

Editorial

Incomplete flexible sigmoidoscopy insertion after cesarean section



Cesarean section (C/S) is one of the most commonly undertaken operations – no fewer than 18.5 million C/S are annually performed worldwide.¹ However, the high rate of C/S births has become a global public health concern. Taiwan has one of the highest rates of C/S births, comprising approximately 33% of all births over the last 10 years.²

In this issue, a team of investigators from Kaohsiung Veterans General Hospital tried to identify the risk factors of incomplete flexible sigmoidoscopy. They found that only prior pelvic surgery was an independent risk factor for incomplete flexible sigmoidoscopy insertions, with a high odds ratio (OR) of 3.54, based on the fact that both C/S and hysterectomy were main components of the prior surgery. They concluded that both hysterectomy and C/S, individually, can predict incomplete flexible sigmoidoscopy among individuals with prior abdominal or pelvic surgery.³ We congratulate the authors for their successful work, which has been published in this issue. However, are their conclusions realities or only a myth? Some questions and issues require our attention.

First, in terms of the role of C/S in the current study,³ no statistically significant difference was noted between incomplete insertion and complete insertion (24% vs. 25%, $p = 1.00$). We wonder why the authors would conclude that C/S contributed to one of the two main causes of incomplete flexible sigmoidoscopy insertions. A possible reason was that there were too many C/S patients ($n = 26$). However, by enrolling these women with a history of C/S, the significantly unbalanced sex distribution that resulted might have led to a palpable selection bias (male vs. female, 39% vs. 61%). One study found that female sex was significantly related to a limited flexible sigmoidoscopy examination [OR = 1.83, 95% confidence interval (CI) = 1.60–2.10], and female sex predicting a limited examination was more powerful than was previous pelvic or abdominal surgery (OR = 1.29, 95% CI = 1.12–1.49).⁴ C/S was assumed to be a predictor of incomplete flexible sigmoidoscopy insertion in the current study. This observation might be biased, and it would have been better not to enroll women with a previous C/S in the current study. After excluding those patients with previous C/S, a revised total of 80 patients would be more appropriate study representatives, because of the improved sex distribution (male vs. female, 51% vs. 49%). In addition, the results might be more convincing, and less prone to second guessing.

Second, the definition of abdominal surgery or pelvic surgery is not clear in the current study, which may have resulted in misclassification. For example, appendectomy was a main contributor to abdominal surgery cases in the current study (38/56, 68%). However, it is arguable whether appendectomy actually qualifies as abdominal surgery, because the incision line is often not a midline incision. The appendix is located in the right lower quadrant area of the abdomen, and it is reasonable to believe that surgery of the appendix might not affect the flexible sigmoidoscopy examination, since there is no role for flexible sigmoidoscopy of the ascending colon. Moreover, the authors failed to separate ruptured from unruptured appendicitis. The higher risk of peritonitis in patients with ruptured appendicitis contributed to the more frequent postoperative adhesion, which might result in a limited flexible sigmoidoscopy examination.

Finally, it is not easy to assess the long-term effects of C/S or hysterectomy.^{5,6} For example, the result from the recent CORONIS trial, which was well conceived, well managed, and had an unprecedented focus on clinical practice, was also critiqued.¹ This can be attributed to the fact that many factors can confound the final interpretation of the results, including surgical procedure, the skill and competence of the surgeon, aseptic precautions taken, the focus put on proper hemostasis, and the physical state of the pregnant women. Moreover, variations in the surgical procedure, including whether a midline vertical incision or Pfannenstiel incision of the abdominal wall is used, whether a blunt or sharp abdominal entry is used, *in situ* uterine repair or extraabdominal uterine repair, use of a synthetic suture or a biological suture, single-layer or double-layer uterotomy closure, closure or non-closure of the peritoneum, creation of a bladder flap, closure of the subcutaneous fat, and the method used for skin suturing – all of which might have substantial effects on the outcomes tested.^{1,7}

