

## A STUDY OF POSTABORTION VERSUS INTERVAL STERILIZATION

by

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### Abstract

Bhatt, R. V. and Pachauri, S. (Department of Obstetrics and Gynaecology, Baroda Medical College and Hospital, Baroda and India Fertility Research Programme, Hyderabad). A study of postabortion versus interval sterilization.

This study was conducted at the Medical College Hospital in Baroda, to evaluate and compare the safety of post-abortion and interval sterilization performed via minilaparotomy using the tubal ring technique. All the study procedures were performed using a standard technique by a single operator. To minimize evaluator bias, another physician, the evaluator, was responsible for the care of the study subjects after surgery.

No technical failures and technical difficulties were reported. The incidence of surgical difficulties was low and was not significantly different for the post-abortion (10.1%) and interval (13.2%) procedures. Complication and complaint rates in the operative, immediate post-operative, early and late postoperative periods were higher for the postabortion than for the interval cases. However, the differences in these rates were statistical-

ly significant only for early postoperative complications. Incision complications were the most frequently reported post-operative complications and pelvic pain was the most frequently reported post-operative complaint in both groups of cases.

To minimize morbidity after the patient's discharge from the hospital, measures to improve patient care during the early postoperative period are recommended.

### Introduction

Immediate postabortion sterilization offers obvious programmatic advantages. It is hypothesised, however, that sterilization is associated with higher morbidity rates when it is combined with abortion than when it is performed as an interval procedure. This study was conducted to evaluate and compare postabortion and interval minilaparotomy sterilization procedures.

### Material and Methods

From July 1975 to November 1977, 149 women underwent postabortion sterilization and 151 women underwent interval sterilization at the Medical College Hospital in Baroda, India. All the procedures were performed by a single operator via minilaparotomy using the tubal ring technique.

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### *Study Design*

To eliminate inter-operator variability all the study procedures were performed by a single operator. To minimize evaluator bias, another physician, the evaluator, was responsible for the care of the patient from the time she left the operating room. Thus, the operator performed the procedure and recorded data related to the procedure and to events which occurred while the patient was in the operating room; the evaluator was responsible for the postoperative care of the patient and recorded data on all subsequent events, without the knowledge of the specific surgical approach employed.

The patient was advised to return for follow-up history and physical examination between 7 to 21 days, at 6 months and at 12 months after sterilization. In this series, 100 per cent of the study subjects returned to the hospital for the first follow-up visit; 76.0 and 67.3 per cent respectively have, so far returned for the 6 and 12 months follow-up visits.

### *Clinical Procedures*

The patient was administered 0.6 mg of atropine intramuscularly about half an hour before surgery. About 15 minutes before surgery 10 mg of diazepam followed by 100 mg of pethidine was administered intravenously. The patient passed urine before entering the operating room. Sterilization was performed with local anaesthesia; 15 to 20 ml of 1 per cent xylocaine was infiltrated at the operation site. If the patient started straining after the abdomen was opened, 20 to 25 ml of 1 per cent xylocaine was instilled into the peritoneal cavity and over the intestines to make her comfortable.

Postabortion sterilization was per-

formed immediately after pregnancy termination by suction evacuation.

Minilaparotomy was performed in all cases as follows: The patient was placed in the trendelenburg position and a Vitoon's manipulator was introduced into the uterus. A 4 cm incision was made two fingers above the symphysis pubis. After opening the peritoneum, the uterus was manipulated to bring the fallopian tube into view. The tube was gently caught with the Babcock's forceps and the tubal ring applied 4 cm from its cornual end. This procedure was repeated on the other side. The peritoneum was closed by continuous catgut sutures and the skin closed by subcuticular catgut. Prophylactic antibiotics were routinely administered in all cases; 69.1 per cent of the postabortion and 98.6 per cent of the interval cases were hospitalized for 2 to 3 days.

### *Subjects*

Only women requesting sterilization for family size limitation were included in the study. Preexisting systemic and/or pelvic disease was not a contraindication. Pelvic surgery including caesarean section, appendectomy, perineal repair and dilatation and curettage were reported in 3.4 per cent postabortion and 7.3 per cent interval cases. There was one patient with treated pulmonary tuberculosis in the postabortion and one with pyelitis in the interval group.

