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Letter to Editor

Anesthetic Considerations in a Child with Moyamoya Disease Undergoing Diagnostic Laparoscopy and Bilateral Orchidopexy

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Moyamoya disease is a rare, progressive cerebrovascular disorder characterized by stenosis or occlusion of the intracranial internal carotid arteries with the development of fragile collateral vessels. The reported annual incidence in pediatric patients ranges from 0.3 to 2.3 per 100,000 in East Asian countries and approximately 0.1 per 100,000 in Western populations. Although the condition is associated with significant neurological morbidity (60–80%), mortality in children remains relatively low at around 2%. From an anesthetic perspective, these patients are particularly vulnerable to perioperative cerebral ischemia precipitated by hypotension, hypocapnia or hypercapnia, hypovolemia, and excessive sympathetic stimulation [1-2].

We report the anesthetic management of a 10-year-old male child with Moyamoya disease scheduled for diagnostic laparoscopy and bilateral orchidopexy under general anesthesia. The child weighed 23 kg and was a known case of Moyamoya disease. Magnetic resonance angiography of the brain demonstrated bilateral distal internal carotid artery stenosis with prominent basal collateral formation, following recurrent transient ischemic attacks lasting 5–10 minutes. He was receiving antiplatelet therapy with aspirin (75 mg once daily), which was continued perioperatively after multidisciplinary discussion. Preoperative neurological examination revealed no focal deficits.

General anesthesia was induced using fentanyl and propofol, followed by atracurium to facilitate endotracheal intubation. Care was taken to maintain hemodynamic stability during airway instrumentation. After tracheal intubation, dexmedetomidine infusion was commenced at 0.3 µg/kg/h and adjusted according to the patient's intraoperative hemodynamic profile..

Anesthesia was maintained with sevoflurane in an oxygen–air mixture. Controlled ventilation was adjusted to maintain end-tidal carbon dioxide between 35 and 40 mmHg. During pneumoperitoneum, intra-abdominal pressure was kept as low as feasible, and hemodynamics were closely monitored. Intravenous isotonic crystalloids were administered judiciously to maintain euvolemia [3–5].

The intraoperative course was uneventful. Emergence from anesthesia was smooth, with avoidance of coughing or straining. The child was extubated awake and monitored postoperatively, measures were taken to avoid agitation, coughing, and abrupt fluctuations in blood pressure during recovery. Postoperative observation revealed no neurological deterioration or new focal deficits.

This case illustrates the importance of individualized anesthetic management in pediatric patients with

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Moyamoya disease undergoing non-neurosurgical procedures. Careful maintenance of cerebral perfusion, stable hemodynamics, normocapnia, and adequate hydration may help reduce the likelihood of perioperative cerebral ischemic complications.

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