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Outpatient interval female sterilization at the University College Hospital, Ibadan, Nigeria

E. O. OTOLORIN, O. A. LADIPO AND O. A. OJO
Department of Obstetrics and Gynaecology, University College Hospital, Ibadan, Nigeria

Summary

Between September 1975 and April 1981, 258 patients were sterilized at the University College Hospital (UCH), Ibadan, using minilaparotomy and laparoscopy. Selected sociodemographic data as well as the technical and surgical difficulties encountered have been reviewed in this article.

The mean age at sterilization was 38.3 years whilst the mean parity was 7.2. In all, there were 215 minilaparotomy sterilizations and forty-three laparoscopic sterilizations. Surgical difficulties were reported for 12.1% of minilaparotomy and 11.6% for laparoscopic procedures. The most frequently reported difficulties were obesity and pelvic adhesions. The failure rates were 1.4% for minilaparotomy and 2.3% for laparoscopy.

Résumé

En pratiquant la minilaparotomie pour les unes et la laparoscopie pour les autres, 258 malades furent stérilisées au centre hospitalier universitaire (University College Hospital), Ibadan, entre septembre 1975 et avril 1981. Cette étude porte sur quelques données démographiques ainsi que sur les difficultés techniques et chirurgicales rencontrées au cours de ces procédés.

L'âge moyen des malades était de 38.3 ans tandis que la parité moyenne était de 7.2. Au total, 215 stérilisations par la minilaparotomie ainsi que 43 par la laparoscopie furent exécutées. Des difficultés chirurgicales accompagnèrent 12.1% et 11.6% des stérilisations par la minilaparotomie et par la laparoscopie respectivement. Les problèmes les plus fréquemment rencontrés par la suite furent l'obésité et l'adhésion pelvienne. Les taux d'échecs ne dépassaient pas 1.4% pour la minilaparotomie et 2.3% pour la laparoscopie.

Correspondence: Dr E. O. Otolorin, Department of Obstetrics and Gynaecology, University College Hospital, Ibadan, Nigeria.

Introduction

The number of people choosing voluntary sterilization as a method of family limitation has increased dramatically in recent years and especially in the last decade. In Africa, however, the incidence of voluntary sterilization has been very low, more especially in the sub-Saharan region (Gauthier, 1977).

The old method of laparotomy and tubal ligation in the postpartum period has been found effective, simple and safe in most communities. However, the modern techniques of sterilization such as laparoscopy, culdoscopy, minilaparotomy and hysteroscopy have further encouraged the trend towards smaller families in many developed countries of the world (Nortman, 1977; Teper, 1977; Westoff & Jones, 1977).

In September 1975, minilaparotomy sterilization was introduced as an outpatient procedure at the University College Hospital, Ibadan. This was later complemented by laparoscopic sterilization. Between September 1975 and April 1981, 258 patients were sterilized by these two modern techniques. The purpose of this paper is to review selected sociodemographic data and the technical and surgical difficulties encountered. This infor-

mation will certainly be of value to other gynaecologists and general practitioners planning to introduce the techniques into their practices.

Materials and methods

The clientele for female sterilization was recruited from the women attending our postnatal and family-planning clinics. Only women who requested sterilization for family-planning purposes were included in the study. Four women who had sterilization for strictly medical reasons were excluded.

Each patient was carefully counselled and medically evaluated. A pelvic examination was performed to assess uterine mobility. Suitable patients were admitted on the morning of the operation having starved overnight. The pubic hair was shaved for minilaparotomy whilst the sub-umbilical area was shaved for laparoscopy.

The surgical procedure for minilaparotomy was as described by Osathanondh (1974) whilst all laparoscopic procedures were by single-puncture entry using an offset-laparoscope or the laprocator. The patients were usually discharged within a few hours of the operation except where there were serious complications. All patients were scheduled for follow-up at 7–21 days, 6 and 12 months post-sterilization.

This analysis has been based on sociodemographic and medical data recorded on standard forms by the staff of the hospital.