### *Definitions and Criteria*

Technical failure was defined as a case in which the designated procedure could not be completed. Technical difficulty was defined as any difficulty associated with the equipment. Surgical difficulty was any difficulty encountered during the procedure which was not due to equipment-related problems.

Complications and complaints were categorized as operative, immediate, early and delayed postoperative. Operative complications and complaints were those occurring during surgery, immediate postoperative complications and complaints were those occurring after surgery but prior to the patient's discharge from the hospital. Early postoperative complications and complaints were those occurring between the patient's discharge from the hospital and the first follow-up visit 7 to 21 days after surgery. Delayed postoperative complications and complaints were those occurring between the first follow-up visit and later follow-up visits at 6 and 12 months.

Surgical time was defined as the time from the initial incision to final closure.

Several tests of significance were used during analysis; only the significance levels (*p* values) are presented.

### Results

Women undergoing postabortion and interval sterilization procedures were similar with respect to age, parity, number of living children, previous child loss and education. More than 90 per cent of the women in both groups had not practised any form of contraception (Table I).

### Technical/Surgical Difficulties

No technical difficulties were reported. The incidence of surgical difficulties was higher for the interval (13.2%) than for the postabortion (10.1%) cases (Table II and Fig. 1); the difference was not statistically significant ( $p < .05$ ). No major surgical difficulties were reported (Table II). The most frequently reported difficulties in both groups of patients were related to visualizing and exteriorizing the tubes. In one interval case the right tube snapped while applying the tubal

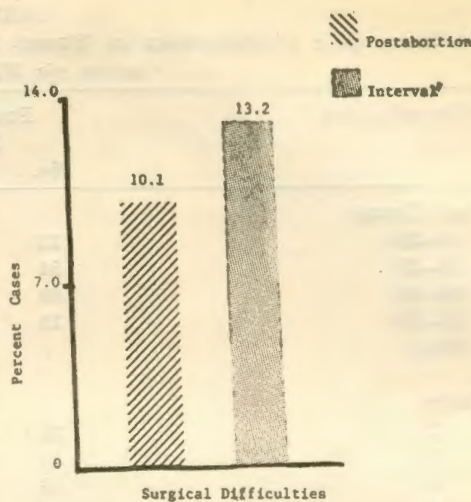


Fig 1

INCIDENCE OF SURGICAL DIFFICULTIES FOR WOMEN UNDERGOING POSTABORTION AND INTERVAL STERILIZATION VIA MINILAPAROTOMY, AT THE MEDICAL COLLEGE HOSPITAL, BARODA, INDIA, JULY 1975 TO NOVEMBER 1977

ring; another ring was applied 3 cm away from the site, where the tube snapped.

In two interval cases, local anaesthesia failed and so general anaesthesia was administered (Table II).

### Complications

No complications attributable to the abortion procedure were reported for patients undergoing postabortion sterilization.

The incidence of all sterilization complications was higher for the postabortion cases (43.0%) than for the interval cases (27.8%) (Table III and Fig. 2); the difference was, however, not statistically significant ( $p < .05$ ). Higher rates for operative, immediate postoperative and early postoperative complication rates were reported for the postabortion group. However, the difference was statistically significant ( $p < .05$ ) only for early postoperative complications (reported for 34.9 per cent of the postabortion and 14.6 per cent of the interval cases). Tearing of the

TABLE I  
Socio-demographic Characteristics of Women Undergoing Postabortion and Interval Sterilization via Minilaparotomy

