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Missed Pathology in Laparoscopic Cholecystectomy

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Abstract: The wide acceptance of Laparoscopic Cholecystectomy (LC) has result in increasing the rate of LC bears the possibility of concomitantly missing intraabdominal pathology. The prospective follow up of 1852 patients who underwent LC was studied and all patients treated and readmitted for intraabdominal malignancy included. Over the ten years, 1852 patients with symptomatic cholecystitis operated using LC. Six patients required readmission for missed pathology of another organ (three for Colonic cancer, one Appendix tumor, one Gastric carcinoma and one Pancreatic cancer). This indicates a risk of more missed pathology during the course of laparoscopic operation compared to standard laparotomy. Although, the incidence of missed malignant pathology has a very low doesn't justify routine screening for cancer (colon cancer) before LC in terms of cost-effectiveness, the risk of missing pathologies during laparoscopic procedures has to be minimized by placing additional emphasis on careful evaluation of pain and associated symptoms before performing LC.

Key words: Laparoscopic cholecystectomy, missed pathology, laparotomy, cancer

INTRODUCTION

The performance of a general exploratory laparotomy immediately after opening the abdominal cavity has been a foundation of surgical practice. Since the introduction of laparoscopy, this procedure has been modified. This may result in certain intr-abdominal pathologies being overlooked, especially in area that are hard to observe with the laparoscope. This raises questions about the extent of preoperative investigation before the performance of laparoscopy.

Laparoscopic cholecystectomy is now the choice for therapy of gallstone disease. The benefits of LC have led to the wide acceptance and popularity of this procedure (Soper *et al*., 1992). The demand for the procedure is becoming increasingly frequent, both from patients and from physicians aware of its benefits. In this way, the rate of LC dramatically increased in last decade (Macintyre and Wilson, 1993). In open cholecystectomy, after opening the abdominal cavity the whole abdomen should be explored, descriptions of how to perform this in a systematic way are contained in surgical text books (Slim *et al*., 1996).

Since, the introduction of laparoscopic cholecystectomy, many practices surrounding traditional cholecystectomy have changed. Laparoscopic surgery allows inspection of many areas of the peritoneal cavity, but some areas are inaccessible without further dissection. Full assessment of intraabdominal contents is not possible in using laparoscopy, particularly assessment of retroperitoneum is impossible and pancreatic pathology may be missed.

We describe cases that underwent routine laparoscopic cholecystectomy, but overlooked intra-abdominal pathology not suspected during procedures. In this study, we described 6 patients who presented with malignancy short time after uneventful laparoscopic procedure.

MATERIALS AND METHODS

The clinical prospective follow up of 1852 patients operated on laparoscopically for gallstone disease at our unit from July 1996 to January 2005, converted operation were excluded from the follow up study.

Patient 1: A 80 years old woman presented with right upper quadrant pain, nausea, fever, constipation suggestive of acute on chronic cholecystitis. Abdominal sonography revealed multiple gallstone and increased thickness of gallbladder wall, common bile duct was normal diameter and liver, pancreas, kidneys were normal. LC was performed no other pathology was seen. The patient made uneventful recovery and was discharged in third day of operation. After surgery, the symptoms progressed and nausea, abdominal distention prolonged, further investigation showed partial small intestinal obstruction, after 30 days of laparoscopy, barium enema radiography revealed distortion of cecum with tumor, laparotomy demonstrated the obstruction and a mass in cecum and right hemicolectomy was carried out. Histopathological examination confirmed a differentiated adenocarcinoma.

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Patient 2: A 58 years old woman was admitted eleven months after LC with sever abdominal pain and history of constipation. In CT scan of abdomen tumor of transverse of colon and multiple hepatic metastasis were recognized, laparotomy showed that tumor was resectable.

Extended right colectomy was performed, histopathologic assessment showed colonic adenocarcinoma with lymph node involvement and liver metastasis.

Patient 3: A 76 years old man had LC in 2 months before recent admission because of sever abdominal pain, in examination he was anemic and upper abdomen was tender in deep palpation, he was obese and no mass found in abdomen, in ultasonographic investigation revealed no pathology, in CT scan of abdomen a large mass in hepatic flexure of colon was recognized, in celiotomy a large mass under the omentum found and resection was performed.

Patient 4: A 52 years old woman with abdominal pain and distention. She had LC 14 months before. Abdominal ultrasonography showed normal diameter in common bile duct and ascites in abdominal cavity, normal size of ovaries and no mass in abdomen. CT scan confirmed ultrasonography, diagnostic laparoscopy was performed. In exploration ascites with peritoneal metastasis and mass in appendix area was detected, biopsy was performed. Pathology confirmed muscinous adenocarcinoma of appendix.

Patient 5: A 67 years old woman presented with unspecific upper abdominal pain. Ultrasonography showed gallstone and she underwent LC. He readmitted one months later complaining of dysphasia. Endoscopy showed an ulcerative tumor in the cardia of stomach which was confirmed adenocarcinoma by biopsy. It was advanced adenocarcinoma of stomach and gastrectomy was performed as a palliative surgery.

