tion of elderly ophthalmic patients who are on aspirin and have signs of ARM and clinical manifestations of bleeding tendency. The benefits of keeping these patients on aspirin will need careful consideration against the potential risks that include the possibility of losing the central vision. It is yet to be determined if any of the other anti-platelets will be a safer alternative.

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Pituitary apoplexy following bilateral total knee arthroplasty

Sir,
A 65-year-old female patient with American Society of Anaesthesiologists physical status 2 was admitted for bilateral total knee arthroplasty. She reported a ten year history of Type II diabetes mellitus adequately controlled with oral glipizide 5 mg/day and hypertension controlled by oral enalapril 2.5 mg/day, metoprolol 25 mg x 2/day. ECG showed incomplete right bundle branch block (RBBB) with T wave inversion in all chest leads. A multigated acquisition (MUGA) showed a normal left ventricular function. All routine laboratory investigations were within normal limits.

After a failed attempt at combined spinal epidural anaesthesia, general anaesthesia was induced with fentanyl 100 μg IV, sodium thiopentone 250 mg IV and vecuronium bromide 4 mg IV. Anaesthesia was maintained with isofluran in nitrous oxide, oxygen (66%, 33%), intravenous morphine. The blood sugar was 80 mg% preoperatively, 104 mg%, 182 mg% at 2 and 4 hours intraoperatively. Tourniquets were used on each limb in sequence resulting in minimal blood loss. Intraoperatively, except for a rise in blood pressure to 180/110 mmHg lasting for 5 minutes, which responded to intravenous morphine, hemodynamics were stable. No hypotension occurred with bone cement insertion or deflation of the tourniquets. Surgery lasted for 4 hours. Neuromuscular blockade was reversed with IV neostigmine and glycopyrrolate. The trachea was extubated when the patient was breathing spontaneously and responding to verbal commands. In the post-anaesthesia care unit (PACU) she remained stable and received IV boluses of fentanyl 20 μg each, (60 μg total) and intramuscular diclofenac sodium (75 mg) for analgesia. Twelve hours postoperatively subcutaneous low molecular weight heparin (LMWH, enoxaparin 20 mg) was administered for thromboprophylaxis.

The next day the patient complained of double vision, right ptosis and episodic emesis. Her blood pressure was 90/50 mmHg and central venous pressure was 15 cm H2O. Dopamine (5 μg/kg/min) infusion was started. On examination III, IV, and VI cranial nerve palsies and congestion of right fundus were present. Brain computerised tomographic scan the brain was suggestive of cavernous sinus thrombosis. Magnetic resonance imaging of revealed a large pituitary mass with haemorrhage diagnosed as pituitary apoplexy with parasellar extension with pontine haemorrhage. Intravenous mannitol and dexamethasone were administered. Her blood pressure stabilized and the dopamine was stopped.

On the 2nd postoperative day, the patient’s vision deteriorated to perception of light, subsequently she became disoriented and unconscious. The right pupil was fixed, dilated and the left was constricted. Laboratory investigation showed normal thyroid functions and follicular stimulating hormone levels. However, serum luteinising hormone was 2.61 mIU/ml (normal range 8-35 mIU/ml), indicating hypopituitarism in a postmenopausal woman. Transsphenoidal hypophysectomy was performed and the patient mechanically ventilated for a day. The histopathological analysis revealed a pituitary adenoma with haemorrhage and necrosis consistent with pituitary apoplexy. The patient was discharged 4 weeks post surgery on steroid replacement therapy. The right-sided ptosis persisted, the right pupil was larger (3 mm) than the left (2 mm), but both the pupils had normal reaction to light. Her vision improved to finger counting at a meter with spectacles and she had bitemporal field losses.

Pituitary apoplexy (PA) is an acute life-threatening haemorrhage or infarction in the pituitary gland, leading to damage to the gland, and surrounding sellar structures depending on the increase in the size of the tumour. The commonest abnormality noted is III and IV cranial nerve involvement with ophthalmoplegia, diplopia, ptosis and mydriasis due to compression of the cavernous sinus.[1] Our patient presented with similar symptoms progressing to loss of consciousness.
PA occurs most commonly in the presence of an undetected pituitary adenoma as seen in our patient.\textsuperscript{[1]} A review of literature revealed nine cases of PA in the perioperative period, eight in patients who underwent open-heart surgery and one in a patient post cholecystectomy.\textsuperscript{[2-4]} All these patients were asymptomatic for pituitary disease preoperatively.

Histologically, the tumour vessels have thicker walls than the sinusoids of the normal gland because of thickened basal membranes, loss of fenestrations and swelling of endothelial cells. These features are exaggerated in atherosclerotic diabetic, hypertensive patients. Closure of these altered blood vessels by thromboemboli, hypotension or increased intracranial pressure can lead to ischaemia and necrosis of the tumour.\textsuperscript{[1]} The stable intraoperative haemodynamics in our patient are unlikely to have precipitated PA unlike in the cholecystectomy patient who had significant hypotension.

Similar to cardiac surgery with cardiopulmonary bypass (CPB), total knee arthroplasty is associated with particulate microemboli (fat, air, marrow or cement) which enter the cerebral circulation upon tourniquet deflation.\textsuperscript{[5]} This could have contributed though would not have been the primary cause of PA in our patient as she was conscious and neurologically intact in the PACU.

A major cause of haemorrhage into the pituitary gland causing PA is systemic heparinization as seen in patients undergoing CPB.\textsuperscript{[2,3]} The time course of events implicates LMWH as the main cause leading to the apoplexy in our patient as well. The patient became symptomatic 12 hours following its administration.

Other causes of PA include pituitary irradiation, mechanical ventilation, trauma and upper respiratory tract infection.\textsuperscript{[1,5]} In PA, anterior pituitary insufficiency should be suspected and treated with dexamethasone 2 mg every 6 hours. Most patients recover spontaneously but in patients with progressive neurological or visual deterioration prompt neurosurgical intervention can be vision and life-saving.

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Laparoscopic choledochoduodenostomy for retained bile duct stone

Sir,

A 68-year-old woman who had undergone laparoscopic cholecystectomy (LC) at another institution 30 months ago presented with right upper quadrant pain. Liver function tests and bile duct diameter prior to this surgery were normal. A year after the LC she was found to have bile duct stones for which two ERCPs and stone extractions were performed and a biliary stent inserted. During the present admission, haematological and biochemical investigations were normal except raised liver enzymes (AST, ALT and alkaline phosphatase). Ultrasonography revealed a bile duct dilated to 18-mm with a 10-mm stone and the stent within; magnetic resonance cholangiopancreatography confirmed the findings [Figure 1].

Laparoscopic surgery was performed using two 10-mm and one 5-mm port. After freeing the undersurface of the liver adherent to the porta hepatis, a table-mounted retractor system was set up to retract the liver. The bile duct was identified and exposed. The duodenum was Kocherised widely. A 2.5 cm anterior supraduodenal choledochotomy was made and a choledochoscope was introduced. The single bile duct stone was extracted using a Dormia basket. A 2.5 cm incision was