

A comparison between two methods of tubal ligation for sterilization of woman in a rural hospital

Abstract

Pomeroy's method has emerged as the commonest method among various methods performed for tubal ligation for permanent sterilization of women because of its simplicity, safety, low failure rate and potential for reversibility (if needed). It can be performed laparoscopically as well through a mini laprotomy. It has superseded other methods of salpingectomy performed for last 100 years. These include Lundgren1881, Madlex1910, Irving1924, Bishop and Weln1930, Aldridge1934, Kruner1935 Ulchida1946 and Parkland 1960 etc .These methods vary in some parameters like tubal destruction, failure rates and potential for reversibility.¹ The failure rates vary with the age of the patient and the method of the tubal occlusion employed .The highest risk was found after clip sterilization(36.5/1000) and lowest after unipolar coagulation(7.5/1000)and post partum salpingectomy(7.5/1000). The cumulative risk being highest (54.3/1000) for clip application when performed at a young age.² The failure rate of pomeroy's method ranges from 0-25% to 2 %² which though small but actually transforms into a large number of patients as 180 million women (globally) rely solely on tubal ligation to prevent their pregnancy and in USA alone more than 6 million procedures are performed per year.¹ Out of these failures 5 to 90% present as ectopic pregnancies.³ 6 to 10% of maternal mortality is due to ectopic pregnancies.⁴ So a search for a method which has a 0% failure rate along with being a simple, safe and reversible, will always be there. In this study we compared pomeroy's method with other method in which a slight modification of the technique was done.

Keywords: tubectomy, pomeroy's method, ectopic pregnancy, proximal, distal tubal segments

Material and methods

The study was carried out in a secondary care hospital (first referral unit) in a rural area. From 2005 to 2018 about 1000 patients were included in the study. Patients were admitted after admitting a thorough history was taken and examination was done. A quick grav index test of urine was done in all patients. Patients were divided into two groups randomly. Two groups were comparable as per age, parity, and timing of tubectomy after child birth. No cesarean tubectomy was done in this study.

Chart showing profile of patients

Table 1. Period of follow up ranged from 8 to 13years. Patients were contacted by telephone or through Asha workers up to 2018 AD for any news about pregnancies or other related symptoms.

Table 1 Period follow up of patient

		≤25 years	25-30 years	≥30 years
Age	Group A	105(21%)	355(71%)	40(8%)
	Group B	100(20%)	360(72%)	40(8%)
Parity		P2	P3	≥P3
	Group A	90(18%)	360(72%)	50(10%)
Time after delivery	Group B	100(20%)	350(70%)	50(10%)
		At the time of cesarean section	↓ 6 weeks (peripartum)	≥6 weeks
	Group A	0	25(5%)	475(95%)
	Group B	0	28(5.5%)	472(94.5%)

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I. Group A: A classical Pomeroy's procedure was done using 20 catgut sutures .The first one was used as transfixing suture and the second one as a free tie.

II. Group B: Again same procedure was done but additionally a transfixing suture with 20 silk was applied to the proximal tubal segment.

In both groups procedure was done through a minilaprotomy and the patient was under general anesthesia.

Observations

In group B no failures were reported during the follow up period while as in Group 10 failures were reported out of which 3 were intrauterine and 7 were ectopic pregnancies. 3 women reported pregnancies during 1st year and rest 7 afterwards.

Results

Table 2.

Table 2 Pregnancy failures

	Total no: of failures	Intrauterine pregnancies	Ectopic pregnancies
Group A (Classical Pomroy's Method)	10(2%)	3 (30% of failures)	7 (70% of failures)
Group B (Pomroy's method with modification)	Nil	Nil	Nil

Discussion

There are two reasons of failure of pomeroy's procedure, given in literature, even when this procedure is done correctly.

- Fistula formation:** when tubes are ligated with non absorbable sutures i.e. catgut the two ends fall apart after some time. The ligated ends remain open giving rise to the proximal tubo peritoneal fistula through which a sperm can travel and fertilize an ovum. This fertilized ovum can then travel and lodge in distal tube, proximal tube and even in uterus giving rise to an ectopic pregnancy or even an in utero normal pregnancy
- Recannalisation:** when a non absorbable suture like silk is used in this procedure the two ends remain in contact for a long time recannalisation can occur giving rise to a passage through which a sperm can travel and fertilize the ovum. This passage may be large enough to allow the larger fertilized ovum to pass back to uterus or more commonly it may be small or so distorted that it gives rise to an ectopic pregnancy. Rarely recannalisation by formation of an epithelial tract along the free margin of mesosalpinx can still occur even if the two ends are separated by a centimeter or so.

By applying a silk suture to the proximal segment of the tube the chances of formation of a peritoneal tubal fistula as well as recannalisation are highly reduced as the two ends will fall apart. Results in this study are encouraging as no failures were reported by applying a very simple modification but will need further evaluation to see if the results are reproduced when performed at a large scale.⁵⁻¹³

Acknowledgments

None.

Conflicts of interest

The authors declare that there is no conflict of interest.

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