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Research Article

An experience with double puncture laparoscopy in sterilization camps

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ABSTRACT

Background: For tubal sterilization the common technique preferred in sterilization camps by government institutions is minilap (modified Pomeroy's) technique as it is safe and has minimal complications. There are few published articles in India where Double Puncture Laparoscopic technique is used in sterilization camps as it needs expertise. In the present study we would like to share our experience with double puncture laparoscopy (DPL) technique in sterilization camps. The aim of the study is to assess the failure rates and complications of double puncture laparoscopy (DPL) technique in sterilization camps.

Methods: Laparoscopic sterilization camps were held in urban, rural and tribal areas from April 2010 to March 2015 and a total of 9,218 cases were done. The failure rates and complications were recorded and analyzed.

Results: Failure rate was seen in 0.13% of cases. Technical failure was mainly due to adhesions (0.06%) followed by pelvic inflammatory disease (0.03%). The commonest complication encountered was infection at the port site (0.9%) and bleeding from port site (0.66%).

Conclusions: Laparoscopic sterilization by falope rings is getting more and more popular in our country. A camp approach is the best way of managing large number of women requiring sterilization in rural and tribal areas. Camp organization by a person experienced in laparoscopy and management of any complications that may arise makes the camps a safe alternative to modified Pomeroy's.

Keywords: DPL, Complications, Failure rate, Sterilization camps

INTRODUCTION

Currently, India is the second most populous country in the world with a population growth rate of 1.74%, contributing to 20% of births worldwide. For many women who are satisfied with their family size, sterilization is a relatively safe and sure way to prevent future pregnancy.

Tubal ligation can be performed in the peripartum period or at any time remote from pregnancy (referred to as interval sterilization). Approximately half of female sterilizations are interval sterilizations, and the other half are performed at the time of caesarean or immediately postpartum. Most interval sterilizations are performed adopting minilap by modified Pomeroy's technique or

double puncture laparoscopy both in the institutions and sterilization camps at primary health centre. This study was conducted to analyse the failure rate and complications of double puncture laparoscopy (DPL) in sterilization camps at urban, rural and tribal areas.

METHODS

Laparoscopic sterilization camps were held in urban, rural and tribal areas from April 2010 to March 2015 and a total of 9,218 cases were done. All sterilization procedures were performed by gynecologist with DPL training and an anesthetist at centers recognized by government for conducting camps. The camps had facilities for short admission of patients and operative procedures in case of emergency. At the time of the first

visit, all the patients were registered. Their obstetric and medical history was noted, and motives of sterilization were discussed. A thorough examination was performed to rule out disorders that would contraindicate laparoscopy and to check if the patient was pregnant. A haemogram and urinalysis were done to confirm fitness for surgery. All the patients were starved overnight. Injection atropine sulfate 0.5 mg was given intramuscularly half an hour before the operation. Double puncture operative techniques were employed. Carbon dioxide was used to induce pneumo peritoneum. Tubal occlusion was achieved with Falope rings. After an uneventful operation, the patients were discharged on the same day. With development of any complication, they were treated appropriately and kept under observation till such time as it was deemed safe to discharge them. All the patients were followed up for detecting late complications and failure of sterilization procedure.

RESULTS

A total of 9218 cases underwent sterilization by DPL procedure and year wise number of cases is tabulated (Table 1). Cases from urban area were 1371/9218 (14.8%), rural area 2767/9218 (30.01%) and tribal area were 5080/9218 (55.1%) (Table 2).

Table 1: Year wise distribution of DPL cases: 9218.

Year	No of camps	Total no of cases
2010-11	18	498
2011-12	40	1906
2012-13	36	2318
2013-14	43	3328
2014-15	13	1168
TOTAL	150	9218

Table 2: Geographic distribution: 9218.

Year	Urban	Rural	Tribal
2010-11	75	132	291
2011-12	263	631	1012
2012-13	397	712	1209
2013-14	440	943	1945
2014-15	196	349	623
TOTAL	1371[14.8%]	2767[30.01%]	5080[55.1%]

Mean age was 26 years. In urban area 70.89% had 2 children, rural area 77.05% had 2 children and in tribal area 67.67% had 3 or more children before the procedure. The important risk factors from urban area were obesity (27.8%) and previous LSCS (17.5%), in rural area obesity (8.6%) and previous LSCS (9.6%), previous failed tubectomy (1.5%) and cases from tribal area had minimal risk factors (Table 3).

