose additional challenges due to reduced physiological reserve and increased sensitivity to anaesthetic agents.

CONCLUSION

This case highlights the importance of meticulous perioperative planning, anticipation of massive blood loss, and maintenance of cerebral perfusion pressure in patients undergoing parasagittal meningioma excision. Prompt management of intraoperative complications and vigilant postoperative care contributed to a favourable outcome.

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