

Original Article

"Relationship Between Peritoneal Closure At Primary Caesarian And Adhesion Formation" A Retrospective Observational Study And Personal Experience.

Abstract

The aim of this study was to find out the adhesion formation after closing of parietal peritoneum at primary caesarean section done in different indications; the patients were admitted in Khwaja Yunus Ali Medical College & Hospital, a rural tertiary hospital in Bangladesh. In this study total 872 pregnant women were evaluated in 4 years period, who were admitted either from OPD or through emergency. Most of the caesarean sections were done due to elective causes. After the primary caesarean section, the repeat caesarean section was done in the same hospital by same surgeon within these time period and observed that there was no or few filmy adhesions were formed. So it was evaluated that, objectively to accept this step that is peritoneal closure in our operation procedure to reduce peritoneal adhesion formation.

Introduction

Caesarean section is an operative procedure whereby the fetus after the end of 28th week is delivered through an incision on the abdominal and uterine walls. The first operation performed on a patient is referred to as a primary caesarean section. When the operation performed in subsequent pregnancy, it is called repeat caesarean section¹. Caesarean section is a surgical procedure in which one or more incisions are made through a mother's abdomen and uterus to deliver one or more babies. A caesarean section is often performed when vaginal delivery would put the baby's or mother's life or health at risk. Some are also performed upon request without a medical reason to do so². The World Health Organization recommends that they should only be done based on medical need³. Caesarean section results in a small overall increase in bad outcomes in low

risk pregnancies⁴. The bad outcomes that occur with vaginal delivery. Established guidelines recommend that caesarean section not to be used before 39th week without a medical indication to perform the surgery⁵. Caesarean section is one of the most commonly done surgical procedures world wide. The rate of caesarean section varies from 5% to 25% of total deliveries depending on place and facilities available⁶. In 2003, more than 1 million caesarean deliveries were performed in The United States, 27.6% of all deliveries⁷. There are various controversies regarding suturing the peritoneal layers at caesarean sections. Traditionally, suturing of visceral and parietal peritoneum at caesarean section has been widely accepted, despite the lack of evidence establishing its benefits. Reasons noted for closure of the peritoneum include restoring anatomy and re-approximating tissue, reducing infection by re-establishing an anatomical barrier, decreasing wound

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Apart from Anesthetic Consideration, there is a belief that closure of peritoneum can prevent adhesions⁸.

Study place

Khwaja Yunus Ali Medical College & Hospital is a tertiary hospital, located about 147 Km from Dhaka in the bank of river Jamuna. Our study was retrospective observational study on women having previous primary caesarean section and repeat caesarean section was done in same institute by same surgeon. The time period was 4 years from 1st January 2011 to 31st December 2014.

Methods and Materials

During the study period 872 women undergoing elective and emergency caesarean section, that was primary caesarean section, among them 135 women undergoing repeat caesarean section after primary caesarean section in this institute by same surgeon, we used standard suture materials and done proper peritoneal toileting during operative procedure for better outcome and the post operative period was satisfactorily good. All patients received spinal anesthesia and underwent lower segment caesarean section through pfannenstiell incision, both the visceral and parietal peritoneum were closed with No 1-0 chromic cat gut (Ethicon), uterus was closed with No 2 chromic cat gut (Ethicon), Rectus sheet was closed with vicril No 1-0. The skin was approximated with No 1-0 or 3-0 vicril. The patients received 3rd generation cephalosporin 1 gm I/v single dose then oral form twice daily for 7 days and Diclofenac sodium with anti ulcerent was used as need. The patients were discharged on 3rd post operative day then followed up after 7 days.

Results

Total 872 pregnant women were admitted for caesarean section due to elective cause or emergency cause among them 135 pregnant women were again admitted for repeat caesarean section with in 4 years period from 1st January 2011 to 31st December in obstetrics' department of Khwaja Yunus Ali Medical College and Hospital. Patients distribution according to age, indications of caesarean section, gestational age, parity of patient, condition of post operative period, present of adhesion on repeat section. All these are showed in bar and pie chart-

Figure- 1: Bar diagram showing the most of the patient were the age between 16 to 26 years 88% and next

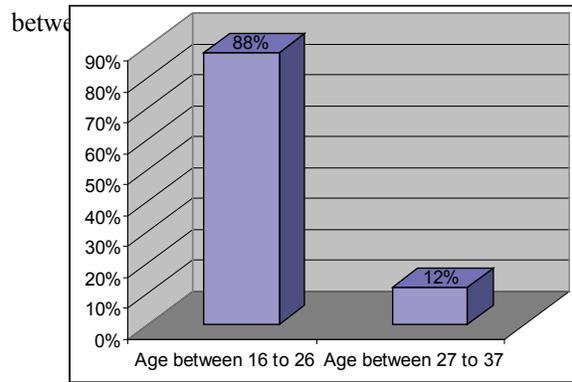


Figure- 2: This pie chart showing the indications of caesarean section most of were elective causes 89% and others were emergency causes 13%.

