expanding population of disabled old people whose needs for care cannot be met in the community.

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Clinical Topics

Physician's use of laparoscopy

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Summary and conclusions

The role of laparoscopy in medical practice was assessed by studying 238 consecutive laparoscopies performed under local anaesthesia by physicians in a single teaching hospital. Indications for laparoscopy were assessment of possible and known hepatic disease, possible disseminated abdominal malignancy, abdominal mass, and conditions such as ascites and splenomegaly. A definitive diagnosis was reached in 223 cases (76.5%). No organic disease was detected in 41 patients, though findings were false-negative in two of them (0.8%). The procedure failed in 15 (6.3%), mostly because adhesions from previous surgery hindered adequate visualisation. Six patients (2.5%) had complications, one of whom subsequently died.

If patients are appropriately selected laparoscopy is relatively free of postoperative complications, and is an effective diagnostic procedure in abdominal malignancy and decompensated liver disease. Cost-effectiveness is an additional advantage.

Introduction

Laparoscopy has been widely practised in Europe for many years and is well established in gynaecological practice in the

United Kingdom. The application of laparoscopy to general surgical problems has been repeatedly advocated in recent years.¹⁻⁵ Performed under local anaesthesia and mild sedation, and using modern operating laparoscopes that permit tissue diagnosis under direct vision, the procedure is highly acceptable to patients and cost-effective. Despite the potential advantages, laparoscopy is rarely used in medical practice in the United Kingdom.

Information on the role of laparoscopy in medical practice is sparse,⁶⁻⁸ and is often based on relatively small series. There has recently been a plea for the role of laparoscopy in medicine to be re-evaluated.⁹ We tried to assess this role by examining data from 238 consecutive laparoscopies performed in a gastrointestinal unit of a teaching hospital.

Patients and methods

Laparoscopies were performed in 238 consecutive patients (mean age 58 years, range 11-81). Most were from a single clinical department of general medicine which has a major interest in gastroenterology, but some were specifically referred for laparoscopy from other departments.

All laparoscopies were performed under local anaesthesia and diazepam sedation in an ordinary endoscopy room equipped with an electrically tilting table and scrub-up facilities. The pneumoperitoneum was introduced via a Verres needle with an automatic insufflation apparatus.¹⁰ Whenever possible, a midline supra- or infra-umbilical site was chosen for introducing the trocar. Storz operating laparoscopes (sterilised by ethylene oxide and electrically warmed) were used throughout, using single-puncture technique only. All biopsies were performed through the operating channel of the instruments. The procedure was performed by one of 12 different people, many of whom were inexperienced laparoscopists under instruction, but always under the supervision of one of the authors.

Table I shows the indications for laparoscopy in the 238 cases. These were usually to assess probable or known hepatic disease, abdominal malignancy, or abdominal mass. Other indications included investigation of ascites and splenomegaly.

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TABLE I—Indications for laparoscopy in 238 cases. Figures are numbers (%)

Assessment of possible and known hepatic disease	..	..	..	115 (48.3)
Possible disseminated abdominal malignancy	..	..	..	79 (33.2)
Abdominal mass	..	..	..	11 (4.6)
Other (ascites, splenomegaly, etc)	..	..	..	33 (13.9)

Results

The procedure was successful in 223 out of the 238 laparoscopies (93.7%). A definitive diagnosis was reached in 182 (76.5%), and 41 (17.2%) were shown to be normal. Table II shows the diagnoses reached. In 15 patients (6.3%) the procedure failed or was abandoned.

TABLE II—Diagnosis reached by laparoscopy in 238 cases. Figures are numbers (%)

Cirrhosis	..	..	..	..	76*	(31.9)
Metastatic malignancy	..	..	..	..	54	(22.7)
Biliary obstruction	..	..	..	..	9	(3.8)
Normal findings	..	..	..	..	41	(17.2)
Failed or inadequate investigation	..	..	..	..	15	(6.3)
Other diagnoses:						
Hepatic disease	..	..	..	..	28	(11.8)
Non-hepatic disease	..	..	..	..	15	(6.3)

*Complicated by hepatoma in seven cases.