Results

Between September 1975 and April 1981, 258 outpatient interval female sterilizations were performed at the UCH, Ibadan, Nigeria.

Patients' characteristics

Selected sociodemographic data are presented in Table 1. The mean age at sterilization was 38.3 years and only three women (1.2%) were under the age of 30 years. 60.9% of the patients were in their late 30s.

In all, there were 2095 pregnancies by these 258 women. Of these 225 (10.7%) ended as abortions whilst another 319 (15.2%) were lost in infancy and childhood. The mean parity was 7.2 and the mean number of living children was 6.0. 90.7% of the women had five or more living children.

Over one-half of the patients (51.9%) had no education while only 7.8% had 13 or more years of schooling (Table 2). Over two-thirds of the patients (67.4%) did not use any contraceptives in the month preceding the sterilization. Of the remaining patients, 10.9% were on the intrauterine device whilst only 6.2% were taking oral contraceptives (Table 3). Twenty-six patients (10.1%) had menstrual regulation performed prior to the sterilization procedure.

Previous pelvic surgery was reported by 7.8% of the patients and previous abdominal surgery by 6.6%.

Sterilization procedures

88.8% of procedures were performed under general anaesthesia (96.3% of minilaparotomies and 51.2% of laparoscopies). Local infiltration of 1% plain lignocaine was combined with intravenous (i.v.) pethidine (100 mg) and diazepam (10 mg) in 10.5% of patients (Table 4). One laparoscopy and one minilaparotomy procedure were performed under acupuncture anaesthesia.

The Pomeroy technique of tubal ligation was performed in 94.0% of minilaparotomy sterilizations whilst 4.2% of cases had bilateral fimbriectomy (Table 5). Three patients (1.4%) had a different procedure on each tube – Pomeroy technique on one tube and fimbriectomy, salpingectomy or Falope ring application on the other tube.

Laparoscopic sterilization was by Falope ring application in 76.7% of cases and unipolar electro-coagulation in 23.3% of cases.

In all, there were 215 minilaparotomy sterilizations and forty-three laparoscopic sterilizations.

Technical failures

Five laparoscopic procedures were abandoned because of technical problems and were subsequently completed via minilaparotomy. Technical problems encountered included failure to create satisfactory pneumoperitoneum (two

Table 1. Age by parity distribution of 258 women undergoing interval sterilization at UCH, Ibadan

Parity	Age (years)									
	<30		30–34		35–39		40+		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
2–4	0	0.0	2	0.8	7	2.7	3	1.2	12	4.7
5–7	3	1.2	27	10.5	73	28.3	26	10.1	129	50.0
8–10	0	0.0	12	4.7	70	27.1	18	7.0	100	38.8
11+	0	0.0	2	0.8	7	2.7	8	3.1	17	6.6
Total	3	1.2	43	16.7	157	60.9	55	21.3	258	100.0

Mean age: 38.3 years; mean parity: 7.2; mean number of living children: 6.0.

Table 2. Years of education of 258 women undergoing interval sterilization at the UCH, Ibadan, Nigeria (September 1975 to April 1981)

Years of education	No.	Percentage
0	134	51.9
01–06	62	24.0
07–12	42	16.3
13+	20	7.8
Total	258	100

Table 3. Contraceptive use prior to sterilization of 258 women at the UCH, Ibadan, Nigeria

Contraceptive	No.	Percentage
None	174	67.4
Orals	16	6.2
IUD	28	10.9
Condom	7	2.7
Rhythm/withdrawal	3	1.2
Others (including menstrual regulation)	30	11.6

Table 5. Surgical technique of sterilization of 258 women at the UCH, Ibadan, Nigeria (September 1975 to April 1981)

Technique	No.	Percentage
Minilaparotomy:	215	100.0
Pomeroy	202	94.0
Fimbriectomy	9	4.2
Mixed	3	1.4
Not stated	1	0.5
Laparoscopy:	43	100.0
Falope ring	33	76.7
Electrocoagulation	10	23.3

patients), non-release of the Falope ring (one patient), faulty electro-coagulation cable (one patient) and difficulty in identifying one tube (one patient) (see Table 6).

