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A middle-aged man who complained of abdominal pain and bloat for 3 days after a combined laparoscopic cholecystectomy and umbilical hernia repair develops a fistula through the umbilical wound. How should care proceed? Vivian McAlister of Halifax, Nova Scotia replies.

Abdominal fluid collections after cholecystectomy are more common than previously thought; up to 80 per cent of bile fistulas are relatively symptomless. Several features in a large series reported by Lee *et al.*¹ raise concerns. The vast majority of collections went undrained and 21 per cent of those patients developed serious complications. Early clinical signs did not distinguish patients who became critically ill from those who did not and a poor outcome was associated with delayed drainage. Therefore a high degree of suspicion is required. Any patient who fails to recover from the usual low-grade postcholecystectomy discomfort after 3 days should be advised to return for examination and this should include ultrasonography. A small quantity of fluid is common at the surgical site, but larger collections should be drained. Drainage is most commonly achieved using the ultrasonographically guided percutaneous approach with a fine trocar and catheter, but return to the operating room for repeat laparoscopy should be considered. In a patient who is critically sick, emergency room placement of a catheter into the abdomen via the epigastric port site may allow a quick diagnosis and a surprisingly swift recovery if the offending fluid is bile.

In the clinical dilemma posed here, diagnosis has been hastened by the development of a fistula. Two questions should be answered: what is the nature of the fluid and do predisposing factors for ascites exist? Postcholecystectomy abdominal fluid may be blood, intestinal content, bile, ascites or combinations of these. Intestinal injury may be difficult to diagnose. It may be associated with persistent postoperative free air and bubbling at the fistula, or signs may be limited to a high white cell count in the fluid that may grow multiple organisms in culture. Duodenal injuries leak clear bile that can be distinguished from a biliary injury by the presence of a very large amount of amylase in the fluid.

In the jaundiced patient, ascitic fluid will look bilious. A simple bedside test is to compare the abdominal fluid with the urine; if they are equally dark, the fluid is ascites. This may be confirmed by laboratory estimation of the bilirubin content of the fluid and the serum. If the abdominal collection contains bile, a well placed drain should be left *in situ* for a few days. Many biliary leaks seal spontaneously,

signalled by diminution of the effluent without recurrence of the intra-abdominal collection. No further therapy is required if the liver enzyme concentrations return to normal. Persistent leaks should be investigated by endoscopic cholangiography. The commonest site of leakage in the biliary tree with a normal contour is the cystic stump. Decompression of the bile duct by stent, nasobiliary tube or sphincterotomy usually permits resolution. A persistent biliary fistula without evident leakage in a normal looking cholangiogram may signify a severed right inferior hepatic duct. This may be verified with a sinogram, performed by instilling water-soluble contrast agent into the drainage catheter. Careful planning for repair of this and other major bile duct injuries is required so that the first operation is definitive; the level of injury is usually raised in those whose first repair fails.

Ascites is the commonest morbidity for patients with cirrhosis undergoing abdominal operations. It may be resistant to treatment and can precipitate liver failure. A tip off to the diagnosis of cirrhosis in the male patient presented in this Dilemma could be the presence of an umbilical hernia. In the non-cirrhotic adult population, umbilical hernia is more common in women. In men, the presence of an umbilical hernia often precedes the diagnosis of liver disease, and hernia repair, before treatment of the liver, usually fails. A history of risk factors for liver disease, preoperative laboratory data (low albumin, low platelet count), splenomegaly on ultrasonography or a cirrhotic appearance of the liver at laparoscopy will help confirm the suspicion. Although rarely followed, it is good practice to include a description of the liver in the operative note of all laparoscopies and of its texture at all laparotomies. The majority of cirrhotic patients are undiagnosed at the time of cholecystectomy. The liver transplantation team should be consulted before elective cholecystectomy in patients with known cirrhosis, to determine the impact of surgery on future care. Patients with Child class A and B disease tolerate laparoscopic cholecystectomy better than open surgery, but patients in class C do very poorly with either approach. Care must be taken in those with portal hypertension as the caput medusae is most prominent in the extraperitoneal space around the umbilicus. Recanalization of the left umbilical vein, easily visible with ultrasonography, is a marker of these troublesome veins. The open approach for the placement of the umbilical laparoscopic port should be employed.

Ascites induced by cholecystectomy in patients with cirrhosis should be treated with a combination of potas-

sium-sparing and thiazide diuretics. Large-volume paracentesis with albumin transfusion may be required to initiate control that can be maintained with the diuretics. In the patient with an ascitic fistula, diversion of the leak to a percutaneous drainage catheter at a fresh site will promote wound healing. Contamination of the ascites, with worsening of the patient's condition and possible exclusion from transplantation, is a risk of open drainage by fistula or tube. Care must be taken to avoid prerenal renal failure, especially in those with evidence of hepatorenal dysfunction. Resistant ascites will respond to the placement of a transjugular intrahepatic portosystemic shunt, but deterioration in liver function may also occur.

Consultation with the liver transplantation team is, again, appropriate.

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References

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