

Soft-tissue case 48. Diagnosis

Gallstone abscess

The differential diagnosis of soft-tissue masses includes neoplasms, infections and trauma. Any of the local tissues in this case could give rise to neoplasia, so the possibilities include osteoma, rhabdomyoma and neuroma as well as the corresponding sarcomas. Infection can arise locally or extend from other body cavities. A traumatic cause could lead to a hernia or a fluid collection such as a hematoma or a seroma.

The computed tomographic scan shows loss of the normal planes in the right flank. There is also swelling and edema of the muscles and other soft

tissues in this area. The unusual finding of the 3 intraperitoneal calcified gallstones (Fig. 1, arrow) confirms the diagnosis of spilled gallstones causing an intraperitoneal abscess, with extension into the right flank.

The standard treatment for an abscess is incision and adequate drainage. Recently, percutaneous drainage of intra-abdominal abscesses has become the treatment of choice. In the presence of an infected foreign body (gallstones), simple percutaneous drainage has a very high failure rate, with abscesses recurring when the drain is withdrawn, unless all the gallstones are removed. Therefore, the best treatment is open exploration to remove the stones and

adequate drainage of the abscess supplemented by antibiotics.

Laparoscopic cholecystectomy has become the treatment of choice for symptomatic gallstones. Iatrogenic perforation of the gallbladder is more common in laparoscopic procedures than in open procedures, with perforation rates ranging from 6% to 36%.¹⁻³ Gallstone spillage is less common, with rates of 3% to 6%.¹⁻³ Risk factors that increase the incidence of perforation include male sex, increasing age, obesity, adhesions and possibly acute cholecystitis.^{2,3}

It was initially thought that intraperitoneal spilled gallstones were completely benign. This was confirmed by a simple poll of surgeons who were asked what they thought happened to gallstones.⁴ The responses ranged from "becoming walled off" to "just floating around." The consensus, however, was that they do not cause problems. As reports of complications from stones were published, it became apparent that spilled intraperitoneal gallstones are not benign. There are now hundreds of case reports in the literature of numerous types of complications. Spilled gallstones can present with intra-abdominal complications but can also present with remote complications such as empyema and cholelithoptysis.³

Numerous studies have tried to identify risk factors to predict which stones will cause complications. These studies suggest that pigment stones are more likely to cause problems than cholesterol stones, especially if they are infected at the time of spillage.^{5,6} Nevertheless, it should be noted that any type of gallstone may cause problems, and even



FIG. 1.

spillage of a single stone may lead to complications.

At present, there is no consensus on the need to convert from laparoscopic cholecystectomy to an open procedure for stone removal. Some suggest that the procedure should be converted if it is not possible to retrieve the majority of stones, especially if bacteriobilia is present.¹ The majority believe that conversion to an open procedure is unnecessary as long as the majority of stones are removed and the abdomen is irrigated to dilute any residual bacterial contamination. The general consensus is, however, that an aggressive effort at stone removal should be made.

Postoperatively, spilled stones can present from days to years after the cholecystectomy. This patient presented almost 1 year from the time of surgery. The diagnosis can be difficult, and often these patients are

referred because of pain or a mass suggestive of other conditions.

The management of an intra-abdominal abscess has usually consisted of antibiotics and adequate drainage. Recently, percutaneous drainage has been successful in the treatment of intra-abdominal abscess. In the presence of gallstones, simple percutaneous drainage often fails, and an open procedure with stone removal is necessary for a successful outcome.³

References

1. Rice CD, Memon M, Jamison RL, Agness T, Ilstrup D, Bannon MB, et al. Long-term consequences of intraoperative spillage and gallstones during laparoscopic cholecystectomy. *J Gastrointest Surg* 1997;1:85-91.
2. Schafer M, Suter C, Klaiber C, Wehrli H, Frei E, Krahenbuhl L. Spilled gallstones after laparoscopic cholecystectomy. A relevant problem? A retrospective analysis of 10,174 laparoscopic cholecystectomies [see comment]. *Surg Endosc* 1998;12(4):305-9. Comment in *Surg Endosc* 1998;12(4):291-3.
3. Memon MA, Deeik RK, Maffi TR, Fitzgibbons RJ Jr. The outcome of unretrieved gallstones in the peritoneal cavity during laparoscopic cholecystectomy. A prospective analysis [review]. *Surg Endosc* 1999;13(9):848-57.
4. Leland DG, Dawson DL. Adhesions and experimental intraperitoneal gallstones. *Contemp Surg* 1993;42:273-6.
5. Hornof R, Pernegger C, Wenzl S, Bittermann G, Brinninger G, Tessadri R, et al. Intraperitoneal cholelithiasis after laparoscopic cholecystectomy — behavior of 'lost' concretions and their role in abscess formation. *Eur Surg Res* 1996;28(3):179-89.
6. Gurleyik E, Gurleyik G, Yucel O, Unalmiser S. Does chemical composition have an influence on the fate of intraperitoneal gallstone in rat? *Surg Laparosc Endosc* 1998;8(2):113-6.

CLINICAL PRACTICE GUIDELINES

FOR THE CARE AND TREATMENT OF

BREAST CANCER



Update

In February 1998 *CMAJ* and Health Canada published 10 clinical practice guidelines for the care and treatment of breast cancer, along with a lay version designed to help patients understand more about this disease and the recommended treatments. These guidelines are currently being revised and updated, and the series is being extended to cover new topics. The complete text of the new and updated guidelines is available at *eCMAJ*:

www.cmaj.ca (Publications, Breast Cancer Guidelines)

REVISED:

- Guideline 5: The management of ductal carcinoma in situ (DCIS) [Oct. 2, 2001]
- Guideline 7: Adjuvant systemic therapy for women with node-negative breast cancer [Jan. 23, 2001]
- Guideline 8: Adjuvant systemic therapy for women with node-positive breast cancer [Mar. 6, 2001]
- Guideline 10: The management of chronic pain in patients with breast cancer [Oct. 30, 2001]

NEW:

- Guideline 11: Lymphedema [Jan. 23, 2001]
- Guideline 12: Chemoprevention of breast cancer [June 12, 2001]
- Guideline 13: Sentinel lymph node biopsy [July 24, 2001]
- Guideline 14: The role of hormone replacement therapy in women with a previous diagnosis of breast cancer [Apr. 16, 2002]