There were six (2.8%) technical failures with minilaparotomy. In three cases it was not possible to identify one tube due to gross pelvic adhesions. In three other cases a different procedure was carried out on each tube.

Table 4. Anaesthesia for 258 interval sterilizations at the UCH, Ibadan, Nigeria

Anaesthesia	Minilaparotomy (n = 215)		Laparoscopy (n = 43)		Total (n = 258)	
	No.	%	No.	%	No.	%
General	207	96.3	22	51.2	229	88.8
Local infiltration and sedation	7	3.3	20	46.5	27	10.5
Others*	1	0.5	1	2.3	2	0.8

*Acupuncture.

Table 6. Technical failures at sterilization by minilaparotomy and laparoscopy

Technical problem	No.	%
Minilaparotomy	215	100.0
Different surgical technique on each tube	3	1.4
Inability to locate one tube	3	1.4
Total	6	2.8
Laparoscopy	48*	100.0
Unsatisfactory pneumo-peritoneum	2	4.2
Non-release of Falope ring	1	2.1
Faulty electrocoagulation	1	2.1
Difficulty in identifying one tube	1	2.1
Total	5	10.4

*Includes successful and failed laparoscopic sterilization.

Surgical difficulties and complications

Surgical difficulties and complications refer to the problems experienced by the operator in performing the sterilization (Table 7). Surgical difficulties were reported for 12.1% of minilaparotomy and 11.6% of laparoscopy procedures. The most frequently reported difficulties were obesity and adhesions. It is noteworthy that four patients (1.9%) had bowel injury which required suturing. All of them had an uneventful post-operative recovery. One patient in whom an ovarian cyst was found had laparotomy and ovarian cystectomy. The mean operation time was 23.4 min with minilaparotomy (n = 115) and 28.5 min with laparoscopy (n = 18).

Post-operative complications and complaints

There were no immediate complications during the recovery period prior to discharge for either the minilaparotomy or laparoscopy patients. Those who had intra-operative bowel or bladder injury were hospitalized. All other patients were allowed home within a few hours.

At the 7–21 day follow-up, 16.3 and 14.0% of minilaparotomies and laparoscopies, respectively, had minor complaints and complications (Table 8). The most frequently reported complaint was abdominal pain which responded to analgesics (usually paracetamol or Novalgin). In the initial series, fourteen patients (6.5%) who had minilaparotomy had unexplained fever which responded to antibiotic therapy. Subsequent patients had prophylactic antibiotics (ampicillin). No patient was re-admitted to hospital because of complications.

Sterilization failures

Three post-sterilization pregnancies have so far been reported following minilaparotomy and tubal ligation by Pomeroy's technique (i.e. 1.4%). Two of these patients had tubal ligation with mersilk sutures. Of the three patients, one had menstrual regulation, another had an unexplained stillbirth at term whilst the third patient had an uneventful pregnancy and spontaneous vertex delivery at term.

The only pregnancy reported following laparoscopic Falope ring application was probably an unrecognized luteal-phase pregnancy. She subsequently had a full-term normal delivery.

Discussion

Female sterilization is yet to become an acceptable method of family limitation in Nigeria. Factors responsible for this include the high pregnancy wastage in these regions as well as numerous taboos which instil fear in the average Nigerian woman (Lawson & Stewart, 1967). There is, however, some evidence that the demand for sterilization services, especially for women, may be greater than most health professionals assume. For example, physicians in Kenya asked all women with five or more living children who were admitted to Kenyatta National Hospital for delivery if they would like a sterilization operation; 59% said they would (Mati, Ojwang & Odipo, 1974). This may well be true of Nigeria as well.

