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Interval Female Sterilization : Standard Minilap vs a New Modified Minilap Technique

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ABSTRACT

Objective To introduce a new modified minilap technique for female sterilization and to compare the operative time, difficulty and complication with those of the standard minilap method.

Design A single-centre prospective randomized study.

Setting Health Promotion Centre, Region 6, Khon Kaen, Thailand.

Subjects Thirty-one multiparous women requesting interval female sterilization, were randomly assigned (16 in the standard and 15 in the modified minilap technique).

Main outcome measures Operative time, difficulty, intra-operative and post-operative complications.

Results There was no statistical difference in the operative time. With the standard procedure, there were bleeding complications at the abdominal incision and at the cervix after removal of the Hulka clamp. There were no significant problems or complications with the modified technique.

Conclusion The modified minilap technique is a safe, rapid procedure which has the same effectiveness as that of the standard minilap with less complications. Further research is needed to address the applicability of the technique in community hospitals.

Key words : interval female sterilization, uterine elevator, appropriate technology

Thailand's National Family Planning Programme is a successful one among developing countries. This achievement can be measured in terms of the contraceptive prevalence rate which was 71% in 1987. Of all the methods employed to achieve this high prevalence rate, female steriliza-

tion accounts for the largest portion of 25%, mostly postpartum sterilization. At present, there are fewer women with three or more children and most have only one or two. Consequently decisions to have postpartum sterilization are made less frequently and most prefer to wait until their last child is old enough to ensure the survival. The National Family Planning Programme must, therefore, focus its attention at this moment on strengthening the provision of interval female sterilization.[1]

There has been no increase in the number of interval sterilizations performed because interval female sterilizations are mostly carried out in community hospitals[1] and contemporary sterilization techniques such as laparoscopy and standard minilap are not readily available in community hospitals which are mostly staffed by new graduates or general practitioners.

Laparoscopy needs expensive instruments and a team of well trained personnel. In standard minilap, the incision is made just above the symphysis pubis passing between rectus and pyramidalis muscles and may cause bleeding from injury to the inferior epigastric artery. The bladder may also be traumatized because of the low incision. Uterine elevator, such as Hulka's or Ramathibodi's, makes the standard minilap easier but may perforate the uterus or injure the bladder and rectum if the operators are careless or fail to insert the clamps along the axis of the uterine cavity.[2]

The operators must therefore have a certain amount of skill and experience to avoid complications and subsequent referral of cases to provincial or regional hospitals. Rumours and adverse publicity about the operators and community hospitals may result in lower acceptance of family planning by sterilization.

To avoid these complications, the minilap technique has been modified[3-5] as follows :-

1. The incision is made at a higher level 1/3-1/2 above the symphysis pubis along the midline joining it and the umbilicus, where the rectus muscle can be separated without passing through the pyramidalis muscles, in order to reduce bleeding and to avoid bladder injury.

2. The uterus is elevated by a pair of sponge holding forceps (a standard 24 cm long), holding three pieces of doubly folded 4" x 4" gauzes, inserted and positioned in the posterior vaginal fornix pushing in the forward and upward direction on to the abdominal wall.

Materials and Methods

A comparative study of the standard minilap and the modified minilap technique was conducted.

All patients were volunteers for sterilization at the Health Promotion Centre, Region 6, Khon Kaen, Thailand during the period between February and July 1989. They were allocated to either study groups by stratified block randomization according to age and parity. All operations were performed by the same obstetrician. Indications, contraindications and operative procedures of both techniques are summarized in Table 1, 2. Following recovery from anaesthesia, the patients were admitted overnight and discharged the day after with appointments for follow up visits at 1 and 6 weeks after surgery.

Results

There were 31 patients studied (16 in the standard technique group and 15 in the modified minilap technique group), all having similar general characteristics (Table 3). Total operative time from skin incision to skin closure was not significantly different between the two groups, but the time taken from skin incision to peritoneal entry was shorter in the modified minilap group than in the standard minilap group. It meant that entry into the

Table 1. Indications, contraindications and procedures for female sterilization

Indication	Age 20-45 years Living children 2 or more
Contraindication	During menstruation, or during luteal phase without contraception Chronic systemic disease Pelvic inflammatory disease Previous abdominal operation Body weight > 60 kg Blood pressure > 130/90 mmHg Haemoglobin < 10 g/dl Sugar in urine
Pre-operative procedure	Pre-medication with Morphine gr 1/6, Atropine gr 1/150 intramuscular Patients in lithotomy position, scrubbed and painted with antiseptic solution, draped Pelvic examination Ketamine HCl 1 mg/kg body weight intravenously as anaesthetic agent

