Anaesthetic issues related to incidental unruptured intracranial aneurysm

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Sir,
The fastest growing group of patients with aneurysms consist of those patients with previously ruptured and treated cerebral aneurysms. These patients are at high risk for harbouring unruptured asymptomatic intracranial aneurysms. Sixteen percent incidence of new aneurysm formation, both at the previous and a new site, was shown in 610 patients followed over 15 years after surgical clipping of a ruptured aneurysm.[1] This suggests that development of intracranial aneurysm is not a once in a lifetime event but rather a continuous process. Familiarity with the natural history and the risks associated with an intra cerebral aneurysm will help in management if such a patient turns up for an incidental surgery.

Presented here is the anaesthetic management of a patient posted for excision of osteomyelitic temporoparietal bone and wound debridement under general anaesthesia with an incidentally diagnosed aneurysm at the origin of right posterior inferior cerebellar artery.

A 65-year-old female, weighing 62 kg, reported to the outpatient department with a complaint of headache, occasional fever and pus discharge from the right side of skull for the last 2 years. She had undergone some neurosurgery about 4 years back but had no details of the procedure. Her physical examination was unremarkable and the routine haematological investigations were within normal limits. Her hypertension was controlled with amlodipine 5 mg daily. A plain X-ray of the skull showed evidence of

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Anaesthetic management of incidental surgery in a patient with unruptured intracranial aneurysm is a challenge for anaesthesiologist. Regardless of the surgical procedure, the main aim is to maintain stable transmural pressure in the aneurysm to prevent rupture that may be catastrophic.

Laryngoscopy and tracheal intubation produce haemodynamic changes that can increase transmural pressure of aneurysm predisposing to its rupture. Proper attention should be paid to other factors that may alter the blood pressure or intracranial pressure intraoperatively like adequate analgesia, sedation, muscle relaxation, oxygenation, volume status and avoidance of hypo or hypercarbia. During tracheal extubation and in the immediate postoperative period, all efforts should be made to avoid hypercarbia, hypertension, shivering, coughing and straining. Dangerous hypertension that can result from a preexisting hypertensive disease, pain, carbon-di-oxide retention, a blocked urinary catheter and emergence hypertension commonly seen in neurosurgical patients should be avoided.

A neurological examination in the immediate postoperative period is essential. Failure to regain consciousness or development of a new neurological deficit should lead to the suspicion of a rupture of aneurysm. Other causes of an altered sensorium like residual effects of anaesthetics, hypercarbia, hypoxia and hyponatremia should be excluded.

In this patient, an intraarterial catheter was inserted for optimum management of blood pressure fluctuations. The anaesthetic agents used proved to be adequate for this purpose. Proper control of blood pressure rather than use of any particular agent is important. Intravenous esmolol or labetalol are recommended for control of blood pressure in these situations. Multiple aneurysms may be present in approximately 15-20% of all aneurysm patients. Patients with a history of subarachnoid haemorrhage may be at risk for new aneurysm formation—both de novo (at a new site) and regrowth (adjacent to the clip or coil from previous treatment). In this patient, a 4 mm size new aneurysm was found in the right posterior inferior cerebellar artery after previous clipping of right middle cerebral artery aneurysm. It has been found that for an aneurysm less than 7 mm the risk of rupture is more (2.5%) if involving the posterior circulation than the anterior circulation (0%).

CT-angiography is a relatively non-invasive and widely available screening technique for these patients. A patient who has undergone clipping of an aneurysm shall be subjected to screening to evaluate the site of clipping and to rule out another aneurysm grown there or elsewhere.
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