Characteristics	Postabortion N=149		Interval N = 151	
	No.	%	No.	%
<b>Age (Years)</b>				
20-24	13	8.7	5	3.3
25-29	54	36.2	42	27.8
30-34	69	46.3	93	61.6
35-39	13	8.7	11	7.3
Mean		29.8		30.3
<b>Parity</b>				
2	23	15.4	11	7.3
3	40	26.8	43	28.5
4	46	30.9	51	33.8
5	33	22.1	33	21.9
6+	7	4.7	13	8.6
Mean		3.7		4.0
<b>Total Living Children</b>				
1-2	27	18.1	14	9.3
3-4	98	65.8	107	70.9
5-6	24	16.1	27	17.9
7-8	0	0.0	3	2.0
Mean		3.5		3.7
<b>Child Loss</b>				
0	117	78.5	116	76.8
1	27	18.1	28	18.5
2	4	2.7	6	4.0
3	1	0.1	0	0.0
4	0	0.0	1	0.7
Mean		0.3		0.3
<b>Patient's Education (School Years)</b>				
0	42	28.2	67	44.4
1-3	6	4.0	6	4.0
4-6	36	24.2	25	16.6
7-9	26	17.4	27	17.9
10-12	33	22.1	22	14.6
13+	6	4.0	4	2.6
Mean		5.8		4.1
<b>Contraceptive Practice (Prior)</b>				
None	135	90.6	140	92.7
Rhythm/Withdrawal	3	2.0	2	1.3
Condom	7	4.7	9	6.0
Other	4	2.7	0	0.0

TABLE II  
Surgical Difficulties for Women Undergoing Postabortion and Interval Sterilization via  
Minilaparotomy

Difficulties	Postabortion N = 149		Interval N = 151	
	No.	%	No.	%
Difficulty in visualizing/exterio- rizing tubes	6	4.0	10	6.6
Right tube snapped while applying ring	0	0.0	1	0.7
Uncooperative/restless patient	6	4.0	7	4.6
Adhesions	3	2.0	0	0.0
Failed local anaesthesia	0	0.0	2	1.3
<b>TOTAL</b>	<b>15</b>	<b>10.1</b>	<b>20</b>	<b>13.2</b>

TABLE III  
Complications for Women Undergoing Postabortion and Interval Sterilization via  
Minilaparotomy

Complications	Postabortion N = 149		Interval N = 151	
	No.	%	No.	%
<i>Operative</i>				
Tear in mesosalpinx	1	0.7	2	1.3
Bladder injury	1	0.7	0	0.0
Perforation of Uterus with manipulator	0	0.0	1	0.7
<b>Total</b>	<b>2</b>	<b>1.3</b>	<b>3</b>	<b>2.0</b>
<i>Immediate Postoperative</i>				
Incision complications:				
Infection	2	1.3	1	0.7
Gaping wound	2	1.3	1	0.7
Serous discharge	2	1.3	1	0.7
Induration	2	1.3	4	2.6
Fever	2	1.3	10	6.6
<b>Total</b>	<b>10</b>	<b>6.7</b>	<b>17</b>	<b>11.3</b>
<i>Early Postoperative</i>				
Incision complications:				
Infection	9	6.0	4	2.6
Gaping wound	8	5.4	1	0.7
Serous discharge	16	10.7	9	6.0
Induration/Keloid	15	10.1	6	4.0
Granulation tissue	0	0.0	1	0.7
Haematoma	1	0.7	0	0.0
Pelvic infection	2	1.3	0	0.0
Vaginitis	1	0.7	0	0.0
Fever	0	0.0	1	0.7
<b>Total</b>	<b>52</b>	<b>34.9</b>	<b>22</b>	<b>14.6</b>
<b>TOTAL</b>	<b>64</b>	<b>43.0</b>	<b>42</b>	<b>27.8</b>

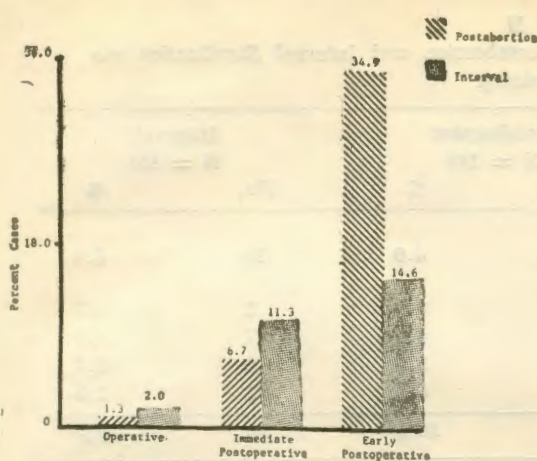


Fig 2

COMPLICATIONS FOR WOMEN UNDERGOING POSTABORTION AND INTERVAL STERILIZATION VIA MINILAPAROTOMY AT THE MEDICAL COLLEGE HOSPITAL, BARODA, INDIA, JULY 1975 TO NOVEMBER 1977

mesosalpinx, bladder injury and uterine perforation were complications reported during surgery; incision complications were, by far, the most frequently reported

immediate and early postoperative complications in both groups of cases (Table III).

