Surg Endosc (1995) 9: 424–425

Surgical Endoscopy

Outpatient laparoscopic appendectomy

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Received: 3 June 1994/Accepted: 14 October 1994

Abstract. Laparoscopy has allowed surgeons the ability to perform procedures which result in less postoperative discomfort, earlier return to daily activities, and better cosmesis. For example, laparoscopic cholecystectomy has virtually replaced open cholecystectomy, and many of these operations are performed in the outpatient setting. The role of laparoscopic appendectomy is yet to be defined, however. Over an 18-month period from February 1992 to July 1993, 75 laparoscopic appendectomies were performed at Kaiser Permanente Medical Center in Los Angeles. Thirty-five of the patients undergoing this procedure were outpatients. While there were a total of three complications, including two intraabdominal abscesses, there were no complications in the outpatient appendectomy group. Laparoscopic appendectomy may be safely performed in the outpatient setting in patients with acute nonperforated appendicitis.

Key words: Laparoscopic appendectomy — Outpatient care

Modern operative surgery is moving toward minimally invasive techniques. The literature is flooded with descriptions of new instruments and with studies assessing the efficacy, safety, comparative costs, cosmesis, and risks of these new techniques in performing well-established operations.

After performing almost 1,000 laparoscopic cholecystectomies on an outpatient basis with very few complications, we studied the feasibility of outpatient appendectomy in selected cases.

Patients and materials

The records of all patients undergoing appendectomy from February 1992 to July 1993 were retrospectively reviewed. There were 110 appendectomies during this time, of which 75 were laparoscopic procedures. Nine (12%) were converted from laparoscopic to open. The patients were not randomized and the decision to perform open or laparoscopic appendectomy was at the discretion of the surgeon. The decision was dependent upon many factors, including the availability of functioning equipment and an experienced laparoscopic nursing and surgical team. All patients were seen postoperatively in the office for at least one visit and follow-up was 100%.

Procedure

All patients were given one dose of preoperative antibiotics. The patient is placed in the supine position and Foley catheter, nasogastric tube, and sequential compression stockings were used. The monitor is placed at the foot of the bed with the surgeon on the patient's left-hand side and the first assistant on the right. A Veress needle is introduced into the abdominal cavity at the umbilicus and insufflation with carbon dioxide is performed to a pressure of 15 mmHg. A 10-mm trocar is then placed at this incision and two more trocars are placed under direct visualization, one 10 mm in the right upper quadrant and a 12 mm in the left lower quadrant. Exploration is performed with the laparoscope. The mesoappendix and the base of the appendix are then dissected from the cecum. Once both of these structures have been identified, endoscopic GIA devices are fired across them. The appendix is then placed in a sterile endoscopic bag for retrieval. Irrigation of the abdomen is performed followed by release of the pneumoperitoneum. The skin incisions are irrigated and then closed with a subcuticular stitch.

Results

Findings at laparoscopy

Fifty-three of the total 75 (71%) laparoscopic appendectomy patients had acute suppurative appendicitis, 14 (19%) had perforated appendicitis, and 8 (10%) had normal appendices.

Operative time

Laparoscopic appendectomies were performed in an average of 58 min (range 30–105 min), while open appendectomies took an average of 68 min (range 35–100 min). The higher operative time required for open procedures, in our opinion, was more a consequence of resident training than an inherent advantage to the laparoscopic technique. Our hospital is a teaching institution and almost all open appendectomies are performed by junior-level residents, including interns.

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Hospital stay

Thirty-five of the total 75 patients (46%) in the laparoscopic appendectomy group were discharged from the hospital on an "outpatient" basis, i.e., within 12 h of the surgery. Twenty-seven of these 35 patients had nonperforated appendicitis and the rest had normal appendices. None of the patients with perforated appendicitis were treated on an outpatient basis, while all patients with normal appendices left the hospital in less than 12 h. The remaining 40 laparoscopic patients (54%) were discharged home at varying intervals after the operation. On average, patients in the entire laparoscopic appendectomy group left the hospital 28 h after the operation if they had nonperforated appendicitis and 129 h (5.4 days) if they had a perforation. Average discharge time in the open appendectomy group was 41 h for nonperforated appendicitis patients and 156 h (6.5 days) for the perforated ones.

Complications

There were no complications or readmissions in the outpatient laparoscopic appendectomy group (n = 35). There were a total of three complications in the laparoscopic group as a whole, which included a wound infection in one patient and intraabdominal abscess in two patients. One abscess was treated by percutaneous drainage and the other abscess required celiotomy. There were no deaths or readmissions in the laparoscopic appendectomy group as a whole. All complications occurred within the first 3 months of the series.

Discussion

Laparoscopic appendectomy was first described by Semm [8] and was initially limited to incidental appendectomy performed at the time of gynecologic laparoscopy. It has grown in popularity only in recent years, especially after the tremendous success of laparoscopic cholecystectomy. Although laparoscopic appendectomy was reported 4 years before laparoscopic cholecystectomy, it has not had such a meteoric rise. Many explanations have been given for the lack of enthusiasm for laparoscopic appendectomy. One obvious reason is that most surgeons can perform an appendectomy through a small incision with minimal complications and a short hospital stay. Another criticism of laparoscopic appendectomy is that it takes longer to perform than the open procedure [2].

Since its advent in Germany, many large series have been published in recent years which have demonstrated the safety and efficacy of laparoscopic appendectomy [4–6]. Many of these studies have demonstrated shortened hospital stay, reduced postoperative pain, and rapid recovery of normal activities following laparoscopic appendectomy [1, 3]. Of note is the fact that although patients undergoing laparoscopic cholecystectomy are discharged home the same day at many centers across the country, this has not been the case for laparoscopic appendectomy. Many series have reported an average postoperative hospital stay of 2.5 days with a range of 1–5 days [7]. Part of the explanation lies in the fact that laparoscopic appendectomy is almost always performed on an emergency basis while laparoscopic cholecystectomy is almost always performed on an elective basis. Also, at the time of operation patients undergoing appendectomy have a significantly higher incidence of intraabdominal infection and peritonitis than patients undergoing cholecystectomy, with potential postoperative ileus. Physicians thus are probably not inclined to be especially aggressive in this patient population postoperatively. In our opinion, this reported average represents an unnecessarily long stay for most patients with uncomplicated laparoscopic appendectomies, especially patients with nonperforated and normal appendices. Approximately 46% of the patients in the laparoscopic appendectomy group were able to be discharged on an outpatient basis, i.e., in less than 12 h after the surgery. There were no complications or readmissions in this group of patients. Patients were discharged after they were able to tolerate a clear liquid diet and were afebrile.

Patients who were found to have normal appendices on laparoscopy underwent incidental appendectomy without any intraoperative or postoperative complications. All of these patients were discharged on an outpatient basis. As demonstrated by this series, patients with borderline symptoms can undergo a diagnostic laparoscopy and in the absence of appendiceal pathology, an incidental appendectomy can be safely performed.

Also of significance was the fact that only half as many patients (40%) required intramuscular pain medication in the laparoscopic appendectomy group as compared to the open group (85%).

Laparoscopic appendectomy may be performed safely on an outpatient basis in selected patients with acute nonperforated appendicitis. This reduction in hospital stay compared to that for the open procedure should result in significant cost savings and higher acceptance for this procedure.

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