Table 2. Operative procedure

Standard minilap	Modified minilap
- Bivalve speculum inserted to clean the cervix and vagina, Hulka clamp applied, then speculum taken off	- Inserting sponge holding forceps with doubly folded 3 pieces of 4" x 4" gauzes into the posterior vaginal fornix without the use of speculum
- Transverse incision 3 cm, at 2 finger-breadths above symphysis pubis, through skin and rectus sheath	- Uterine elevation, sponge forceps held by an assistant nurse
- Longitudinal split of muscles and peritoneum	- Longitudinal incision 3 cm, at uterus, through skin and rectus sheath
- Uterine elevation, Hulka clamp held by an assistant nurse	- Longitudinal split of muscles and peritoneum
- Tubal ligation (Pomeroy's)	- Tubal ligation (Pomeroy's)
- Abdominal wall closure	- Abdominal wall closure
- Hulka clamp taken off	- Sponge forceps taken off
- Post-operative speculum examination	- Post-operative speculum examination

peritoneal cavity was faster in the modified minilap group.

Several factors which affected the operative time were thickness of fat in the anterior abdominal wall, uterine position, adnexal adhesions and unsatisfactory anaesthesia (Table 4).

Uterine elevation by sponge forceps holding folded gauzes was easily achieved in all cases, in 12 cases the uterus were elevated 1/2 above the symphysis pubis and in 3 cases elevation to 1/3 above the symphysis pubis was possible.

Bleeding from rectus and pyramidalis muscles requiring clamping and ligation occurred in 3 out of the 16 cases in the standard minilap group but one occurred in the modified minilap group. Bleeding from the cervix at the site of Hulka clamp's teeth occurred in 10 out of 16 cases in the standard minilap group, as revealed during

Table 3. General characteristics of the study cases

Characteristics	Standard minilap (n = 16)	Modified minilap (n = 15)	P-value
Age (yr)			
X± SD	29.5 ± 4.2	29.7 ± 4.9	NS
Range	23 - 29	22 - 38	
Parity			
X±SD	2.2 ± 0.4	2.1 ± 0.4	NS
Range	2 - 3	2 - 3	
Body weight (kg)			
X±SD	50.5 ± 4.1	53.1 ± 5.5	NS
Range	43.0 - 57.5	44.5 - 60.0	
Height (cm)			
X±SD	153.6 ± 3.7	153.8 ± 5.2	NS
Range	146.5 - 159.0	147.5 - 164.0	

Table 4. Operative time and factors that might affect the operative procedure

	Standard minilap (n = 16)	Modified minilap (n = 15)	P-value
Total operative time (skin to skin) (min)			
X ± SD	12.3 ± 3.8	12.2 ± 4.2	NS
Range	7.0 - 22.0	7.0 - 22.0	
Operative time (skin to peritoneum) (min)			
X ± SD	3.0 ± 1.3	2.1 ± 1.0	< 0.05
Range	1.0 - 5.0	1.0 - 4.0	
Abdominal fat thickness (cm)			
X ± SD	1.6 ± 0.4	1.9 ± 0.7	NS
Range	1.0 - 2.4	1.0 - 3.2	
Position of uterus			
Anterior	3/26 = 18.8%	5/15 = 33.3%	NS
Posterior	13/16 = 81.2%	10/15 = 66.7%	
Adnexal adhesions and unsatisfactory anaesthesia	0	1/15 = 6.7%	-