In this study, the mean age of the sterilization adopters was 38.3 years. This is much higher than the age reported in series from Europe, America and Asia (Campbell, 1964; Appelo *et al.*, 1978; Omran, 1973; Pachauri, 1978) where the average woman obtaining sterilization is in her early 30s. In addition, the mean number of living children in this study was 6.0. Other reported series show a

Table 7. Surgical difficulties and complications in 258 interval sterilizations at the UCH, Ibadan, Nigeria

Complication	Minilaparotomy (n = 215)		Laparoscopy (n = 43)	
	No.	%	No.	%
Obesity	10	4.7	4	9.3
Adhesions	10	4.7	1*	2.3
Bowel injury	4	1.9	0	0.0
Bladder injury	1	0.5	0	0.0
Punctured ovary†	1	0.5	0	0.0
Total	16	12.1	5	11.6

*Mesosalpingeal trauma and haemorrhage.
†Laparotomy and right-ovarian cystectomy done.

Table 8. Early follow-up complications and complaints of 258 women undergoing interval sterilization at UCH, Ibadan, Nigeria

	Minilaparotomy (n = 215)		Laparoscopy (n = 43)	
	No.	%	No.	%
Abdominal pain	31	14.4	6	14.0
Wound haematoma/ sepsis	17	7.9	0	0.0
Fever treated with antibiotics	14	6.5	1	2.3
Vaginal discharge	2	0.9	0	0.0
Amenorrhoea	2	0.9	1	2.3
Prolonged vaginal bleeding	2	0.9	0	0.0
Nausea and vomiting	1	0.5	0	0.0
Others	5	2.3	3	7.0
Women with early follow-up complications and complaints	35	16.3	6	14.0

wide range from 2.6 in England to 8.7 in the Sudan (McCaan & Ferguson, 1976; Nahas, 1976).

In most countries, sterilization adopters come from all educational levels. The fact that 51.9% of patients in this series had no education at all may simply be a reflection of the high illiteracy rate in this country. High illiteracy rates have also been reported among female sterilization adopters in the Middle East and North Africa ranging from 47% in a Lebanon study to 80% in a study in Iran (Kashani, McCann & Vakilzadeh, 1976; Mroueh & Chamie, 1976).

This study, like many similar ones from several developing countries, has revealed that a large number of female sterilization adopters had never used modern contraceptives before undergoing the procedure.

It would seem, from the selected socio-demographic characteristics, that the most receptive clientele for female sterilization in Nigeria would be the grand multiparous woman with five or more deliveries, and aged 35 years and above. Previous knowledge or use of modern contraceptives does not appear to be a major factor in deciding for sterilization.

The introduction of minilaparotomy and laparoscopic sterilization in our unit has made outpatient interval sterilization a much more acceptable procedure than hitherto. The rate of surgical difficulties and complications encountered compares favourably with other reported series (Apelo *et al.*, 1978, McCaan, 1977). The four cases of bowel injuries (1.9%) occurred during the training of residents. All four injuries were promptly recognized and repaired via the minilaparotomy or slightly enlarged incisions.

The failure rates for minilaparotomy (1.5%) and laparoscopy (2.3%) in this series are comparable with other reported series. The failures could have occurred as a result of recanalization of the fallopian tubes, fistula formation or inadequate surgical technique. The laparoscopy failure was probably due to an unrecognized luteal-phase pregnancy which was present at the time of surgery.

The experience with these two modern methods of female sterilization has shown that they are complementary. Minilaparotomy is ideal for the surgeon who does not have the specialized training required to use the laparoscope. It is inexpensive and safe and offers a success rate comparable to laparoscopy.

Laparoscopy, on the other hand, is suitable for nearly all patients and it is the method of choice for women with uteri of limited mobility. In addition, it offers the added advantage of pelvic visualization. The introduction of the Falope ring has eliminated the electrical hazards associated with electrocoagulation sterilization procedures.

In conclusion, the introduction of minilaparotomy and laparoscopic interval outpatient sterilization and the demonstration of their safety is gradually attracting more adopters of sterilization as a method of family limitation. It is hoped that counselling of all grandmultiparous patients in their late 30s will yield a much better acceptance rate than hitherto. Viel (1977) stated that 'it is difficult to think of any other health measure which would have greater impact on maternal and infant mortality than the prevention of grand multiparity'. This is certainly true of developing countries such as Nigeria.

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