In most of these (11; 4.6%) the cause of failure was inadequate visualisation of the relevant organ because of adhesions resulting from previous surgery. The procedure was abandoned in the remaining four patients because of patient distress (1), subcutaneous emphysema (1), hypotension (1), and the immediate recognition of an accidental colonic perforation (1).

The 41 patients (17.2%) in whom no abnormality was found on laparoscopy are a particularly important group, since, without laparoscopy, these patients might have been subjected to unnecessary laparotomy to investigate their presumed abdominal disease. These patients were therefore followed particularly closely. No abdominal disease was found in five of these patients who were subsequently subjected to laparotomy, or in four who subsequently died and came to necropsy. Two were lost to follow-up, but had been well when last seen. Of the remaining 30 patients, no objective evidence of organic disease was found in 27 during follow-up ranging from eight months to four years. In two patients (0.8%) the diagnosis was classed as "false-negative," since no disease was found at laparoscopy, but one of them was subsequently shown to have micronodular cirrhosis. The second died with an intra-abdominal malignancy that did not affect the liver.

COMPLICATIONS

The mortality rate was 0.4%, which represents one case of abdominal malignancy in a patient who died of a cardiac arrhythmia during a protracted illness resulting from surgical repair of an accidental colonic perforation by the trocar of the laparoscope. In this patient the colon had been adherent to the anterior abdominal wall at the

TABLE III—Complications in 238 consecutive laparoscopies

Major						
Colonic perforation	..	..	..	..	..	1*
Gastric perforation	..	..	..	..	..	1
Hypotension	..	..	..	..	..	1
Minor:						
Superficial wound infection	..	..	..	..	..	1
Subcutaneous emphysema	..	..	..	..	..	1
Bile leak after liver biopsy	..	..	..	..	..	1
Total	..	..	..	..	..	6 (2.5%)

*Died.

site of trocar puncture. The other complications (table III) include a gastric perforation with a Verris needle and a minor bile leak after laparoscopic liver biopsy. This latter was an incidental discovery at subsequent cholecystectomy, for no symptoms or physical signs had suggested that such a leak had occurred.

Discussion

We aimed at reviewing 238 consecutive laparoscopies, often performed by relatively inexperienced people, to assess the results that may be expected when this technique is used as an ordinary diagnostic tool. Many more patients were considered for laparoscopy but rejected. Selection was influenced by the following beliefs: laparoscopy is not an alternative to laparotomy, neither are the two procedures mutually exclusive; most contraindications to laparoscopy are also contraindications to laparotomy, but abdominal sepsis, obstruction, hernias, and previous surgery are additional relative contraindications to laparoscopy; when focal liver disease (such as metastatic malignancy) is suspected, biopsy under direct laparoscopic vision must give a higher yield than "blind" liver biopsy¹¹; in diffuse liver disease (such as cirrhosis) with disordered coagulation, biopsy under direct vision via the laparoscope may still be appropriate, since any haemorrhage is immediately obvious and corrective measures may be taken. Even if grossly disordered clotting precludes liver biopsy, laparoscopic inspection allows a visual diagnosis of cirrhosis in most cases; laparoscopic liver biopsy may be safely performed in the presence of ascites; laparoscopy should be used only infrequently in the investigation of cholestasis, since the level of obstruction can seldom be determined.

Having selected patients with this bias and for the stated indications (table I) the complication rate was 2.5% and the mortality 0.4% in 238 laparoscopies. The failure rate of 6.3% and the mortality rate were almost entirely due to adhesions from previous surgery, which must be the commonest (though relative) contraindication to the procedure. Nevertheless, many successful laparoscopies were performed despite the presence of adhesions. One of the major roles of laparoscopy in our practice is in preventing unnecessary operations, particularly if abdominal malignancy is suspected. Trujillo¹² found that 90% of 145 cases could be spared laparotomy by appropriate use of laparoscopy. If malignant deposits are present in the liver a tissue diagnosis can be made, and we have tended to regard secondary deposits in the liver as an indication of incurable disease.

