PA occurs most commonly in the presence of an undetected pituitary adenoma as seen in our patient.[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.[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.[4] 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.[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.[5,7] 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.[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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References

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
made at the junction of the first and second parts of the duo- 
denum and a side-to-side, single-layered choledochodu-
dodenostomy (LCD) was fashioned using interrupted 4/0 
polyglycolic acid sutures. The biliary stent present was left 
undisturbed and a suction drain placed in the subhepatic re-
region. She had an uneventful recovery and was discharged on 
the 5th postoperative day. The stent was removed at 6 weeks, 
and she remains asymptomatic a year later.

The standard treatment for stones retained in the bile ducts 
following LC involves ERCP, endoscopic sphincterotomy and 
stone extraction; the success rate of this procedure approaches 
100% in experienced hands. In patients in whom ERCP fails, 
an open operation in the form of a bile duct exploration may 
be required. In view of the failure of two previous ERCP pro-
cedures to clear the bile duct our patient was offered laparoscopic therapy. The presence of a dilated bile duct 
prompted us to consider a biliointestinal anastomosis rather than 
a mere choledocholithotomy.

In recent years, laparoscopic surgery is being increasingly uti-
.lised in the management of bile duct calculi as a primary 
therapy or when ERCP is unsuccessful. However, the use of 
LCD is limited. LCD was first reported by Rhodes and 
Nathanson[1] in two patients with recurrent bile duct stones 
developing several years after cholecystectomy which could not 
be extracted by ERCP. Tinoco et al in 1999 described the use 
of LCD in 19 patients with choledocholithiasis and in 6 pa-
tients to relieve obstructive jaundice resulting from 
unresectable pancreatic neoplasms.[2] It is debatable whether 
the latter forms an appropriate indication for LCD. Jeyapalan 
et al reviewed their experience of 16 LCDs over 11 years[3] and 
found it to be a safe and effective procedure for treating pa-
tients with benign bile duct obstruction from stone disease. 
More recently, Tang et al used LCD as an effective drainage 
procedure in 12 patients with recurrent pyogenic cholangitis.[4]

Some technical aspects of LCD merit highlighting. Like its 
open counterpart, the performance of LCD mandates that the 
bile duct be dilated to at least 1.5 cm. The anastomosis can 
either be end-to-side or side-to-side; the latter approach is sim-
pler as it does not require extensive circumferential dissection 
of the bile duct. Wide mobilisation of the duodenum ensures 
a tension-free anastomosis. A stoma of > 2 cm reduces the 
chances of anastomotic stenosis in the long term. Exterioriza-
tion of the first posterior suture placed at the cephalad corner 
and elevation of the anastomosis facilitates placement of sub-
sequent sutures. Postoperative biliary decompression is seldom 
required. However, if a biliary stent is in place, as was in our 
patient, it should be left in situ and removed subsequently.

In conclusion, LCD appears to be a safe and effective option 
in patients with stones in a dilated bile duct when endoscopic 
clearance has failed. The role of LCD for other indications 
may become clearer as and when data from larger prospective 
series is published.

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