OPERATIVE LAPAROSCOPY

by

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SUMMARY

This paper analyses 168 cases of Operative laparoscopy viz. pelvic adhesiolysis (55.96%); aspiration of ovarian cysts (9.51%); aspiration and partial excision of chocolate cysts (2.38%); fulguration of endometrial implants (18.46%); partial salpingectomy for ectopic (1.19%); fimbrioplasty (2.38%); dilatation of phimotic ampulla (2.97%); excision of hydatid cyst (4.77%); removal of extrauterine IUD (1.19%) and resection of uterosacrals (1.19%). The various operative procedures are described. The technical advantages over laparotomy such as minimal handling of organs, reduced oozing and reduced chances of adhesion formation are emphasised. International statistics are also presented.

Introduction

The art of operative laparoscopy is the latest development in the field of laparoscopy. Operative laparoscopy envisages several surgical procedures, for treating pathological conditions, diagnosed at laparoscopy. Thus, it is an extension of diagnostic laparoscopy, obviating the need for a laparotomy.

Advantages of Operative Laparoscopy

1. It requires a short hospital stay of 12 to 24 hours only in 90% cases.
2. There is minimal postoperative discomfort, which can be relieved by simple analgesics.
3. The postoperative restrictions are few.
4. Resumption of full activity is allowed in 4 to 5 days.

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5. The special technical advantages are:—

(i) Drying of the tissues does not occur.

(ii) The intestines are gently packed away by gas, and thus are not traumatised.

(iii) There is reduced oozing, because the slight positive pressure of the pneumoperitoneum compresses small bleeding points.

(iv) Hemostasis by electrocoagulation and not ligatures, reduces the chances of adhesion formation. If haemmorrhage cannot be controlled by electrocoagulation, Roeder loop ligature may be used, as recommended by Semm (1979 and 1983).

(v) The tissues are handled by fine delicate atraumatic forceps, thus resulting in minimal trauma.

(vi) Magnification—if the telescope is brought close to the fimbrial end, say 1 cm. it helps to identify the vascular pat-

terns for fimbrioplasty, because of 2 to 3 fold magnification.

All these special technical advantages are like the basic principles of microsurgery, and therefore help in reducing postoperative complications and formation of adhesions.

Disadvantages of Operative Laparoscopy

1. It has a restricted field of application, only for some types of surgery.

2. The risks of electrosurgery are always there, but can be reduced by using bipolar electrocoagulation or endocoagulation, as recomended by Semm (1979 and 1983).

3. Haemorrhage—if haemorrhage is not controllable, laparotomy will be necessary.

4. A high degree of expertise is necessary.

5. The assistant cannot visualise what is going on.

6. Special accessories of a wide variety are required.

Analysis of 168 Cases of Operative Laparoscopy

The following laparoscopic operative procedures were carried out by the author. Todate (31-3-1984), 575 diagnostic laparoscopies have been performed. Of these 165 cases (28.7%) needed operative procedures. Three cases were primarily for operative laparoscopy (See Table I).

Chamberlain and Brown (1978) report an incidence of 5.4% operative procedures in 54940 laparoscopies (RCOG Survey). The various operative procedures were: Pelvic adhesiolysis 1.8%; Removal of IUD 1.3%; aspiration and excision of ovarian cysts 0.8%; ventral-suspension 0.8%; fulguration of endometriotic foci 0.4%; and others 0.3%.