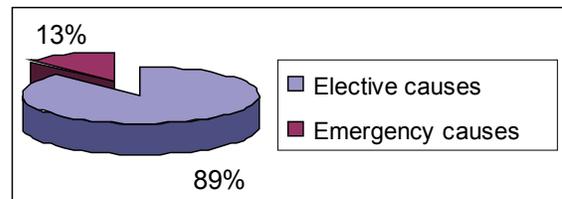


Figure- 3: The bar diagram showing the age of gestation during caesarean section, about 83% at term, 13% at post term and 4% at pre term.

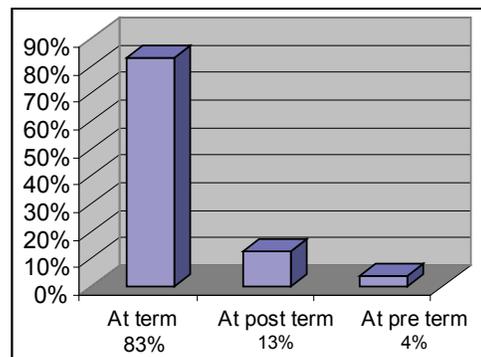


Figure- 4: The pie chart showing the parity of the patients, most of them were primipara 90% and multipara 10%.

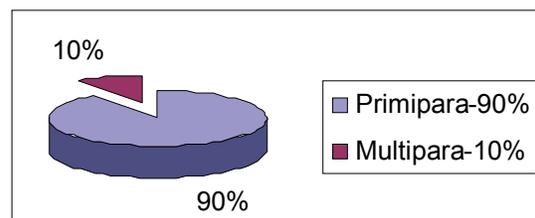


Figure- 5: The diagram showing the post operative period, about 99.9% were satisfactorily good and only 1% were not satisfactorily good.

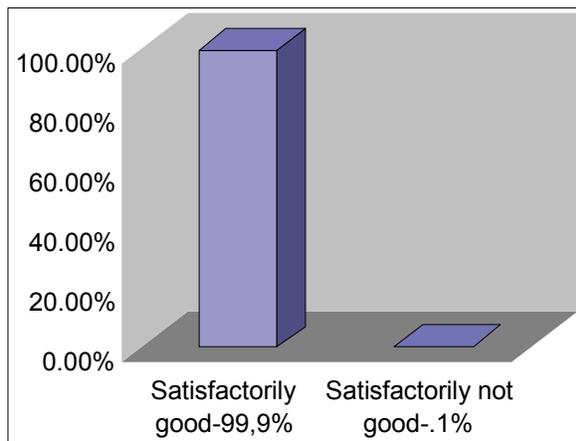
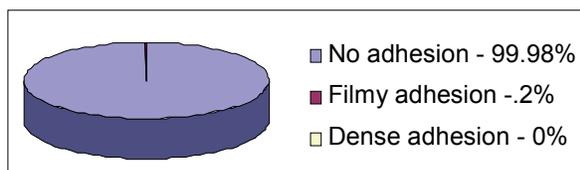


Figure- 6: The chart showing the presence of peritoneal adhesion at repeat caesarean section in patient who's having peritoneal closure at primary caesarian section. No adhesion 99.8%, filmy adhesion .2%, Dense adhesion 0%.



Adhesion Scoring Data Sheet.

Quality /Location	None	Filmy	Dense
Bowel	None	----	----
Omentum to uterus	None	----	----
Omentum to fascia	-----	Filmy	----
Other pelvic structure	None	-----	----

When we examined the primary outcome, patient with prior parietal peritoneal closure had no significant dense adhesion or few filmy adhesions, by location these filmy adhesions were seen in between omentum and fascia, and no other pelvic structure adhesions were seen. Bowel adhesions and adhesions at other pelvic structure were not significantly different based on whether the parietal peritoneum was closed. When filmy adhesions were exclude and we analyzed only adhesion judged as dense, prior peritoneal closure was associated with significantly no dense adhesion