Table 3: Demographic and risk factors: 9218.

Demographic factors	Urban	Rural	Tribal
Age			
20-25	403[29.3]	2018[72.9]	2123[41.7]
25-30	821[59.8]	549[19.8]	1569[30.8%]
>30	147[10.7]	200[7.2%]	1388[27.3]
Parity			
1	56[4.08%]	-	-
2	972[70.89]	2132[77.05%]	1642[32.32]
3 or more	343[25.01]	635[22.9%]	3438[67.67]
Risk factors			
Obesity	382[27.8%]	238[8.6%]	21[0.4%]
Previous LSCS	241[17.5%]	268[9.6%]	49[0.9%]
Previous failed tubectomy	19[1.3%]	43[1.5%]	-

Technical failure was mainly due to adhesions 6/9218 (0.06%) followed by pelvic inflammatory disease 3/9218 (0.03%) (Table 4).

Table 4: Technical failures:9218.

Reason	Number of cases	Percentage
Adhesions	6	0.06
PID	3	0.03
Convulsions	2	0.02
Obesity	5	0.05
TOTAL	16	0.17

The commonest complication encountered was infection at the port site 89/9218 (0.9%) and bleeding from port site 61/9218 (0.66%). Failure rate was seen in 12/9218 (0.13%) of cases (Table5).

Table 5: Complications: 9218.

Complication	Number of cases	Percentage
Surgical emphysema	9	0.09
Bleeding from port site	61	0.66
Neurogenic shock	1	0.01
Port site infection	89	0.9
Omental prolapse	3	0.03
Incisional hernia	1	0.01
Failure	12	0.13
TOTAL	176	1.90

DISCUSSION

The Falope-Ring sterilization technique was introduced in 1973 and a preliminary report appeared in 1974. The procedure was begun at Michael Reese Hospital in 1975. The procedure was found to be a relatively simple with less operative time, less complications and easily teachable.¹

A. J. Nieuwoudt et al. during a 4-year period sterilized 9175 women under local anaesthesia by the laparoscopic Falope ring method. The procedure was performed in smaller towns in the Cape Province. He stated that this procedure can be made available to rural areas, ensuring greater support for a high-priority primary health care service.²

Jens B. Hertz studied one hundred and sixteen women who underwent laparoscopic sterilization by the Falope-ring technique.³ Bleeding from the distal site of puncture and tubal transection were the most common preoperative complications, occurring in 4.4 and 3.5% respectively. In 80 patients, hysterosalpingography was performed after 3 months as a control. Unilateral leakage was demonstrated in 6 patients; 5 of these were resterilized via a minilaparotomy. He felt that Falope ring technique is easy and quick to carry with a low rate of complications and failures.

In India the quality of care of contraceptive services has remained a serious concern. In many states, poorly functioning health systems have resulted in these services being provided in camp settings rather than as part of regular services in functioning health facilities. Bhatt RV in his article stated that: in camp based laparoscopic sterilization the number of deaths were more because of the procedures being conducted by least experienced surgeons and improvised settings with no adequate health facilities. In Gujarat out of 106,500 women undergoing the operation during 1979 and 1980 the deaths recorded were 22.⁴

Mhatre PN et al. in their study the average age undergoing sterilization was 30 years, and average parity was 3. Ninety-five per cent patients undergoing sterilization at camps were interval cases and 38.31% were with first trimester abortions. The mean stay in the camp was half to one day. About 1% required an overnight stay. There were 3 failures out of 5584 (0.05%), 2 patients had pelvic adhesions and 2 had gross obesity, making sterilization difficult, which was however carried out in all 4 cases.⁵

In the present study the failure rate is 0.13%. Mean age of patients undergoing the procedure was 26 years with 2-3 children. The important risk factors from urban and rural area were obesity and previous LSCS. In tribal area the

risk factors were minimal. Technical failure was mainly due to adhesions and pelvic inflammatory disease. The commonest complication encountered was infection at the port site and bleeding from port site. There were no deaths recorded.

CONCLUSIONS

Laparoscopic tubal occlusion by Falope rings is seen to be a safe, simple and effective means of female sterilization which can be performed by gynaecologists trained in laparoscopy. Disadvantages of laparoscopic tubal ligation include the need for anaesthesia and cost of laparoscopic equipment. In India majority of the primary health centres and area hospitals are upgraded and laparoscopic techniques can be easily adopted with minimal complications and failure rates.

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