TABLE I
Analysis of 168 Cases of Operative Laparoscopy

Procedure	No. of cases	%
1. Pelvic adhesiolysis	94	55.96
2. Aspiration of ovarian cyst	15	8.92
3. Aspiration of parovarian cyst	1	0.59
4. Aspiration and partial excision of Chocolate cyst	4	2.38
5. Fulguration of endometrial implants	31	18.46
6. Partial salpingectomy (a) Failed Hulka clip: 1 (b) Unruptured tubal pregnancy: 1	2	1.19
7. Fimbrioplasty	4	2.38
8. Dilatation of phimotic ampulla	5	2.97
9. Excision of hydatid cyst	8	4.77
10. Resection of uterosacrals	2	1.19
11. Removal of IUD	2	1.19

Technique

Anaesthesia

The ideal anaesthesia is general anaesthesia. However, 152 cases (90.5%) were done under local anaesthesia and heavy neuroleptanalgesia, as these were extensions of diagnostic laparoscopies. In 16 cases (9.5%), there was a possibility that the patient may need operative procedure, so general anaesthesia was given. The best solution is to start diagnostic laparoscopy under local anaesthesia and neuroleptanalgesia, and switch to general anaesthesia, if operative procedure becomes necessary.

Single Puncture vs. Double Puncture

In all cases a single puncture operating laparoscope is used. In minor operative procedures, this may be adquate. However, in 73 cases (43.45%), a Veress' needle or accessory instruments through a second trocar cannula were used, thus

becoming equivalent to a three puncture technique. We have suggested a five puncture technique also.

Most authors (Esposito—1977, Gomel—1977, Frangenheim—1972, Palmer—Personal Communication, Semm—1978, 1979 and 1983) use two or three puncture technique and always under general anaesthesia.

Several accessories such as atraumatic grasping forceps, hook scissors, biopsy punch forceps, ampulla dilator, bipolar suction coagulator, bipolar grasping forceps, Veress' needle etc. need to be used. Electrocoagulation is carried out with low voltage monopolar or bipolar equipment.

Operative Procedures

I. *Pelvic Adhesiolysis*: 94 cases (55.96%)

They form the majority of the cases. The technical points to be emphasised are:

(i) Adhesions must be put on stretch before dividing, either by manipulating the uterus, or by a Veress' needle used as a probe, or by a hook.

(ii) Fine flimsy veil-like adhesions (36 cases—38.3%) may be broken by tugging with the grasping forceps as recommended by Palmer or cut with the hook scissors, without the need for electrocoagulation.

(iii) Moderate adhesions, especially between tube, ovary and uterosacrals (24 cases—25.53%) need careful separation with blunt and sharp dissection and judicious use of electrocoagulation.

(iv) Extensive multilayered adhesions (16 cases—17%) should be divided layer by layer, and some of the blood vessels need to be electrocoagulated.

(v) Omental adhesions (10 cases—10.64%) need to be coagulated, preferably with bipolar grasping forceps, and cut with the scissors step by step.

(vi) Bowel adhesions (8 cases—8.53%) need extreme care. Monopolar electrocoagulation with fine 3 mm forceps or hook, allows pin point coagulation. Bipolar electrocoagulation, however, is preferred. The adhesions are then cut with scissors mm. by mm. This can be done only if there is at least a small band between bowel and uterus or adnexae or anterior abdominal wall, as was done in 6 cases (6.40%). In 2 cases (2.13%), adhesions between the caecum, appendix and the anterior parietal peritoneum, could be easily electrocoagulated, and divided near the parietal peritoneum.

At the end of adhesiolysis, a saline lavage is done, any bleeding points electrocoagulated, and about 80 to 100 mgm of Dexamethasone instilled. Swolin (1978) recommends 2000 mgm of Hydrocortisone acetate, so as to prevent recurrence of adhesions. Frangenheim (1978 and 1979), Gomel (1977), Khandwala (1979) and Semm (1977, 1978 and 1979) have described in detail various techniques of adhesiolysis.

II. *Aspiration of small ovarian and parovarian cysts*: 16 cases (9.51%)

The cysts were aspirated by passing a Veress' needle suprapubically. However, this is made easier by manipulating the uterus backwards and laterally, so as to fix the ovarian cyst between the uterus and lateral pelvic wall. According to Frangenheim (1978), 60% of these cysts will never recur.

