

## Two hundred out-patient laparoscopic clip sterilizations using local anaesthesia

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**Summary.** Female sterilization using clips applied laparoscopically under local anaesthesia was used in 200 women. Apart from two patients in whom there were technical difficulties, the operation was completed without complication and without immediate or delayed morbidity. The technique, which avoids the risks of general anaesthesia, is commended as a safe, simple method of sterilization suitable for, and acceptable to, the majority of women.

During the past 15 years, sterilization, both male and female, has become increasingly popular as a method of birth control. Recent data for England and Wales indicate that annually more than 60 000 sterilizations are performed within the Health Service and the mean length of stay in hospital is >3 days (OPCS Monitor 1984).

With reduced resources available to District Health Authorities, fewer female sterilizations have been performed. Laparoscopic sterilization under local anaesthesia would permit patients to be discharged on the day of operation so that considerable reductions in theatre expense and overnight hospital accommodation could be expected and it also has the potential advantage of avoiding general anaesthesia with its inherent risks. We report the experience of one clinic performing its first 200 consecutive laparoscopic sterilizations under local anaesthesia.

### Patients and methods

#### *Personnel and facilities*

The clinic was organized to accommodate four or five patients per half-day session, 08.03-13.30 hours. At each session the sterilization procedure was performed by a gynaecologist experienced in laparoscopic techniques. Local anaesthesia and, if necessary, intravenous sedation were administered by an anaesthetist. Equipment was immediately available for both resuscitation and the administration of general anaesthesia should this be required. Four nurses were present to receive the patient and prepare her for surgery, sterilize and lay up the operating instruments, assist in the theatre, and attend to the patient during the short postoperative recovery period. The possibility for immediate transfer to general operating theatres or an acute ward was available to cope with any unexpected emergency.

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#### *Patients and management*

The patients were referred by their family practitioner; an initial circular to the family practitioners gave details of the principle of the procedure and an exclusion list (Table 1). All patients were seen between 2 weeks and 2 months before the proposed operation for an initial counselling session by the surgeon who

**Table 1.** Conditions excluding laparoscopic sterilization as a day case using local anaesthesia

Unusually anxious patients	Bleeding diathesis
Chronic pulmonary insufficiency	Cardiac lesions
Diabetes	Grand mal epilepsy
Obesity ( $\geq 12$ stone)	Previous pelvic sepsis
Previous lower mid-line laparotomy	or peritonitis

would be performing the operation, at which time an assessment was made as to their suitability for the procedure using local anaesthesia. Each patient was advised of the potential irreversibility and failure rate of the operation. A bimanual pelvic examination was performed to exclude any obvious pelvic pathology which could complicate the procedure. Blood was collected for a haemoglobin estimation. Patients were asked to arrive at the clinic at 08.30 hours on the day of operation without having had breakfast or an early morning drink; after the operation they rested in a recumbent or semi-recumbent position for the next 1–2 h and were then taken home by a relative or friend. Patients were advised to rest for the next 24 h and to use simple analgesics if necessary and could expect to recommence normal activities within 72 h of the operation. All of them were requested to return a completed questionnaire subsequent to the first menstrual loss after the operation.

#### *Operation details*

The first eight patients were premedicated with oral lorazepam (2 mg) and mefenamic acid (500 mg). As this proved cumbersome to administer and caused significant postoperative somnolence, later patients received intravenous midazolam (2.5–7.5 mg). With experience, this was omitted except where the patient was unduly anxious. Between 20 and 30 ml of 1% lignocaine with adrenaline (1:200 000) was injected at predesignated sites in the subumbilical and suprapubic regions, ensuring that the infiltration reached the peritoneal layer.

The patient was put in a reduced Trendelenburg position, and the peritoneum was insufflated with nitrous oxide through a Verres needle which was introduced while the patient performed Valsalva's manoeuvre. A total volume of 1–1.5 litres of nitrous oxide was used in almost all the patients. With the exception of the first few, patients were asked to empty their bladder

before the operation and they were not catheterized. The lithotomy position was used infrequently and only when vaginal manipulation of the uterus with a Vitoon cannula was anticipated; as when the uterus had been retroverted at the initial pelvic examination. All the patients were sterilized by means of a 7 mm Storz laparoscope and Filshie clips (Filshie *et al.* 1981). In an attempt to reduce postoperative pain, 3–5 ml of 5% lignocaine was dropped onto each fallopian tube at the proposed site of clip application. On completion of the procedure, every effort was made to remove as much of the distending gas as possible using the Valsalva manoeuvre. The abdominal incisions were sutured with No. 1 silk if it was thought necessary to prevent oozing from the cut edges; sutures were removed 3–4 days postoperatively by the general practitioner. In patients who had an intrauterine contraceptive device, this was removed following completion of the operation. During the 1–2 h recovery period, pulse rate and blood pressure were recorded at regular intervals and the patient was discharged when fully ambulant.

