

## LAPAROSCOPY IN PRIVATE PRACTICE\*

M. G. H. MAYAT, M.B., B.Ch., Dip. O. & G., M.R.C.O.G., F.C.O. & G., *Superintendent, Shifa Hospital, Durban*

### SUMMARY

*The technique of laparoscopy is described together with indications and contraindications. A list of operative procedures and illustrative case histories are included. A plea is made for training young gynaecologists in the use of this technique.*

From 1963 to 1968 it was our practice to do culdoscopic examinations of the pelvis, but since then we have changed over entirely to laparoscopy. This procedure has been popularized in the UK by Steptoe.<sup>1</sup> The disadvantages of culdoscopy are:

(a) The knee-chest position in which the patient is placed and held by a Clover's clutch is not favoured by the anaesthetist, because of the respiratory embarrassment which may occur. Patients often complain of pain along the sites where the shoulder straps are placed. When the procedure is prolonged, puffiness of the eyes and echymosis may occasionally result.

(b) The view of the pelvis is very limited compared to that possible with the laparoscope, and besides is limited to the posterior surface of the uterus and the accessible ovaries and tubes. During laparoscopy a probe introduced through a second cannula is used to push aside bowel or omentum which may obscure the vision. This cannot be done during culdoscopy.

(c) In the presence of pelvic adhesions culdoscopy cannot be performed. A small vagina, especially one with a narrow vault, makes culdoscopy difficult, if not impossible. Decker<sup>2</sup> considers culdoscopy superior to laparoscopy because it gives a better view of the pelvic organs.

From 1969 onwards laparoscopy only has been used. The increased safety of this procedure is due to two factors: CO<sub>2</sub> gas is introduced to effect a pneumoperitoneum (we use a Wolff air-insufflation instrument which allows a carefully regulated entry of gas at between 10 - 30 mmHg pressure); and a light source from outside the abdomen with the light conducted along fibre-optic guides prevents overheating of the light tip (this is a safeguard against accidents through electrical faults).

### METHOD

A full general anaesthetic using Pentothal, gas, oxygen and Fluothane is administered. Relaxants are employed and the patient is intubated.<sup>3</sup> Recently we have used epidural anaesthesia in combination with light Pentothal anaesthesia. Without Pentothal, the patient invariably complains of severe shoulder pain as the diaphragm is irritated by the pneumoperitoneum. Under epidural anaesthesia, with the patient in a 10° Trendelenburg's position, the bowel lies quietly in the upper abdomen. This leaves the pelvic field clear and unobstructed.

At the lower edge of the umbilicus a skin nick 0.5 cm long is made. Through this a Verres needle is introduced into the peritoneal cavity and 2-3 litres of CO<sub>2</sub> gas is introduced to give symmetrical enlargement of the peritoneal cavity. The area over the liver is now resonant to

percussion, thus confirming an adequate pneumoperitoneum. If a sufficient amount of gas has been introduced, there is less likelihood of damage to any intra-abdominal organ when the laparoscope trocar and cannula are introduced. There is a knack in introducing the sharp-pointed trocar—instead of plunging it into the peritoneal cavity, it can be gently eased in by a to-and-fro rocking movement which slowly tears the subcutaneous tissues, and allows controlled entry of the trocar and cannula.

### MATERIAL AND METHODS

This is a report of the first 200 cases done at Shifa Hospital, Durban. During 1969 about 300 cases were subjected to laparoscopy at Shifa Hospital and McCord Zulu Hospital in Durban.

### Indications for Laparoscopy

1. Investigation for sterility (primary and secondary).
2. Suspected ectopic pregnancy.
3. Investigation of an adnexal or uterine mass (ovarian cyst, inflammatory mass, endometriosis or fibroid).
4. Investigation of amenorrhoea (primary and secondary).
5. Investigation of intersex, e.g. Turner's syndrome, absent vagina.
6. Investigation of pelvic pain.
7. Tubal sterilization (including postpartum).
8. Pelvic tuberculosis (assessment of treatment).
9. Septic absorption (to exclude necrotic uterus).
10. Malignancy.
11. Surgical and medical conditions, e.g. recurrent iliac fossa pain and liver disease.<sup>4</sup>
12. Removal of intraperitoneal foreign bodies.

In our practice we have found that the commonest indications for laparoscopy are the first 6 indications listed above.

