

## Soft-tissue case 45. Diagnosis

### Bile peritonitis secondary to transection of the right hepatic duct

The computed tomography images (Figs. 1 and 2) display collections of perihepatic fluid and intraperitoneal fluid (stars). A subtle but important finding seen on both images is high attenuation of the peritoneum (Fig. 2, white arrow) suggesting peritoneal inflammation. When these findings are considered together with the bilious drainage from the wound, the most likely reason for the patient's symptoms is bile leakage with resultant peritonitis. Peritonitis is seen on enhanced computed tomography images as hyperattenuation of the peritoneal lining from increased vascular permeability of the inflamed peritoneum.<sup>1</sup> The exact etiology of bile peritonitis is unknown. One hypothesis is that bile salts act as noxious agents on the peritoneal membrane, increasing its permeability and resulting in exudation of intravascular fluid into the abdomen.<sup>2</sup> Another possible cause is overgrowth of bacteria originating from the bile.

Computed tomography has been found to be more sensitive for the initial diagnosis of bile leak than ultrasonography and hydroxyiminodiacetic

acid (HIDA) scanning.<sup>3</sup> Endoscopic retrograde cholangio-pancreatography (ERCP) is often performed subsequently for further delineation of the leak. This technique allows excellent visualization of the biliary anatomy with concurrent treatment potential. An image obtained during subsequent ERCP in this case localized the bile leak to the right hepatic duct (Fig. 3, arrow). The leak was managed by placing a stent within the distal right hepatic duct.

Although hemorrhage is the most serious and life-threatening consequence of traumatic liver injury, long-term complications are often related to biliary tract problems. Clinical presentation of bile peritonitis with guarding and rebound is quite uncommon, with most patients presenting with mild symptoms initially.<sup>3</sup> The longer bile collections are left unrecognized and uncorrected, the greater is the incidence of severe, life-threatening illness. Timely computed tomography with careful attention to fluid collections and signs of peritonitis is very useful in establishing this diagnosis.

### References

1. Ghahremani GG, Gore RM. CT diagnosis of postoperative abdominal complications.

2. Ackerman NB, Sillin LF, Suresh K. Consequences of intraperitoneal bile: bile ascites versus bile peritonitis. *Am J Surg* 1985;149:244-6.
3. Lee CM, Stewart L, Way LW. Postcholecystectomy abdominal bile collections. *Arch Surg* 2000;135:538-42.



FIG. 3. Endoscopic retrograde cholangiopancreatography demonstrates extravasation of contrast medium from the transected right hepatic duct (arrow) A Jackson-Pratt drain is also seen.

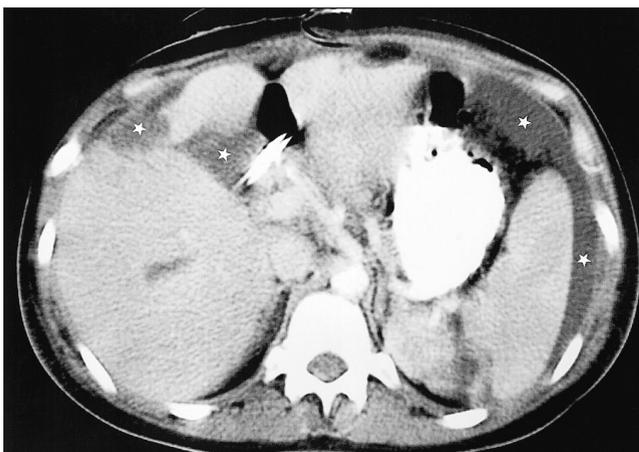


FIG. 1.

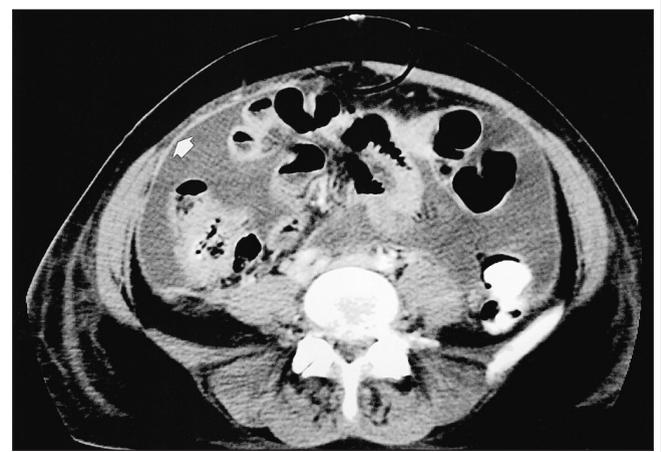


FIG. 2.