EDITORIAL

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Acute Cholecystitis Revisited

Get It While It's Hot

Ten years ago (almost exactly), laparoscopic cholecystectomy altered general surgery dramatically and forever. The operating room lights were turned out. Five years of surgical residency spent learning the techniques of biliary tract surgery were replaced with 2-day "retooling" courses. The term "learning curve" was born. Community surgeons were the innovators and educators, usurping the traditional role of university professors. Bile duct reconstruction was relearned at university hospitals. The threshold of the physician to recommend cholecystectomy and the patient to accept the operation was lowered, and 20% more gallbladders were removed. Management of bile duct stones—suspected or detected—was left to gastroenterologists.

All these changes occurred without a single prospective randomized trial because the benefits of laparoscopic cholecystectomy to the patients could not be disputed. Laparoscopic cholecystectomy was day surgery pain, was minimal, scars were hard to detect, and return to work was almost immediate. After the tidal wave of enthusiasm had receded, old controversies reemerged like islands after the flood, stripped of vegetation and primed for new growth. Surprisingly, it has taken 10 years for many of these islands to be revisited, with prospective randomized trials, involving the new surgery — laparoscopic cholecystectomy.

The debate over operative cholangiography with laparoscopic cholecystectomy has largely been settled by several studies. A policy of liberal selective cholangiography seems most cost-effective.[1] The most contentious and unresolved issue is what the appropriate management of bile duct stones should be. When should the bile duct be imaged preoperatively or intraoperatively? How should bile duct stones be managed—when they are causing symptoms or when asymptomatic? What should the surgeon's role be in the management of stones? Is there still a role for open common bile duct exploration? Lacking firm answers to these questions, consensus panels have couched recommendations in vague terms such as "suspicion of bile duct stones" and "decisions will be determined by local expertise." Prospective randomized trials to answer these questions will need to be designed extremely carefully, and they will be difficult to perform. When bile duct stones are present in the setting of acute pancreatitis or acute cholangitis, we must understand the important role of endoscopic retrograde cholangiography (ERC) and endoscopic sphincterotomy (ES) in large part because of two prospective randomized trials from surgeons at the University of Hong Kong.[2,3]

In this issue of *Annals of Surgery* (Prospective Randomized Study of Early Versus Delayed Laparoscopic Cholecystectomy for Acute Cholecystitis), the same group of surgeons attempt to determine the optimal timing of laparoscopic cholecystectomy for acute cholecystitis. In patients with acute cholecystitis, should one operate immediately or should one let them "cool off" and delay surgery for 8 weeks? The answer from this trial is clear: *Get it while it's hot.* Laparoscopic cholecystectomy is more likely to be successful and complication free if it is performed within 72 hours of presentation. Not surprisingly, similar findings guided surgeons toward early surgery for acute cholecystitis before the laparoscopic era. A "tough" gallbladder is a "tough" gallbladder, whether one uses a Kocher's incision, a right angle clamp, and 2-0 silk or uses four trocars, a monopolar hook, and titanium clips. The acute inflammation associated with acute cholecystitis creates an edematous plane in the submucosa of the gallbladder, which facilitates its dissection from the liver bed. The edema may spread into the triangle of Calot or it may stop at the fundus of the gallbladder, leaving Calot's triangle reasonably free of inflammation. When acute inflammation matures to chronic inflammation, neovascularity, fibrosis, and contraction make laparoscopic cholecystectomy substantially more difficult and potentially more dangerous.

The disadvantages of early laparoscopic cholecystectomy in acute cholecystitis are the more frequent need for gallbladder decompression, incision lengthening, specimen sacs, and a minimally prolonged operative time. Not to be underestimated is the nuisance factor of adding a difficult laparoscopic cholecystectomy at the end of a full operative schedule. In the United States, these unscheduled operations usually occur in the late afternoon or early evening. Surgeons involved in the Hong Kong study privately confessed that most urgent laparoscopic cholecystectomies were done in the early hours of the morning, after all other operations had been completed. This fact by itself might explain the slightly longer operative time seen in patients operated on urgently. Even if the nurses were fresh, there is no doubt the surgeons were tired. It is commendable that the morbidity rate was no greater than 12% for these patients.

Dr. Lo and associates point out that, despite an attempt to recognize *a priori* those likely to fail conservative treat-

ment, 20% of the patients in the delayed cholecystectomy group required urgent operations, and 18% required readmission for symptom control. It is hard—at presentation—to predict which patients will resolve their acute episode of cholecystitis without gallbladder gangrene, sepsis, fever, or pain that is unremitting or recurrent. In addition, it *appears* that morbidity may be greater if laparoscopic cholecystectomy is delayed 8 to 12 weeks. But, one must be cautious about accepting this conclusion because the difference in complication rates between groups was not statistically significant. Additionally, it *appears* that conversion rates were greater when patients underwent delayed interval laparoscopic cholecystectomy, but this difference also was statistically insignificant. Even if the "trend" toward a greater conversion rate in delayed laparoscopic cholecystectomy became statistically significant, one must recognize that the decision to convert to open cholecystectomy is made by the surgical investigator. A surgeon biased in favor of early laparoscopic cholecystectomy for acute cholecystitis may unwittingly influence outcomes under surgeon control, such as the decision to convert to open cholecystectomy and the duration of the hospital stay. A previously published nonrandomized trial from this group indicates a preference for early cholecystectomy in acute cholecystitis.[4] Quibbles notwithstanding, what is clear from this study is that urgent laparoscopic cholecystectomy in acute cholecystitis is *not* associated with greater complication rates or a greater conversion rate than delayed interval laparoscopic cholecystectomy.

In the study by Lo and associates, the advantages of laparoscopic cholecystectomy (e.g., short hospitalization, rapid recuperation, etc.) were not realized regardless of whether the operation was performed urgently or in a delayed fashion. This observation begs the heretical question, would the study be even more interesting if a control group of patients undergoing open cholecystectomy had been added? Although the recuperative time in this control group would probably be longer, the technical complications of surgery might conceivably be less. Clearly, when the benefits of laparoscopic access are diminished by the severity of the inflammatory condition, the performance of randomized controlled trials that compare laparoscopic and open surgery may be justified. One must not assume superiority of laparoscopic cholecystectomy in all circumstances without collecting the data.

Laparoscopic surgery has changed most of the rules, but not all of them. The management of severe acute or chronic inflammatory conditions of the abdominal viscera represents a challenge to laparoscopic access. It is hard to chip a "rock" off the undersurface of the liver with jeweler's instruments. As a general rule, with patients who have acute cholecystitis, perform laparoscopic cholecystectomy as soon as convenient, within in the first 72 hours. There is no benefit to attempting to "cool off" the gallbladder before proceeding to the operating room. Laparoscope or no laparoscope, the message remains the same: for acute cholecystitis, get it while it's hot.

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