### DISCUSSION

#### Sterility

A large proportion of the cases were done to investigate infertility, both primary and secondary. During a single examination complete information is obtained. A pelvic examination is done, the tubes, ovaries and uterus inspected, tubal patency tested with indigo-carmin, an endometrial biopsy specimen taken and, if indicated, a biopsy of the ovary or pelvic mass is performed.

*Case 1.* A 30-year-old woman suffering from primary sterility was found to have a fibroid uterus on vaginal examination. At laparoscopy the fibroids were confirmed. The left tube was curled into the pouch of Douglas and adherent to the posterior surface of the uterus. The right tube was healthy and free. Dye escaped freely from the right tube. Two large fibroids were seen on the fundus close to the point where the tube emerged from the uterus. One fibroid was above and the other below the interstitial portion of the tube.

The position of the fibroids rendered myomectomy impracticable. We feared that the interstitial end of the tube would become incorporated in the stitches, thereby diminishing the patient's prospects. A hysterosalpingogram would have shown a patent right tube and a laparotomy embarked upon unnecessarily.

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*Case 2.* A 20-year-old married woman complained of primary sterility. Five years previously she had undergone a laparotomy for intestinal obstruction. At operation tuberculous peritonitis was discovered and she was given a full course of treatment. At laparoscopy there was no sign of tuberculosis and the tubes were healthy and patent. A laparotomy is the only alternative by which one can positively state that there is no residual peritoneal tuberculosis and that the walls of the tubes are healthy.

*Case 3.* A 38-year-old woman suffering from secondary sterility gave a history of an operation for an ectopic pregnancy. A hysterosalpingogram taken several years later showed that both tubes were present and patent. We performed a laparoscopy which showed an absent tube and ovary on the right side. This confirmed the patient's history of an ectopic pregnancy. The remaining tube was adherent to the posterior surface of the uterus. No dye entered the lumen of the tube. This indicated an additional block in the interstitial end of the tube. We concluded that there was no chance of pregnancy, and informed the patient accordingly, and at last she has stopped her 'round' of doctors and institutions.

In cases complaining of secondary sterility following tubal ligation or septic induced abortion which has resulted in interstitial tubal block, it is important to establish whether the distal portion of the tube is healthy. If the tube which it is intended to implant, is found to be unhealthy, an unnecessary laparotomy may be avoided.

#### *Adnexal and Uterine Masses*

We have found the laparoscope our most useful aid for making a quick and accurate diagnosis of pelvic masses. On inspection the difference between fibromyomata and endometriosis is apparent. In the case of suspected ectopic pregnancy, where there has been only scant intraperitoneal bleeding, the traditional method of colpotomy puncture may not reveal blood. It is a recognized experience of obtaining a blood tap in the absence of an ectopic pregnancy. With laparoscopy this error is completely eliminated.

With an 'inflammatory' type of adnexal mass the differential diagnosis often rests between pyogenic inflammation, tuberculosis or endometriosis. Occasionally one has to resort to a therapeutic trial and make a diagnosis according to the response. With the laparoscope a diagnosis is quickly established and appropriate treatment can be started immediately.

*Case 4.* The patient's major complaint was recurrent dysuria and secondary sterility. A cystoscopic examination showed a ridge in the region of the trigone extending vertically upwards and creating two funnel-like depressions on either side. The mucosa was healthy and both the ureteric orifices were normal. When the cervix was displaced backwards, the ridge disappeared. We concluded that there was a mass outside the bladder and that it was pressing into the latter.

Laparoscopy revealed 'chocolate' cysts of both ovaries. The ovaries were stuck to the posterior wall of the uterus in the region of the internal os and to the lateral pelvic wall. Both the tubes were healthy and patent. This patient has been placed on long-term progestogen therapy.

#### *Investigation of Primary Amenorrhoea and Intersex*

A laparoscopic examination will immediately show any imperfections in the development of the Mullerian system.

#### *Tubal Sterilization*

This procedure done through a laparoscope is most satisfactory. A uterine sound is introduced *per vaginam*. The sound enables the uterus and tube to be manipulated into position. A second trocar is introduced into the peritoneal cavity in either flank. Through this trocar a cautery is

employed to cauterize and cut the tubes. Postoperative discomfort is minimal, and the period of hospitalization is limited to 2 - 3 days.

