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Effect of peritoneal closure versus non closure after open hysterectomy on postoperative pain

Abstract

Background: Hysterectomy is one of the widely performed gynecological surgeries. During closure of the abdomen, parietal peritoneum could be closed or not .Whether the parietal peritoneum should be closed at hysterectomy or not is an argumental topic.

Aim: To assess the level of postoperative pain in women undergoing hysterectomy with closure of peritoneum versus non- closure of peritoneum.

Patients and methods: A prospective observational study was conducted on women undergoing abdominal hysterectomy.

Results: There was a statistically significant difference between the closures and non-closure groups during hysterectomy regarding VAS after 2 hours, 3 hours and 6 hours, 12 hours and 24 hours with p value > 0.001.

Conclusion: Non closure of the peritoneum during abdominal hysterectomy was associated with less operative time and less pain during the 2nd, 3rd, 6th, 12th and 24th hours after hysterectomy.

Keywords: peritoneal closure, hysterectomy, postoperative pain, abdomen

Volume 15 Issue 1 - 2024

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Received: February 05, 2024 | **Published:** February 16, 2024

Introduction

Hysterectomy is one of the widely performed gynecological surgeries. During closure of the abdomen, parietal peritoneum could be closed or not .Whether the parietal peritoneum should be closed at hysterectomy or not is an argumental topic.[1]

Different opinions regarding closure of parietal peritoneum set forth both views with the concept that defends closing peritoneum suggests that any incised layer during operation must be stitched back so as to restore the anatomical picture back to normal possibly.[2] Peritoneal healing and other serosal surfaces take place by metaplasia of the connective tissue underlying.[3]

Peritoneum restores within 8 days post operatively. Some studies support non- closure of peritoneum while other researches support closure of peritoneum.[4]

In non-peritoneal closure, future surgeries become difficult with longer time. It could leads to complications as dyspareunia, long standing pain, infertility, hernia and intestinal obstruction.[5]

The concept of closing peritoneum is to retain of the abdominal structures inside the abdomen. Closing the Peritoneal creates a barrier between abdominal structures and the anterior abdominal wall.

The non-closed peritoneum heals after 8 days post operatively, in non-closure of peritoneum, the adhesions might generate, with adhesion of the anterior abdominal wall to uterus, intestine and omentum. Less dense adhesions are noticed in parietal peritoneal closure in primary cesarean sections.[6]

Aim of study

To assess the level of postoperative pain in women undergoing hysterectomy with closure of peritoneum versus non- closure of peritoneum.

Patients and methods

Setting: Badr University Hospital.

Study design: A prospective observational study.

Study population: Women undergone abdominal hysterectomy at Badr University Hospital. Every women underwent an open abdominal subtotal hysterectomy complaining from a benign endometrial lesion (Hyperplasia) or adenomyosis or fibroid uterus after endometrial Biopsy that revealed a benign endometrial pathology.

Every women received general anesthesia, with a Pfannenstiel incision was performed. The difference was in closure of parietal peritoneum in one group versus non closure of peritoneum in the other group.

Patients divided into two groups according to peritoneal closure,

Group 1: parietal peritoneum was closed and

Group 2: the parietal peritoneum was left without closure which was written in the operative file of the patient.

Every women received a standard post-operative analgesia; in the form of one amp of intravenous nonsterodial anti-inflammatory drug (one amp ketolac) IV infusion and one bottle of perfalgan IV.

Pain was assessed postoperatively using Visual Analogue Score scale (VAS) (from 1-10) after 1 hour, 2 hours, 3 hours, 6 hours, 12 hours, 24 hours.

Ethical considerations

Local ethical committee approval was obtained before the study start.

Results

In the present study, there was no statistical difference between peritoneal closure and non-closure regarding age (Table 1).

In the present study, there was no statistical difference between peritoneal closure and non-closure regarding BMI (Table 2).

In the current research, there was no statistical difference between peritoneal closure and non-closure regarding gravidity and parity (Table 3).

