Research Article

Trade-off between non-closure and closure of parietal peritoneum in tubal ligation cases at rural medical college in central Maharashtra

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Abstract

Tubal ligation (TL) is a surgical procedure for sterilization in which a woman's fallopian tubes are clamped and ligated which prevents eggs from reaching the uterus for implantation. The commonly occurring complications of tubal ligation include pain, inflammation, wound infection etc. Traditionally, suturing of the visceral and parietal peritoneum at TL has been widely accepted. The present study was carried out to assess the short term outcomes of peritoneal non-closure in Indian Institute of Medical Science, Warudi, Tq. Badnapur, Dist. Jalna (M.S.). The study was conducted over a period of 1 year and 4 months with sample size of 100 tubal ligation cases. Out of which 50 underwent peritoneal suturing and 50 were left unsutured. Age, parity, religion, education, duration of surgery, recovery time, time of closure, wound status, pain score etc. were noted. Pain was significantly less in cases where the visceral and the parietal peritoneum were left unsutured, however it was not statistically significant. In conclusion the routine non-closure of the peritoneum reduces operative time by an average of 6 min. Thus pain, postoperative morbidity and time required for operation was less with no-closure of peritoneum. Thus non-closure of peritoneum in TL produces significant reduction in pain, fever, analgesic requirements and shorter operative time without increasing febrile morbidity as compared to standard methods. However more studies are needed to examine the long-term morbidity associated with the closure or the non-closure of the peritoneum.

Keywords: Tubal ligation, Peritoneum closure, Non-closure.

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INTRODUCTION

The study of outcomes of non-closure of peritoneum during tubal ligation is done in our institute which suggested significant advantages over closure of peritoneum, viz., lesser postoperative pain, infection and most importantly making it a time saving procedure. United Kingdom's Royal College of Obstetricians and Gynaecologists (RCOG) green- top guidelines suggested that 'non-closure appears to have few associated risks and may be recommended in many obstetric and gynaecological operations' (RCOG, 1998)[1]. Despite this recommendation few years ago, the issue of closure of the peritoneum versus non-closure remains controversial among many obstetricians and gynaecologists. A survey in the Jessop Hospital for Women, Sheffield to examine the individual practice among consultant obstetricians and gynaecologists in a teaching hospital on closure or non closure of the peritoneum. Approximately 50% of the consultants in this hospital have continued to perform routine closure of the peritoneum after surgery whereas the other 50% do not. Closure of the peritoneum was thought to possibly allow for (i) restoration of anatomy and approximation of tissues for healing; (ii) re establishment of the peritoneal barrier to reduce the risk of infection; (iii) reduction of the risk of wound herniation or dehiscence; and (iv) minimizing adhesion formation.[2] The recommendation of the RCOG green-top guidelines, the most common answer was that there was

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no strong evidence to support the recommendation.[1] Many previous studies examined the advantages and dis-advantages of peritoneal closure versus non-closure.[3-5] Various aspects of the outcome were examined including the intraoperative factors such as operating time and blood loss, post-operative factors such as pain, length of hospital stay, rates of infection, haematoma formation and wound healing. Outcomes in the longer term included adhesion formation/ reformation and hernias. There were 'no significant difference in short term morbidity from non-closure of the peritoneum in Caesarean section'.[4] Clean incision of the peritoneal surface without suturing the cut edges provides more rapid peritoneal repair, leading to less postoperative pain, fever, lesser risk of ileus and better wound healing.[5] Reasons cited for non-closure of the peritoneum include : reduction of operation duration, shortening of hospital admission, use of less analgesic, earlier return of bowel function, and immediate postoperative recovery.[6,7] Many previous studies showed the effects of leaving the peritoneum open and compared it with closing after TL. One study reported lower incidence of postoperative febrile morbidity, a shorter stay in hospital and an earlier return of bowel function following non-closure peritoneum compared to closure technique.[8] Other studies have not shown significant differences about wound infection, postoperative febrile morbidity and stay in hospital.[9,10]

OBJECTIVES

The present study was undertaken in order to study: the controversial reports about the outcomes of closure versus non-closure of the parietal peritoneum after TL and comparison of postoperative morbidity of techniques.

