Author’s response to reviews

Title: Prevalence of Adhesions and Associated Postoperative Complications After Cesarean Section in Ghana: A Prospective Cohort Study

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Comments Reviewer #1:

The article 'Prevalence of Adhesions and Associated Postoperative Complications After Cesarean Section in Ghana: A Prospective Cohort Study' addresses the impact of adhesions on perioperative outcomes of parturient and neonates. The article is well organized, the materials and methods clearly described and the statistical analysis quite transparent. The discussion is well designed and the limitations of the study adequately explained to guide future research in this very interesting field. Given these, i find the paper suitable for publication if some minor points are explained

Comment

1) The introduction/background section is very vague. It needs to point out the correlation of adhesions with maternal and neonatal complications and the rationale behind this assumption. The indications of CS are already known to the audience. In general adhesions render abdominal surgery very difficult occasionally. The authors should explicitly state this and relate it with the case of cs.
Response: Thank you for this feedback. We amended the introduction/background of the manuscript to elaborate on the association between adhesions and maternal/neonatal complications (pages 7 and 8 of Track Changes (TC) and from line 133 of clean manuscript).

“Adhesions are reported as a frequent complication of CS [12], and can result in abdominal discomfort, pain and associated lower quality of life [15]. In the long term, adhesions complicate future CS because of increased difficulty of the surgical procedure resulting in complications such as bladder damage and prolonged duration of surgery[16]. Especially with an emergency (repeat) CS, these often unexpected difficulties can result in adverse perinatal and maternal outcomes such as birth asphyxia and maternal exhaustion. Despite the increases in (repeat) CS, few studies exist on the prevalence of adhesions and associated maternal and perinatal outcomes - especially in Sub-Saharan African settings.”

2) Discussion. The authors should further enhance their discussion by adding a section of guidance for clinicians. Given their findings, what should the clinician do to inform the patient? Also which are the available methods of assuming the presence of adhesions prior to cs and how could gynecologists prevent future adhesions (barriers, peritoneal suturing etc)

Response: We very much appreciate this suggestion, and we added a section to underline the clinical implications of our findings (page 19 of TC and page19 from line 376 of clean manuscript).

Unfortunately, there is relatively little evidence on what gynecologist can do to prevent adhesions, other than ensuring they have the required skills to perform CS, remove debris and prevent infections to occur after. As such, our recommendation would be foremost to ensure informed consent of women so they know what risks are associated, especially for women who wish cesarean without medical indication and after the first CS has occurred to make an informed consideration to opt for VBAC.

Implication for clinical practice

“Unfortunately, there is no gold standard to avoid adhesions or detect adhesions prior to surgery [16]. Surgical training, careful removal of debris and blood, and reducing the risk of infections will all contributes to reduced incidence [16,32]. The use of barriers, peritoneal suturing, as well as various other closure techniques have not resulted in satisfactory reduction of adhesions occurrence [33,34]. Therefore, pregnant women need to be carefully counseled about their options and associated implications, especially the first pregnancy after their first CS to consider a vaginal birth after cesarean section (VBAC) or when requesting a CS for non-medical indication.”
Comments Reviewer #2: The first aim of the study was to investigate presence of adhesions in women during a CS and to compare rates and severity of adhesions in women with prior CS or no prior CS. The second aim was to investigate maternal and neonatal complications in relation to presence of adhesions.

The manuscript is clearly written and I appreciate the strengths and limitations section part as selection bias is a concern both at recruitment and follow-up.

Comment

1) Sample size was based on to detect a difference in the incidence of adhesions. Was any power calculation performed regarding complications? Longer operation times, time to delivery the infant and increased blood loss were reported among women with adhesions, but no difference in other perioperative outcomes or postpartum complications were noted. Could this be attributed to a small sample size?

Response: First of all, we would like to thank the reviewer for his/her effort and constructive feedback.

This study was not powered to detect complications. As such, we agree with the reviewer that the lack of significant findings could have been because of modest event rates. We added this in the limitations section accordingly (page18 of TC and page18 from line 363 of clean manuscript)

“Fourth, as this study was powered for the incidence of adhesions, and not other complications, sample size limitations could have contributed to the lack of significant findings for other complications.”

2) A strength is the prospective design but a major concern is the high rate of lost of follow up 6 weeks postpartum, which the authors also discuss. Any suggestions from the authors to avoid selection bias and higher rates of follow up in this setting?

Response: Thank you for this comment. Noteworthy to mention that lost to follow up in this study was largely due to research capacity. Only a subset of women included in this study (those recruited during the first 5 weeks) were followed up at six-weeks postpartum. Hence, our recommendation would be foremost to increase capacity to ensure all women can be followed until the study ends. Because there is a generally high show-rate at the six-weeks postpartum clinic, we do feel that follow up could have been effected and this is primarily a study design issue reflective of our capacity, rather than a more generalized problem at this clinic. Therefore, we amended the discussion to further emphasize this on page18 of TC and from line 351 of clean manuscript)
“In busy obstetric settings such as KBTH including additional research visits create a lot of extra work pressure for the staff in limited available workspace. We expected the follow up of women 6 weeks post-partum to involve quite some additional efforts for the research team and therefore we planned to limit the follow up to the first 5 weeks of the study. However we could have ensured active follow up throughout the whole study, as there was generally a high follow up rate at six-week postpartum. For future studies we will include postpartum follow up for all women, or women could be followed by phone or home visits”

3) There is a discrepancy between conclusions "The majority of women with a history of CS or abdominal surgery had adhesions and this affected operation time, infant delivery time, and perioperative blood loss, but not other outcomes” However in the result part blood loss in ml (mean) did not differ between women with and without adhesions (p 0.14). In fact blood loss was only increased in women with severe adhesions. (page 8, ln 57).

Response: Thank you for your careful observation. We indeed referred to the severe adhesions group, and amended the text to further clarify this in the discussion and conclusion (pages 16, 20 of TC and lines 305 and 391 of clean manuscript)

4) Page 6. Ln 12. Why do the authors refer adhesions to an independent variable? According to the aim it is the main outcome measure but also a potential mediator to complications.

Response: Thank you for the correction. “Independent” variables have been changed to “Exposure” variables (page 11 of TC and line 198 of clean manuscript)

5) P-values are provided for background data except type and indication of current CS. Either add or not present the p-values at all.

Response: we apologize for this in advert omission, and have added it to the Table 1(page 30 of TC and page 30 clean manuscript)