III. *Aspiration and Partial Excision of Chocolate Cysts*: 4 cases (2.38%)

The chocolate cyst in these cases was adherent to the uterosacral ligament. On separating, the cysts burst discharging

chocolate material. The cyst wall was partially excised using biopsy forceps and scissors and coagulating the edges. This acts like wedge resection, and reduces the mass of endometriotic tissue, so that medical treatment is more effective. Frangenheim (1979) and Semm (1977 and 1979) recommend this as a useful procedure.

IV. *Fulguration of Endometrial Implants*: 31 cases (18.46%)

This is best done at laparoscopy by bipolar point coagulator. The exposure of the Douglas' pouch is much better at laparoscopy than at laparotomy, allowing safely the electrocoagulation of endometrial implants situated deep down on the uterosacral ligaments. Ewards (1978) reports a pregnancy rate of 70 to 80% after such electrocoagulation.

V. *Partial Salpingectomy*: 2 cases (1.19%)

Unruptured tubal pregnancy was electrocoagulated, and the tube bearing it excised after electrocoagulating the mesosalpinx. The tubal mass was divided into pieces, using the anterior surface of uterus as an operating table, and the pieces removed through the cannula of the operating laparoscope. Esposito (1977), Soderstrom (1975) and Semm (1978, 1979 and 1983) describe finer details of the same.

VI. *Fimbrioplasty*: 4 cases (2.38%)

In these cases, there was a small hydrosalpinx. The lateral end which was stuck to the ovary was gently separated. The vasculature of the bulbous lateral end was observed carefully, by bringing the scope very close to it. Then, it was punctured by a sharp pointed scissors, a few radial incisions were made, and the opening dilated by the ampulla dilator. Fimbriae tumbled out and it was freely patent. Hemostasis was done with electrocoagulation. Gomel (1977) and Semm (1978, 1979 and 1983) are enthusiastic about this procedure, but microsurgery may be preferable.

VII. *Dilatation of Phimotic Ampulla*: 5 cases (2.97%)

In these cases, the affected tube was showing only a trickle of methylene blue. The ampulla dilator was passed in and opened and pulled out, thus dilating the fimbrial end, Gomel (1977) and Semm (1977) are keen on such a procedure, but Frangenheim (1978 and 1979) decries it.

VIII. *Removal of Extrauterine IUD*: 2 cases (1.19%)

It is very necessary to have fresh X-rays with an uterine sound in situ, before removing the extrauterine IUD at laparoscopy. They were partially embedded in the omentum and after grasping them, some shaking and manipulations were necessary to disentangle them. Then, they were removed through the 10 mm. cannula of the operating laparoscope. This is one of the dramatic indications of operative laparoscopy. Cibil (1975) and Israel (1977) have described several cases.

IX. *Resection of Uterosacrals*: 2 cases (1.19%)

This requires great care. The patient is put in steep trendelenberg position, with good pneumoperitoneum and the uterus firmly anteverted. It is of doubtful value, and only Frangenheim (1972) is enthusiastic about it.

X. *Ventral Suspension*:

Marik (1977) describes the technique for ventral suspension, but this is rarely

indicated, and is purely surgical gymnastics.

XI. *Extensive Operative Laparoscopy*:

Semm (1978, 1979 and 1983) describes extensive operative procedures at laparoscopy such as myomectomy, oophorectomy, salpingo-oophorectomy, appendectomy etc. Semm has been using a wide array of instruments. He has been using endocoagulation and Roeder loop ligature for hemostasis. Recently, he has introduced the idea of endosuturing.

Conclusion:

The field of operative laparoscopy is gradually expanding keeping pace with human dexterity and ingenuity. The benefits it confers on the patient are substantial. However, it is incumbent upon the physician to decide in each case, that the benefits more than offset the hazards to the patient. The watchword of operative laparoscopy should be "Enthusiasm tempered with Caution".

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