Among the postabortion cases one patient was rehospitalised for 3 days as she had an infected haematoma and another for 5 days as she reported with a gaping wound. None of the interval cases required rehospitalization.

### Complaints

There was a higher incidence of complaints among the postabortion (34.9%) than among the interval (25.8%) cases. Pelvic pain was, by far, the most frequent complaint reported by both groups of cases in the immediate and in the early postoperative periods (Table IV). The differences in the complaint rates for the two groups were not statistically significant ( $p < .05$ ).

TABLE IV  
Complaints Reported for Women Undergoing Postabortion and Interval Sterilization via Minilaparotomy

Complaints	Postabortion N = 149		Interval N = 151	
	No.	%	No.	%
<i>Immediate Postoperative</i>				
Pelvic pain	27	18.1	18	12.0
Incision pain	3	2.0	0	0.0
Giddiness	3	2.0	0	0.0
Vomiting	1	0.7	1	0.7
Depression	1	0.7	0	0.0
Iodine burns	1	0.7	0	0.0
Total	36	24.2	19	12.6
<i>Early Postoperative</i>				
Pelvic pain	13	8.7	18	12.0
Itching of scar	1	0.7	0	0.0
Scar tenderness	0	0.0	2	1.3
Depression	1	0.7	0	0.0
Frequency of micturition	1	0.7	0	0.0
Total	16	10.7	20	13.2
<b>TOTAL</b>	<b>52</b>	<b>34.9</b>	<b>39</b>	<b>25.8</b>

### Surgical Time and Hospitalisation

The mean surgical time was similar for the postabortion (20.9 minutes) and interval (19.0 minutes) procedures. The vast majority of the procedures were completed within 30 minutes (Table V).

TABLE V  
Surgical Time for Women Undergoing Post-abortion and Interval Sterilization via Minilaparotomy

Surgical Time (Minutes)	Postabortion N = 149		Interval N = 151	
	No.	%	No.	%
10-19	67	45.0	97	64.2
20-29	71	47.7	44	29.1
30-39	8	5.4	7	4.6
40+	3	2.0	3	2.0
Mean	20.9		19.0	

In this series 30.9 per cent of the post-abortion and only 0.4 of the interval procedures were performed on an outpatient basis.

### Gynaecological Abnormalities

The incidence of gynaecological abnormalities was higher for the postabortion than for the interval cases at 6 months and 12 months poststerilization (Table VI & VII and Fig. 3). However, the differences were not statistically significant ( $p < .05$ ).

The incidence of complaints were also higher for the postabortion than for the interval cases at 6 and 12 months after sterilization. The differences were not statistically significant ( $p < .05$ ) (Table VI & VII).

The rates of gynaecological abnormalities were lower at 12 months than at 6 months for both groups of cases (Tables VI & VII and Fig. 3).

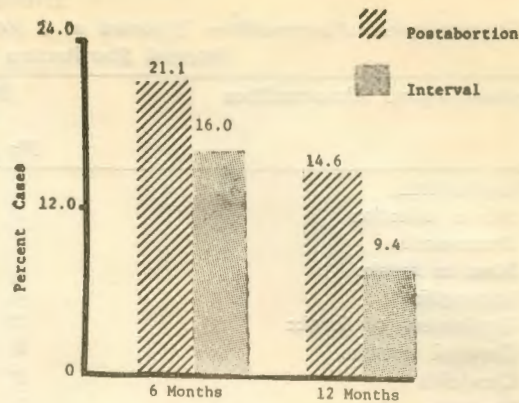


Fig 3

GYNAECOLOGICAL ABNORMALITIES FOR WOMEN UNDERGOING POSTABORTION AND INTERVAL STERILIZATION VIA MINILAPAROTOMY AT THE MEDICAL COLLEGE HOSPITAL, BARODA, INDIA, JULY 1975 TO NOVEMBER 1977

### Pregnancies

One pregnancy was reported among the interval group of cases sixteen months after sterilization. The woman reported with a six weeks pregnancy. Salpingectomy was performed concurrently with termination of pregnancy. The tubal rings were found on both the tubes but the ring on the left tube did not completely occluded the tube.