#### **Results**

A total of 220 requests for a counselling appointment were received from patients subsequent to the initial enquiry from their general practitioners; and 200 of them later had the operation. Two patients who were counselled were rejected for the out-patient procedure, one an epileptic maintained on long-term steroid therapy for polyarteritis nodosa and the other because of previous pelvic surgery and a complaint of severe menorrhagia; one patient aged 49 years was advised against any sterilizing procedure. Seventeen patients changed their minds, having completed the initial information sheet requested by the clinic, eight before the counselling interview and nine following the interview: four patients elected to have the operation under general anaesthesia, three couples decided on vasectomy as their permanent method of birth control and two were reconsidering their views upon sterilization.

Details of the 200 patients in whom the operation was performed are shown in Table 2. Vaginal manipulation was necessary in 38 patients in whom the uterus was noted to be retroverted at the initial counselling session and subsequently confirmed at surgery. In a small

**Table 2.** Characteristics of 200 patients in the study

	<i>n</i>	(%)
Civil state		
Single	6	(3)
Married	169	(85)
Previously married	25	(12)
Age (years)		
<29	15	(7)
30-34	47	(24)
35-39	79	(40)
>40	59	(29)
Social class		
I	24	(12)
II	81	(40)
III	84	(42)
IV, V, VI	11	(6)
Parity		
0	20	(10)
1	19	(10)
2-3	145	(72)
>4	16	(8)

number of other patients, when the uterus was anteverted, vaginal manipulation was also required to facilitate the procedure. Difficulties were encountered in 10 patients mainly due to bowel or omentum being in the way and the reduced Trendelenburg position, while in three patients, unexpected adhesions were encountered and 50 mg of pethidine was given intravenously to avoid undue discomfort. The procedure was successfully completed in all but two patients due to dense pelvic adhesions in one and marked obesity in the other; the former was sterilized at a later date under general anaesthesia and a vasectomy was arranged for the husband of the other.

During the postoperative observation period, 52 patients required no analgesia. In 148 patients, oral analgesics such as aspirin and morphine elixir, mefenamic acid or paracetamol were given while 15 of the 148 were also given an intravenous injection of pethidine 25 mg or 50 mg. Vomiting occurred in 10 patients postoperatively; seven were given prochlorperazine maleate, 6.25-12.5 mg, intravenously. Hypotension was observed in eight patients; in two an intravenous infusion of Hartmann's solution was given which was discontinued within 1 h of the operation. All patients left the clinic within 3 h of the operation being completed, none requiring overnight hospital admission.

A total of 194 (97%) completed questionnaires were returned by the patients. Apart from

the two patients in whom the operation was not completed who had subsequently been in contact with the clinic, relevant information was obtained from the general practitioners of five patients and one patient had moved abroad as planned and was no longer contactable. None reported any significant ill-health. Twenty-three (12%) patients consulted their general practitioner other than for suture removal during the first 7 days following the operation, nine because of anxieties about the wound (slight bleeding or thickening) and 14 because of abdominal discomfort and feeling unwell. None required any specific treatment. Table 3 lists the frequency with which postoperative discomfort following hospital discharge was reported by the 194 respondents to the questionnaire. There was no apparent relation between postoperative pain, operating surgeon, use of pre-operative sedation or position in the experience of the clinic. In almost all, the shoulder discomfort was experienced for not more than 24 h while the abdominal discomfort lasted less than 24 h in 54% and more than 7 days in 8% of those reporting the symptom. Comments on the nature of the first menstrual loss were available for 182 completed questionnaires; five patients failed to comment and seven had not yet menstruated either because of a very prolonged menstrual cycle or the effects of breast-feeding. The first menstrual loss was considered unchanged by 105 (57%), increased by 43 (22%) and decreased by 34 (19%).