MATERIAL AND METHODS

Present study was database study and was conducted in Noor Hospital, IIMSandR, At post Warudi, Tq, Badnapur, Dist. Jalna during Jan 2013 to April 2014. The study was approved by the Ethical Committee of our Institute and written informed consent was obtained from each subject. One hundred women undergoing tubal ligation procedure were selected to receive either closure or non-closure of peritoneum. Patients with former CS and/or abdominal surgery, diseases such as hypertension, diabetes mellitus and premature rupture of membrane and preoperative bleeding were excluded from the study. In all cases, pain relief was obtained by intramuscular diclofenec sodium (100 mg). In the control group, both the visceral and parietal peritoneum was closed, whereas in the experimental group both peritoneal layers were left unsutured. The time of skin incision and surgery end time were recorded. At the end of surgery inj. diclofenec sodium, 100 mg were given to all women. After detailed history, examination and laboratory reports, informed written consent was obtained from each patient for the study. The women were allocated to one of the two groups, closure group served as control or non-closure i.e. study group. On call consultants or senior residents supervised by consultants performed all operative procedures. In control group, both the layers of peritoneum were sutured with continuous 1-0 chromic catgut. Rectus sheath was closed with a continuous number 1 vicryl. The skin was approximated with intermittent skin suturing with 1.0 ethyline. Subject group had similar procedure of TL but without re-approximation of parietal peritoneum. The study was done based on epidemiological parameters like age (years), parity, socioeconomic status, ethnicity and education. The specific perioperative characteristics like time of closure (min), recovery time (days), preoperative history viz., appendicitis, LSCS etc, wound history (Pain, in duration, sepsis, healthiness) were analyzed systematically. Analgesics were administered for two days postoperatively. Patients were discharged on the 7th postoperative day following the operation. Analysis of data was performed with student's t-test and chi-square. P value less than 0.05 was considered significant.

RESULTS

Total 100 women undergoing TL were allocated in two equal groups (50 subjects in each group), closure or non closure. No significant differences were noted between the study groups with age, parity, religion, education, recovery time, time of closure, preoperative history and wound history and reasons for TL. In both the groups parity III and II subjects were common. Majority of the subjects were residing in the adjacent rural areas and amongst them women belonging to Hindu religion were maximum followed by Muslim and Christian respectively. Maximum subjects were school pass outs (Table 1). In the present study, in both the group recovery time were < 7 days; more so in study group. The significant reduction in the time of closure in study group as compared to control group is noteworthy. There was no any past operative history in most of the subjects. Wound healing is relatively better and faster in the non closure group than closure group. Operative time was significantly shorter (2 minutes) in the non-closure group as compared with the closure group (2-4 minutes) (Table 2). Febrile condition was recorded as 10% in the study group and 14% in the control group. This difference was not significant. None of the patients needed blood transfusions or a return to the operating theatre for any further surgery. Patients in the experimental group demonstrated lower pain scores (p=0.0003) and used

significantly less analgesics when compared with the control group (Table 2).

Table 1:

Characteristic	Closure (n=50)	Non=closure (n=50)	*'p' value*
Age (Mean±SD)			0.788*
Years	26.22±5.26	27.80±4.25	(NS)
Parity			
I	1(2)	0(0)	
II	18(36)	17(34)	0.282#
III	25(50)	20(20)	(NS)
IV	6(12)	11(22)	
V	0(0)	2(4)	
Residential Address			1.00#
Urban	4(8)	4(8)	(NS)
Rural	46(92)	46(92)	
Religion			
Hindu	35(70)	20(40)	0.009#
Muslim	12(24)	26(52)	(NS)
Christian	3(6)	4(8)	
Education			
Uneducated	5(10)	4(8)	
Primary	7(14)	2(4)	0.427#
Middle school	14(28)	19(38)	(NS)
Secondary	22(44)	22(44)	
Higher secondary	2(4)	3(6)	

Table 2:

Characteristic	Closure (n=50)	Non-closure (n=50)	*'p' value*
Recovery time			
< 7	38(76)	49(98)	
7-9	5(10)	0(0)	0.004# (S)
> 9	7(14)	1(2)	
Time of closure			
< 2	3(6)	50(100)	0.000# (S)
2-4	47(94)	0(0)	
Preoperative history			
Appendicitis	1(2)	0(0)	0.084#
LSCS	6(12)	1(2)	(NS)
None	43(86)	49(98)	
Wound History			
Pain	5(10)	0(0)	0.008#
Indurations	2(4)	1(2)	(NS)
Sepsis	5(10)	0(0)	
Healthy	38(76)	49(98)	

(* 't' Test, # Chi square test, NS-Not significant, S-Significant)