Discussion

Adhesion is one of the most important post operative complications. Occurrence of adhesion after caesarean section could increase the duration of subsequent operation, the incidence of injury to the intestine, bladder and ureter and increase bleeding. In a 10 years period 5.7% of women who underwent caesarean section were admitted again for treatment of adhesion complication⁹. Adhesions are also considered a significant causative factor in secondary female infertility¹⁰. Controversies still exist about adhesion formation after previous caesarean section concerning closure of the peritoneum, both with reasonable theories, some studies showed that peritoneal healing occur by simultaneous multisided repair as the result of migrating mesothelial cells with mesothelial matrix formation¹¹ without the need for repositioning of the peritoneum and peritoneal closure would lead to foreign body reaction to the suture material, ischemia, tissue necrosis and inflammation¹². Hence, without closure of the peritoneum, there will be less adhesion formation. However, it takes six weeks for post partum uterus to return to normal size and position completely, whereas peritoneal healing occurs within three to five days after caesarean section. Hence the enlarged postpartum uterus may acts as a mechanical disruptive barrier for the routine mesothelial matrix formation of peritoneal healing¹³. Particularly when the enlarged uterus is in direct contact with the anterior abdominal walled when the peritoneum is left open. In admission, women after caesarean section are encouraged to move as soon as possible, so the left open visceral peritoneum can no longer isolate the omentum and intestines from the healing uterus, neither will non- closed parietal peritoneum separate the omentum and intestines from the fascia and rectus abdominis. In the case, closure of the peritoneum might maintain the original isolation function of the peritoneum to avoid the direct contact of the above mentioned tissue and so reduce adhesion formation. Recently, one meta-analysis compared adhesion after closure or non closure of the peritoneum during the previous caesarean section based on there qualified RCTs¹⁴. from the summary of 249 qualifying women, the authors concluded that closure of the peritoneum had the advantage of reduced adhesion formation. Adhesion form when fibrinolysis is suppressed and fibrin persist. Fibrin is then infiltrated by fibroblast, which ultimately organize fibrinbands into adhesion¹¹ the tissue ischemia is known to suppress

adhesions when the peritoneum is sutured, among non pregnant patients. The intra-amniotic environment and physiologic changes of pregnancy may provide a mechanism to explain our findings. Fibrinolytic activity has been demonstrated in amniotic fluid and rises significantly beyond 37 weeks of gestation. Perhaps the suppression of fibrinolysis, normally seen with peritoneal suturing is altered enough by amniotic fluid fibrinolytic activity or in an unknown manner by pregnancy related changes, such as maternal volume expansion or the presence of inflammatory cytokines, to favor peritoneal closure to reduce adhesion¹⁵.

Conclusion

Peritoneal closure at primary caesarean section was associated significantly fewer filmy adhesion at repeat caesarean section. The practice of non closure of the peritoneum at caesarean section should be questioned. As the closure of the peritoneum is resulted in less or few adhesion formation, so this step can be recommended.

Reference

1. D.C Datta. Text book of Obstetrics- 7th Ed.
2. Finger C (2003). "Caesarean section rates Skyrocket in Brazil, Many women are operating for caesareans in the belief that it is a practical solution" *Lancet* 362 (9384):628
3. "WHO statement on caesarean section rates" 2015 Retrieved 6 May 2015.
4. Safe prevention of the primary caesarean delivery" American congress of Obstetrician and Gynecologist and the society for Maternal Fetal Medicine. March 2014. Retrieved 20 February 2014.
5. American congress of Obstetrician and Gynecologist, "Five things physician & patients should Question", choosing wisely: an initiative of the ABM foundation, Retrieved August 1, 2013.
6. Bamigboye A.A, Hofmeyer GJ. nNon closure of peritoneal surface at caesarean section- a systemic review. *S Afr Med J.* 2005; 95 (2): 123-6.
7. Hamilton BE, Martin JA, Sutton PD. Births preliminary data for 2003, *Natl vital stat Rep* 2004; 53(9):1-7.
8. Iron O, Luzuy F, Bguin F. Non closure of the visceral and parietal peritoneum at caesarean section: a randomized controlled trail. *Br J Obstet Gynecol* 1996;103; 690-4.
9. Lower AM. Hawthorn RJ. Ellis H. O'Brien F. Buchan S. Crowe A M. The impact of adhesions on hospital readmissions over ten years after 8849 open gynecological operation: an assessment from the surgical and clinical adhesion study. *BJOG* 2000; 107: 855-62.
10. Luijendijk RW, de Lange DC. Wauters CC. Hop WC. Duron JJ. Pailler JL. Et al. Foreign material in post operative adhesions. *Ann Surg* 1996; 223: 242-8.
11. Montz FJ. Shimanuki T. DeZerega GS. Post surgical mesothelial reepithelialization. In: De cherney AH. Polan ML. editors. *Reproductive surgery*. Chicago (IL): Year Book Medical Publishers; 1987. p 31-48.
12. Hubbard TB. Khan MZ. Carag VR. Albites VE. Hricko GM. The pathology of peritoneal repair; its relation to the formation of adhesions. *Ann Surg.* 1967; 165:908-16.
13. Lyell DJ. Caughey AB. Hu E. Daniels K. Peritoneal closure at primary caesarean delivery and adhesions. *Obstet Gynecol* 2005; 106:275-80.
14. Cheong YC. Preem Kumar G. Metwally M. Peacock JL. Li TC. To closes or not closes? A systemic review and a meta-analysis of peritoneal non closure and adhesion formation after caesarean section. *Eur J Obstet Gynecol Reprod B* 101 2009;47: 3-8.
15. Ps chera H. Kjael dgaard A. Lasson B. Fibrinolytic activity in amniotic fluid during late pregnancy. *Acta Obstet Gynecol Scand* 1986;65:417-20.