It has been suggested¹³ that laparoscopic liver biopsy may have little advantage over appropriately used blind percutaneous biopsy, especially when dealing with diffuse liver disease. Nevertheless, laparoscopic biopsy was often used in diffuse liver disease because of uncorrectable prolongation of the clotting time. For moderate prolongation of prothrombin time laparoscopic biopsy was performed and the biopsy site observed until bleeding had stopped, since the major danger of haemorrhage lies in failing to recognise its occurrence until late. Methods of arresting local bleeding were available but not required in this series. When prothrombin times were severely prolonged (>6 s above control) biopsy was not used, but hepatic visualisation alone usually allowed a visual diagnosis to be reached. The false-negative rate for laparoscopic (visual) diagnosis of cirrhosis may be as high as 17.7%.¹⁴ In our series (combined visualisation and biopsy) the false-negative rate for cirrhosis was 1.3% at follow-up.

Laparoscopy also allows liver biopsy to be performed from areas of the liver not safely accessible by blind biopsy. Target biopsy through the laparoscope permitted hepatoma to be established as a complication of cirrhosis in seven cases in the present series. Laparoscopic biopsy was usually considered the method of choice when ascites was present. In 14 patients no abnormality was found at laparoscopy. Without laparoscopy, many of these patients would have been subjected to an unnecessary laparotomy.

The safety of laparoscopy may be assessed from our results, but the safety of laparotomy in equivalent circumstances must also be considered. Laparotomy in the presence of diffuse hepatic disease has a high mortality rate.¹⁵ The series of Scott *et al*¹⁶ is most comparable to ours. These authors studied 845 medical patients of similar age to ours who underwent diagnostic laparotomy for non-surgical disease. The diagnostic success rate was comparable with ours, but the mortality (15%) and complication rates (43%) exceeded that of our series considerably. Their high morbidity must reflect the poor condition of "medical" patients compared with most "surgical" patients, and the relatively "minor" procedure of laparoscopy seems to be preferable when appropriate.

Expensive theatre suites with their accompanying staff are unnecessary in performing laparoscopy, so it is a highly effective diagnostic tool in terms of cost, particularly since a 24-hour admission is all that is needed in uncomplicated cases. Our experience shows that it is virtually free of major postoperative complications in appropriately selected cases.

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Personal Therapeutics

A self-medication retraining programme

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There is increasing interest in the problems that the elderly have in taking their drugs correctly. Although elderly ill people in hospital receive a considerable amount of retraining in the ordinary aspects of living and self-care, surprisingly this most important aspect of their life is omitted.

In hospital

A patient's self-medication programme has been established in the geriatric assessment unit of the Southern General Hospital, Glasgow. When the consultant who is caring for the patient decides that discharge is foreseeable the patient is included in the self-medication programme at least two weeks before discharge. The drug regimen is first simplified, including only those drugs that are essential for the patient. A staff pharmacist then interviews the patient and assesses the types of container that the patient can use and the types of labels he can read. He also shows the medicines to the patient, explaining the purpose of each, and gives him a card with instructions about the medication in the familiar terms—for example, "Water tablets"—with a two-day supply of drugs.

The patient is withdrawn from the regular medicine rounds, and his Kardex is closed with the words "self-medication." The emphasis changes from taking medicine at ward round times to following a timetable suitable for the patient, such as at breakfast, lunch, tea, dinner, and bedtime. The patient is allowed to keep the tablets in locker, handbag, or pocket. All the ward nursing staff and the nursing officer know that he is on a trial of self-treatment and during the first two days supervise him closely and obviously.

At the end of two days the pharmacist checks that the drugs have been taken and by discussion with the patient that they have been taken correctly. A second supply of drugs for two days is then issued. Supervision by the nursing staff is reduced and becomes unobtrusive except for occasional spot checks and checks at the end of the two days, when a third supply of drugs is issued.

At the first discussion the pharmacist had found out from the patient from which local pharmacist he will receive his home supplies and had contacted this local chemist to ensure that future drugs would be given in suitable containers suitably labelled. The patient next receives five days' supply of drugs and then on discharge a further five days' supply.

At home

We hoped that the community nurse who would care for the patient after discharge would visit the unit and see the programme in action, but this has proved difficult to establish. There is a district nurse attached to the unit, however, who follows up patients after discharge to maintain the hospital link where necessary. She is informed before the patient is discharged, and she reports back to the unit.

When the patient leaves hospital the local pharmacist is told

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