Of the 194 respondents, 177 (91%) stated they would recommend the operation to a friend, two failed to supply an answer and 15 (8%) would not recommend the operation, six because they thought they would have preferred general anaesthesia and three because they would have liked more time to recover before going home. Of the 177 patients who would recommend the operation, five would have liked a longer recovery period in the clinic and three would have preferred a general anaesthetic. A total of five

**Table 3.** Postoperative pain experienced after discharge from hospital in 194 patients

	<i>n</i>	(%)
Abdominal and shoulder tip pain	50	(16)
Abdominal pain only	55	(28)
Shoulder tip only	29	(15)
No pain	60	(31)

patients considered our pre-operative explanation should have been more thorough.

### Discussion

The results of the first 200 consecutive patients undergoing out-patient laparoscopic clip sterilization under local anaesthesia indicate that the procedure would appear to be both safe and acceptable. We acknowledge that we exercised considerable care in the selection of patients referred to us by their general practitioners, however, adequate assessment and careful explanation is important, both to ensure that the patient is suitable psychologically to accept the procedure under local anaesthesia and to eliminate unsuspected pelvic pathology which could make the operation unduly uncomfortable or technically difficult. It is our belief also that the counselling gynaecologist should, wherever possible, be the surgeon who will perform the operation, although the whole procedure depends upon a collaborative team approach. While experienced staff are obviously essential, provision should also be available for more extensive anaesthesia and surgery, should this prove necessary.

The avoidance of general anaesthesia has obvious advantages, eliminating its inherent potential hazards and allowing a speedier post-operative recovery (Towey *et al.* 1979; Cundy 1980). The laparoscopic procedure can be made safer by asking the patient to perform Valsalva's manoeuvre, this facilitates entry of the instruments into the peritoneal cavity, thus avoids surgical emphysema in the anterior abdominal wall when penetration is inadequate, as was reported by Brash (1976) in 4% of his series of laparoscopic sterilizations under general anaesthesia. We have observed, however, that penetration of the peritonium can cause a sharp pain unless local anaesthetic infiltration has reached the peritoneal layer. With the discontinuation of routine pre-operative analgesia we did not observe any alteration in the need for intra-operative or postoperative analgesia. This change in policy has shortened the postoperative recovery period allowing patients to leave the clinic at an earlier stage. However, contrary to expectations, early mobilization of patients after the operation appeared to speed recovery rather than delay it and to marginally reduce the need for parenteral analgesia.

With the careful selection procedure used, the

operation was abandoned in only two patients due to unexpected pelvic adhesions in one and marked obesity in the other. With increasing experience we believe this will become even less probable. Our results are similar to those reported by Black *et al.* (1984) for a series of day care sterilizations under both general and local anaesthesia although 1.3% of their patients returned to hospital after discharge. Serious complication or unplanned admission rates of 2–3% after laparoscopy under general anaesthesia have been reported by others (Duignan *et al.* 1972; Thompson & Wheelless 1971; Keeping & Smith 1977). With our 99.5% follow-up rate, of which 97% was by completed patient questionnaires, we are confident about the extremely low postoperative morbidity rate reported. The results, however, have led us to emphasize the possibility that both lower abdominal and shoulder-tip pains could be experienced during the first few hours after the operation. The frequency of pain, both abdominal and shoulder-tip, was less than that reported by Brash (1976) for patients who were sterilized by tubal diathermy under general anaesthesia. The differences could be explained by the technique of sterilization or possibly the greater operative gentleness required when performing the procedure under local anaesthesia.

We are reassured by the responses of our patients with the very high rate (91%) who would (or have) recommended the operation to their friends. The low rate of patients who considered the procedure was too rushed (4%) compares very favourably with the 15–50% reported after day case laparoscopy under general anaesthesia (Cundy 1980; Keeping & Smith 1977; Hughes & Smith 1980). We are consequently encouraged to pursue the technique while further modifications will hopefully improve the results and acceptance. We recommend the use of laparoscopic clip sterilization using local anaesthesia as a simple, quick efficient way of performing the operation for the majority of women who seek sterilization.

### Acknowledgments

The authors wish to acknowledge the co-operation of the following: Mr M. D. G. Gillmer, Mr J. Woolfson, (gynaecologists); Dr N. Kay, Dr M. Pallazo, Dr M. Sinclair (anaesthetists); Sisters P. Ashwin, F. Brown, J. Baxter, A. Fry, P. Monger, J. Nye (nursing staff); Dr A. Dyke

(haematologist), Mr Marcus Filshie for advice and Mrs B. French for secretarial assistance.

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Received 30 March 1986

Accepted 8 July 1986