Table 1 Shows baseline characteristics in the closure and non-closure groups

	Non closure (40)	Closure (40)	p-value
Age	56.65=4.37	57.3=6.04	0.583
BMI	28.51=3.98	29.410=3.90	0.313
Gravidity			0.184
1	1 (2.5%)	1 (2.5%)	
2	6 (15.0%)	9 (22.5%)	
3	5 (12.5%)	13 (32.5%)	
4	7 (17.5%)	8 (20%)	
5	10 (25.0%)	5 (12.5%)	
6	6 (15.0%)	2 (5.0%)	
7	3 (7.5%)	2 (5.0%)	
8	2 (5.0%)	0	
Parity			0.179
1	1 (2.5%)	1 (2.5%)	
2	6 (15.0%)	10 (25.0%)	
3	7 (17.5%)	14 (35.0%)	
4	7 (17.5%)	6 (15.0%)	
5	10 (25.0%)	6 (15.0%)	
6	5 (12.5%)	3 (7.5%)	
7	4 (10%)	0	

Table 2 Shows the difference between both groups regarding operative time

Operative time	71.01=9.86	78.55=7.38	0.001>

Table 3 Demonstrates the Visual Analogue Scale (VAS) after hysterectomy in both groups

	Non closure (40)	Closure (40)	p-value
VAS scale one hour	9.18=0.64	9.35=0.53	0.186
VAS scale 2 hours	7.2=1.07	7.95=0.96	>0.001
VAS scale 3 hours	5.33=1.07	6.83=1.01	>0.001
VAS scale 6 hours	3.85=1.1	5.71=0.99	>0.001
VAS scale 12 hours	2.48=0.93	4.5=0.91	>0.001
VAS scale 24 hours	1.6=0.71	2.93=0.92	>0.001

Discussion

In a previous study made by A. Takreem 2015, There was no noteworthy differences in both groups regarding immediate postoperative morbidity, postoperative pain, analgesics need, fever, wound healing and hospital stay.

In non-closure group, dense adhesions were seen during laparotomies, Enterance to peritoneal cavity was more hard with longer time. Adhesiolysis was required to reach the uterus, leading to longer incision, time of surgery .Adhesions were more in the case of non-closure group (p<0.05).[7]

In the current research, closure of the parietal peritoneum was associated with higher mean operative time than the non- closure group with p value > 0.001.

Non-closure of peritoneum might decrease the operative time by few minutes which draws many studies to promote non-closure technique.[8]

A study made in Pakistan comparing peritoneal closure versus non-peritoneal closure of peritoneum noted that peritoneal nonclosure was suggested as it decreases surgery time, span of anaesthesia, quicker recovery and early hospital discharge.[9]

In the current research, there was no statistically significant difference between the closures and non- closure groups during hysterectomy regarding VAS after one hour. Most of the researches which support non-closure of peritoneum, did not assess long term complications as adhesions in the following surgeries.[10]

Moreover, in the current research, there was a statistically significant difference between the closure and non- closure groups during hysterectomy regarding VAS after 2 hours, 3 hours and 6 hours with p value > 0.001.

A previous double blind randomized trial was performed to evaluate the intensity of post-caesarean pain between closure and non-closure group reached hardly no difference in postoperative pain in both groups in successive cesareans.[11]

Moreover, in the current research, there was a statistically significant difference between the closure and non- closure groups during hysterectomy regarding VAS after 12 hours and 24 hours with p value > 0.001.

In a recent study, made by Igor Sirák et al.,[11] on non-closure of peritoneum after abdominal hysterectomy for uterine carcinoma does not increase late intestinal radiation morbidity .Also, there is no subsequent intestinal morbidity enhancement in these patients.[12]

In a recent study made by Wagdy M Amer,[12] they reported that visceral and parietal peritoneum in CS, the non-closure approach is recommended due to its much shorter operating time and lower postoperative pain score. As a result of these advantages, it may be preferred as a method of treating CS patients.[12]

Conclusion

Non closure of the peritoneum during abdominal hysterectomy was associated with less operative time and less pain during the 2nd, 3rd, 6th, 12 th and 24 th hours after hysterectomy.

To the best of our knowledge, our study is the first study to compare the effect of closure versus non- closure of the peritoneum during abdominal hysterectomy on post-operative pain.

Future studies with larger sample size are recommended on assessment of postoperative pain during hysterectomy with comparing closure versus non- closure of the peritoneum.

Acknowledgments

None.

Funding

None.

Conflicts of interest

Author declares that there is no conflict of interest.

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Citation: Khedr AH, Lasheen Y. Effect of peritoneal closure versus non closure after open hysterectomy on postoperative pain. *Obstet Gynecol Int J.* 2024;15(1):29–31. DOI: 10.15406/ogij.2024.15.00730