### Discussion

Minilaparotomy, a simple procedure requiring inexpensive instruments, is becoming widely accepted in developing countries. The tubal ring technique of occluding the tubes is associated with clinically acceptable complication rates and low failure rates and can be used via laparoscopy, laparotomy and colpotomy (Kessel and McCann, 1976; Kwak *et al*, 1975; McCann, 1976). In this study, the minilaparotomy approach and the tubal ring technique were used for performing sterilization to compare the relative safety of the technique in postabortion and interval cases.

TABLE VI  
Gynaecological Abnormalities Reported at 6 Months by Women Undergoing Postabortion and Interval Sterilization via Minilaparotomy

Gynaecological Abnormalities	Postabortion N = 128		Interval N = 100	
	No.	%	No.	%
<b>Complications:</b>				
Pelvic infection	3	2.3	1	1.0
Parametritis	1	0.8	0	0.0
Mass in fornix	1	0.8	0	0.0
Salpingitis	0	0.0	1	1.0
Tenderness of fornix	2	1.6	6	6.0
Cervical erosion	8	6.3	3	3.0
Cervicitis	2	1.6	0	0.0
Vaginitis	1	0.8	0	0.0
Urinary tract infection	1	0.8	0	0.0
Keloid	5	3.9	2	2.0
Wound sepsis	1	0.8	0	0.0
Haematoma	0	0.0	1	1.0
Incisional hernia with pain	0	0.0	1	1.0
Wound gaping	0	0.0	1	1.0
Uterine prolapse	1	0.8	0	0.0
Cystocele	1	0.8	0	0.0
<b>Total</b>	<b>27</b>	<b>21.1</b>	<b>16</b>	<b>16.0</b>
<b>Complaints:</b>				
Pelvic pain	16	12.5	4	4.0
Wound pain	9	7.0	9	9.0
<b>Total</b>	<b>25</b>	<b>19.5</b>	<b>13</b>	<b>13.0</b>

TABLE VII  
Gynaecological Abnormalities Reported at 12 Months by Women Undergoing Postabortion and Interval Sterilization via Minilaparotomy

Gynaecological Abnormalities	Postabortion N = 96		Interval N = 106	
	No.	%	No.	%
<b>Complications:</b>				
Pelvic infection	2	2.1	0	0.0
Cervical erosion	3	3.1	3	2.8
Mass in fornix	2	2.1	0	0.0
Tenderness in fornix	2	2.1	0	0.0
Vaginitis	1	1.0	3	2.8
Keloid	1	1.0	1	0.9
Cystitis	1	1.0	1	0.9
Incisional hernia with pain	0	0.0	1	0.9
Menorrhagia	0	0.0	1	0.9
Leucorrhoea	2	2.1	0	0.0
<b>Total</b>	<b>14</b>	<b>14.6</b>	<b>10</b>	<b>9.4</b>
<b>Complaints:</b>				
Pelvic pain	5	5.2	6	5.7
Wound pain	1	1.0	0	0.0
<b>Total</b>	<b>6</b>	<b>6.2</b>	<b>6</b>	<b>5.7</b>



Women who request induced abortion after completing their desired family size are more likely to accept sterilization when it is offered during the same hospitalisation period. Furthermore, when abortion and sterilization procedures are performed concurrently there are obvious economic benefits. However, it is generally believed that the morbidity rates are higher when sterilization is performed in the immediate postabortion period. Morbidity rates for postabortion and interval sterilization procedures should be scientifically documented by controlled clinical trials.

In this study, inter-operator variability was eliminated and evaluator bias minimized. The same operative technique was used for all cases and the related variables were held constant. The analysis showed that the incidence of surgical difficulties was not significantly different for the two groups of cases. Complication rates during surgery and in the postoperative period were higher among postabortion than among interval cases but the difference was statistically significant only for the complications which occurred between the patient's discharge from the hospital and the first follow-up visit. Incision complications were, by far, the most frequently reported postoperative complications.

These findings suggest that improvement in patient care in the early postoperative period could minimize postoperative morbidity. To reduce the incidence of incision complication specific instructions, medication and dressings should be provided to the patients before they are discharged from the hospital. The period of hospitalisation may be extended for selected cases.

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