DISCUSSION

In the present study, the non-closure of the peritoneum was associated with shorter duration of surgery, better wound healing, lesser pain and less analgesic use compared to closure of the peritoneum. In our study, time of closure was significantly less (< 2 minutes) in all the non-closure cases compared to closure cases i.e. 2-4 minutes. The operative time was shorter (6.89 minutes) in the non closure group than the closure group. A systemic review revealed a reduction in operative time (7.33 minutes) in women who had both peritoneal surfaces unsutured in comparison with sutured peritoneum by analyzing a total of 6 studies with 947 participants.[5] A series of other studies also supported our findings about the reduction in operative time.[3,7,9] There was a significant difference between two groups regarding pain scores and analgesic use in our investigation. Women in non-closure group had lower pain scores and received fewer analgesics. Diclofenac was used 2 times more in the control group compared to the experimental group. A randomized controlled study of 100 women[11] and trial of 549 women reported less postoperative analgesia when the peritoneum was not sutured at CS.[7] In our study, postoperative pain was found in 5 subjects (10%) in the control group as compared to zero subjects in non-closure group. In the postoperative wound, out of 50 in duration was noted in 2 (4%) cases as compared to one case (2%) in study group. In the former study, pain was the primary outcome measure and investigators found no overall difference in pain scores between the two groups, although there was a trend of lower pain scores in non closure group.[11] In the latter study, analgesic use only was measured and authors found lower narcotic use in non closure group.[12] Both studies supported our findings. In our study, there was no significant difference between the two groups regarding postoperative wound infection. Despite the lower incidence rate of fever and urinary infection in non-closure group in Nagele's study,[7] several studies did not show any significant difference regarding wound infection, endometritis, and fever between the closure and non-closure groups[1,3,5-8] which also supports our findings. In our study, difference between pre- and post-operative hemoglobin level in both groups was not significant and neither set of cases required a blood transfusion. The limitations of the present study should be recognized. For example, because of short duration of the study, long-term complications like adhesions were not considered and were outside of the scope of this study. A long-term evaluation of morbidity regarding adhesions is necessary to investigate the long-term complications of this approach. Our study concludes that non-suturing of peritoneum is associated with definite advantages like faster recovery, reduced closure time thus shorter operation duration, less pain, better wound healing and is perhaps a preferred way to manage the TL women because of these benefits. We suggest that routine closure of peritoneum can be safely abandoned since it has no significant proven benefits over non-closure.

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REFERENCES

1. RCOG, (United Kingdom). Peritoneal closure. Guidelines 1998,15.
2. Duffy DM, diZerega GS. Is peritoneal closure necessary? Obstet Gynecol Survy 1994; 49:817-22.
3. Ying-Ching Cheong, Nitu Bajekar and Tin-Chiu Li. Peritoneal closure – to close or not to close. Human Reproduction 2001; 16(8):1548-52.
4. Wilkinson C and Enkin M. Peritoneal non-closure at CS. In Neilson J, Crowther C, Hodnett E and Hofmeryr G (eds). Pregnancy and childbirth module of the Cochrane Database of Systematic Review. The Cochrane Collaoration, issue 1 Oxford: Update Software, 1998.
5. Bamigboyee AA, Hofmeyr GJ. Non-closure of peritoneal surfaces at CS – a systematic review. S Ar Med J 2005; 95(2):123-26.
6. Tabasi Z, Mahdian M, Abedzadeh-Kalahroudi M. Closure or Non-closure of peritoneum in CS: Outcomes of short-term complications. Arch Trauma Res 2013; 1(4):176-79.
7. Nagele F, Karas H, Spitzer D, Staudach Al, Karasegh S, Beck A *et al*. Closure or non-closure of the visceral peritoneum at caesarean deliver. Am J Obst Gyn 1996; 174(4):1366-70.
8. Mocanasu C, Anton E, Chirila R. [Peritoneal suture vs. non-suture at caesarean section). Rev Med Chir Soc Med Nat lasi 2005; l09 (4):810-2.
9. Pietrantoni M, Parsons MT, O'Brien WF, Collins E, Knuppel RA, Spellacy WN. Peritoneal closure or non-closure at cesarean. Obstet Cyneco1 1991; 77(2):293-6.
10. Brocldehurst P, Quigley M, Ayers S, |Juszczak E, Anderson E, Bowler U *et al*. Caesarean section surgical techniques: a randomised factorial trial. BJOC 2010; 117(11):1366-76.
11. Rafique Z, Shibli KU, Russell IF, Lindow SW. A randomised controlled trial of the closure or non-closure of peritoneum at CS: effect on postoperative pain. Br J Obst Gynecol 2000; 21(8):759-761.
12. Ghongdemath JS, Banale SB. A randomized study comparing non-closure and closure of visceral and parietal peritoneum during CS. J Obst Gyn India 2011 Jan/Feb: 48-52.

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