Patient 6: A 73 years old man presented with right upper quadrant pain suggestive chronic cholecystitis. Ultrasonography showed gallstones in the gallbladder. Common bile duct diameter and other solid organs appeared normal, laboratory tests were normal. LC was performed. He represented 6 months postoperatively with recurrent upper abdominal pain without jaundice. CT scan of abdomen showed mass in pancreas. In laparotomy extensive mass of pancreas was unresectable and bypass was performed.

RESULTS

Among 1852 patients underwent LC in SINA hospital, Tabriz medical university, 6 patients (0.3%) required reoperation for malignant tumor missed in laparoscopy. The median age of the patients was 67.6 (range 52-80), 4 women and 2 men. All patients had pain and discomfort of upper abdomen before LC, All of them had constipation and changing bowel habits. Routine blood tests were without abnormalities. Table 1 summarized the details of missed pathologies. The median diagnostic delay was 3. Five months (range from 1 to 14 months). The location of the tumor in colonic carcinoma was in cecum and right side of colon. Our study shows that the missed tumors were advanced at the time of laparotomy and the prognosis was poor.

Table 1: Characteristics of patients who underwent reoperation for missed pathology at 1852 LC

Patient	Patients sex/age	Diagnostic delay	Missed tumor	Treatment
1	f/80	1 month	Right colon	Colectomy, Duke C
2	f/58	11 months	transverse colon	Colectomy, Duke D
3	m/76	2 months	Hepatic flexure	Colectomy, DukeC
4	f/52	14 months	Appendix	Un resectable
5	f/67	1 month	Stomach	Palliative surgery
6	m/73	6 months	Pancreas	Palliative surgery

DISCUSSION

LC has been widely introduced in a short period of time. Many of the benefits are immediately obvious, such as reduced postoperative pain, more rapid convalescence and better cosmoses (Slim *et al*., 1996). However, besides its great benefits, perhaps the most disappointing disadvantage is missed malignancies. There is recognized association between gallstones, diverticular disease and hiatus hernia, as well as other intaabdominal pathologies including colonic carcinoma (Sharp *et al*., 1994). Like our study, in a series of 305 patients undergoing complete abdominal exploration during routine cholecystectomy 13. Four percent had incidental pathology and 0.3% had significant intra abdominal pathology that would have been missed at laparoscopy (Sharp *et al*., 1994). The lack of tactile sensation of the lesser sac and sometimes obesity can lead to overlooked miscellaneous intraabdominal pathology. Six patients in this study had a typical abdominal pain and the majority of our patients were older than 60 years old. A careful analysis of the characteristics of the pain and associated symptoms would have avoided LC for coincidental gallstones in our series as in the previously reported cases (Soper *et al*., 1992; Macintyre and Wilson, 1993; Slim *et al*., 1996; Sharp *et al*., 1994). The main malignant diseases that can be missed at LC are those of the right colon and pancreas tumors. Slim *et al*. (1996) reported a 0.5% frequency of delayed diagnosis of malignant tumor among 885 patients who underwent LC (Slim, 1995). The main causes requiring reoperation in this series was pancreatic and colonic

cancer. For these facts, surgeons who use Laparoscopic approach should learn techniques of full diagnostic laparoscopy which should be performed at the beginning of every procedure (Slim *et al*., 1996; Sharp *et al*., 1994; Slim, 1995).

Should patients undergoing LC be investigated more thoroughly preoperatively? Rickman *et al*. (1993) in his study showed more intense investigation would probably be of benefit in only a small minority of patients and this would not be cost effective. The risk of missed pathology may be sufficiently small to be acceptable in terms of cost-benefit ratio. He concluded that risk is small and that extensive preoperative investigation, abdominal exploration at the time of treatment of cholelithiasis is unnecessary (Rickman *et al*., 1993).

Otherwise, the NIH consensus conference on gallstones and LC, stated that patients who complain of typical biliary pain (sever episodic pain, epigastric or right upper quadrant in location, lasting 1-5 h and after meal pain) should be treated and patients with atypical pain or dyspepsia should undergo further diagnostic testing (NIH, 1993).

In slim study, showed that the missed tumors were advanced at the time of laparotomy and the prognosis was poor. The diagnostic delay due to unnecessary LC is a cause of major concern. Although, less than 1% (in our study 0.3%) undergoing laparoscopic cholecystectomy had other associated intra abdominal pathology, it is yet considerable that many thousands of LC are performed annually (Slim, 1995). Ishida *et al*. (2002) showed among 473 patients, 2 (0.04%) were thought to have had detectable cancer in LC.

CONCLUSION

In conclusion avoiding a hurried decision in performing LC in patients with atypical pain. Physical examination, additional emphasis on careful semiological analysis of pain before LC. Further investigation, laboratory tests, such as stool exam, combined with barium enema or CT scan in patients with unspecific abdominal pain for avoiding a delayed diagnosis of right colon or pancreas cancer in especially older patients is advisable.

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