#### *Assessment of Progress Following Treatment*

In cases of tuberculosis, endometriosis and carcinoma the laparoscope provides visual evidence of the progress achieved. In patients with suspected recurrence after surgery for cancer of the ovary, the peritoneal washings from the pouch of Douglas do not exclude a recurrence even if the cytological examination is negative. With the laparoscope the pelvic cavity can be scrutinized for metastasis, and should any nodules be apparent, a biopsy can be performed with the forceps through a second trocar.

#### *Septic Abortion with Septic Shock*

In cases of septic abortion accompanied by shock, the gynaecologist is left with the difficult decision whether the shock is due to the presence of a necrotic uterus, or to septicaemia. In both instances there is usually an initial response to the supportive measures employed. We believe that this is the opportune moment to exclude utero-adnexal infarct following the use of a caustic abortifacient. Our experience has been that the patient invariably gives a misleading story as to the cause of the abortion. Interference is almost always vehemently denied. If a necrotic uterus is present the condition is fatal unless the necrotic tissue is removed. Provided the patient can tolerate an anaesthetic, laparoscopy is performed and hysterectomy proceeded with if a necrotic uterus is seen.

*Case 5.* A 25-year-old woman was admitted with shock association with septic abortion for about 12 hours. In spite of intravenous therapy, the blood pressure did not rise above 70/50 mmHg. The temperature was 101°F and the pulse rate was 140/minute. The differential diagnosis rested between septicaemia, gangrenous uterus and a perforated uterus. She admitted to a criminal abortion.

At laparoscopy a healthy uterus and tubes were noted. A final diagnosis of septicaemic shock was made and medical treatment continued successfully.

#### OPERATIVE PROCEDURES

The following procedures can be carried out during laparoscopy: Verification of tubal patency, resection of adhesions (fimbriolysis, etc.), ovarian biopsy, aspiration of cysts (ovarian, tubal), ventrisuspension, removal of foreign bodies from abdomen, and liver biopsy.<sup>5</sup>

#### *Ventrisuspension*

A second trocar is introduced suprapubically just above the hair-line. The round ligament is pulled up and stitched to the anterior rectus sheath. The same procedure is repeated for the other round ligament. An advantage of this method is that it is quick and the abdominal cavity is not opened.

#### *Removal of Foreign Bodies*

*Case 6.* A 22-year-old woman was admitted after having attempted an abortion. The doctor felt a hard metal object in the region of the umbilicus. The uterus was 16 weeks in size. A radiograph confirmed the metal object outside the uterus. A laparoscopy was performed and a No. 6 Hegar dilator was removed with the aid of a biopsy forceps introduced through a second trocar.

In 2 other patients a 'missing' Lippe's loop was removed from the peritoneal cavity. Both these patients were discharged the next day.



## COMPLICATIONS OF LAPAROSCOPY

The complications of the procedure are:

(i) puncture of anterior abdominal wall and/or intra-abdominal blood vessels, (ii) perforation of a viscus, (iii) emphysema (parietal, omental), and (iv) the effects of high pressure gas injection which include cardio-respiratory embarrassment, rupture of the diaphragm, and aggravation of existing hernias.

The major catastrophies of a perforated viscus or a punctured large vessel have been recorded in the literature. As with all techniques, one must acquire experience in order to attain perfection. Furthermore, a careful selection of cases will avoid the complications listed above.

## CONTRAINDICATIONS

Extensive intra-abdominal adhesions prevent establishment of a pneumoperitoneum; besides there is a risk of bowel injury when the needle and trocar are introduced. We have found that one or two sub-umbilical incisions have not stopped us from doing laparoscopy. In such instances, we have entered the peritoneal cavity supra-umbilically.

Acute peritonitis, ileus, intestinal obstruction, and medical contraindications to a pneumoperitoneum constitute absolute contraindications to laparoscopy.

## CONCLUSIONS

The laparoscope is a valuable diagnostic tool in the armamentarium of the gynaecologist. By assisting a doctor in making a definite diagnosis, it has often obviated the necessity of performing an exploratory laparotomy. In certain instances the diagnosis may be doubtful and the patients treated conservatively as, for example, with a 'leaking' ectopic or a septic necrotic uterus. With a laparoscope the organs are visualized and the uncertainty and anxiety, which are the lot of the gynaecologist under such circumstances, are eliminated. We make a plea that all teaching institutions should have facilities for laparoscopy. Every young trainee gynaecologist should be instructed in the use of this instrument. The instrument is easily handled and a short period of supervision and instruction is all that is required.

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