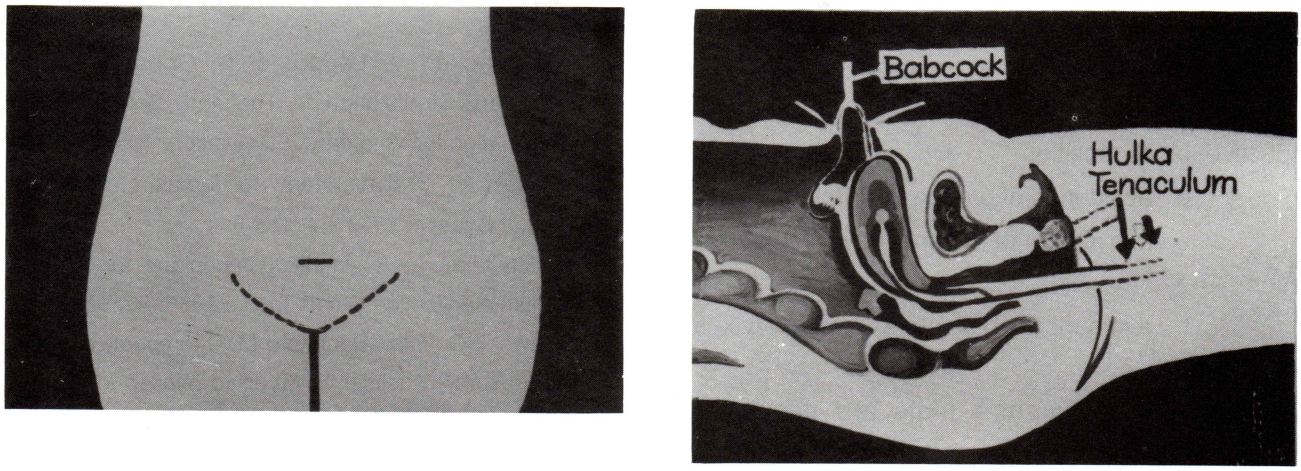


Fig. 1. The standard minilap technique.

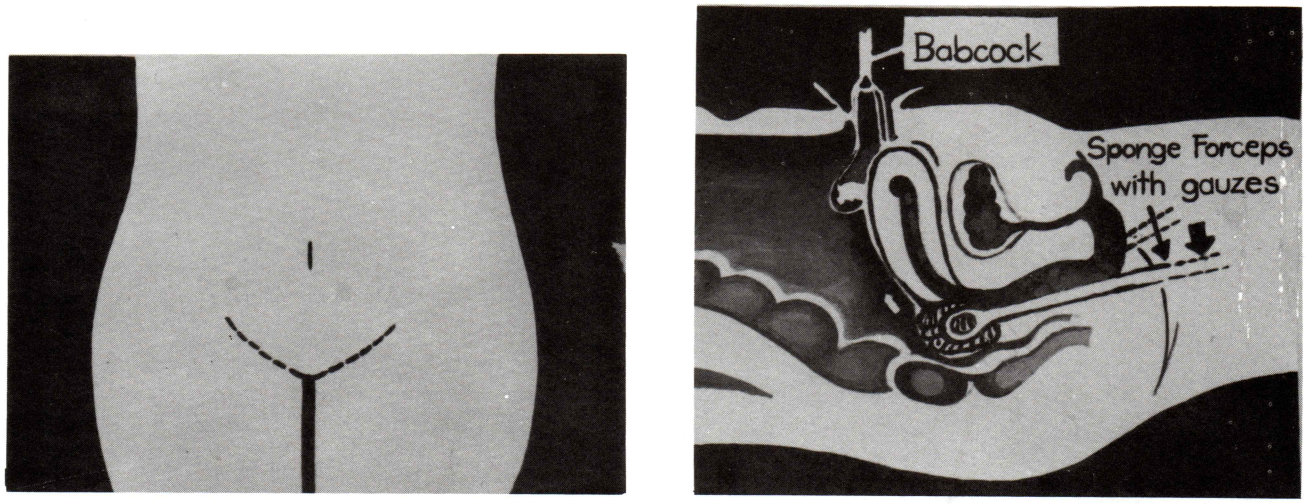


Fig. 2. The modified minilap technique.

post-operative speculum examination, which took time to stop after gauze packing.

There was no tissue trauma in the vagina or cervix in the modified minilap group. There were no complications such as uterine perforation, bladder or rectal injury in either group.

Post-operative follow up visits revealed no abnormalities or complications in either group and every patient made a satisfactory recovery.

Discussion

The effectiveness of this new modified minilap technique appears to be the same as that of the standard minilap but complications such as bleeding from muscles of the anterior abdominal wall, from uterine elevator, from clamping site on the cervix, trauma to the uterus, bladder or rectum are avoided. The modified minilap technique may be adopted in community hospitals where newly graduated doctors or general practitioners can perform interval female sterilization with confidence and safety.

This should lead to an increase in the rate of acceptance for interval female sterilization in accordance with the objective of Thailand's National Family Planning Programme.

The advantages of this technique compared to the standard technique are :

a. simple instrumentation

b. no speculum examination required

c. easy manipulation of the uterus irrespective of its position

d. avoidance of uterine perforation

e. avoidance of uterine cavity contamination

f. avoidance of bleeding from cervix at clamping site

Further multicentre trials are needed in different community hospitals to evaluate the applicability of the modified minilap technique for interval female sterilization.

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