The immediate risks of C/S, such as fever, pain, postpartum hemorrhage, damage to the bladder or ureters, and thromboembolic disease, are well-known.⁸ However, the rate of C/S in Taiwan is still high, even though the Bureau of National Health Insurance raised the payment for vaginal delivery and also increased the insured's co-payment for elective C/S. However, a study reported that financial incentives were not the main consideration for both the demand and supply of C/S procedures.² Therefore, it is believed that to encourage more vaginal deliveries and lower the C/S rate, the authorities should consider

mechanisms other than adjusting the payment or changing the co-payment.² Among these policies, increased education could be exceedingly important. For example, long-term clinical and obstetric problems that may arise after C/S births are rarely discussed. Accordingly, the potential for chronic pain, infertility, bowel obstruction, abnormal placentation and its consequences, uterine rupture, and the risk of incomplete flexible sigmoidoscopy insertion should be emphasized.^{3,9–11} The title of this study – not only hysterectomy but also C/S can predict incomplete flexible sigmoidoscopy among individuals with prior abdominal or pelvic surgery – might become an attractive issue to the public. To emphasize the possible negative consequences of C/S, another title – declining fertility and the use of cesarean delivery: evidence from a population-based study in Taiwan –, as previously published,¹² might improve our efforts to lower the C/S rate.

Conflicts of interest

The authors declare that there are no conflicts of interest related to the subject matter or materials discussed in this article.

References

1. Glavind J, Uldberg N. Cesarean section: in good surgical skills we trust. *Lancet* 2013;**382**:188–9.
2. Hong YC, Linn GC. Financial incentives and use of Cesarean delivery: Taiwan birth data 2003 to 2007. *Am J Manag Care* 2012;**18**:e35–41.
3. Wang HM, Chan HH, Wu MJ, Hsu PI, Lin CK, Yu HC, et al. Not only hysterectomy but also cesarean section can predict incomplete flexible sigmoidoscopy among subjects with prior abdominal or pelvic surgery. *J Chin Med Assoc* 2014;**77**:122–7.
4. Eloubeidi MA, Wallace MB, Desmond R, Farraye FA. Female gender and other factors predictive of a limited screening flexible sigmoidoscopy examination for colorectal cancer. *Am J Gastroenterol* 2003;**98**:1634–9.
5. Tsai HW, Chen YJ, Ho CM, Hseu SS, Chao KC, Tsai SK, et al. Maneuvers to decrease laparoscopy-induced shoulder and upper abdominal pain: a randomized controlled study. *Arch Surgery* 2011;**146**:1360–6.
6. Abalos E, Addo V, Brocklehurst P, El Sheikh M, Farrell B, Gray S, et al. Cesarean section surgical techniques (CORONIS): a fractional, factorial, unmasked, randomised controlled trial. *Lancet* 2013;**382**:234–48.
7. Wang PH, Liu WM, Fuh JL, Chao HT, Yuan CC, Chao KC. Comparison of ultraminilaparotomy for myomectomy through midline vertical incision of modified Pfannenstiel incision—a prospective short-term follow-up. *Fertil Steril* 2009;**91**:1945–50.
8. Tsui KH, Lin LT, Yu KJ, Chen SF, Chang WH, Yu S, et al. Double-balloon cervical ripening catheter works well as an intrauterine balloon tamponade in post-abortion massive hemorrhage. *Taiwan J Obstet Gynecol* 2012;**51**:426–9.
9. Tsui KH, Wang PH. Blockage of uterine-feeding vessels: a real choice to maintain the uterus? *J Chin Med Assoc* 2011;**74**:285–6.
10. Ho SY, Chang SD, Liang CC. Simultaneous uterine and urinary bladder rupture in an otherwise successful vaginal birth after cesarean section. *J Chin Med Assoc* 2010;**73**:655–9.
11. Yang MJ, Wang PH. Peripartum hysterectomy risk factors in Taiwan. *J Chin Med Assoc* 2010;**73**:399–400.
12. Ma KZ, Norton EC, Lee SY. Declining fertility and the use of cesarean delivery: evidence from a population-based study in Taiwan. *Health Serv Res* 2010;**45**:1360–75.

Peng-Hui Wang*

Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC
Department of Obstetrics and Gynecology, National Yang-Ming University School of Medicine, Taipei, Taiwan, ROC
Department of Medical Research, China Medical University Hospital, Taichung, Taiwan, ROC

Kuan-Hao Tsui

Department of Obstetrics and Gynecology, National Yang-Ming University School of Medicine, Taipei, Taiwan, ROC
Department of Obstetrics and Gynecology, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan, ROC

Shung-Haur Yang

Department of Surgery, Taipei Veterans General Hospital, Taipei, Taiwan, ROC
Department of Surgery, National Yang-Ming University School of Medicine, Taipei, Taiwan, ROC

*Corresponding author. Dr. Peng-Hui Wang, Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, 201, Section 2, Shih-Pai Road, Taipei 112, Taiwan, ROC.

E-mail addresses: phwang@vghtpe.gov.tw, phwang@ym.edu.tw (P.-H. Wang)