

Primary Horizontal Mattress Suture: An Alternative for Hysterotomy Closure at Cesarean Section



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Background

Cesarean sections are one of the oldest surgeries performed in history. The most used suture technique has been the single-layered running lock closure. According to a Cochrane review in 2008, single-layer closures have been associated with a reduction in blood loss and postoperative pain. However, the innovative use of horizontal mattress sutures could do all that in addition to being more stable than single-layer closures. A direct comparison of the short-term outcomes of primary horizontal mattress sutures versus conventional single-layered running lock sutures has not been well established.

Objective

The objective of this study is to compare the outcomes of standard cesarean section uterine closure using primary horizontal mattress sutures versus conventional single-layered running lock sutures. The study primarily focuses on comparing the length of hospital stay, the operative quantity of blood loss, changes in hemoglobin and hematocrit, and use of pain management medications such as opioids during the postoperative hospital stay.

Methods

This study used a retrospective cohort chart review, performed on patients undergoing elective primary and repeat cesarean section between January 2016 and August 2020 at a South Florida hospital. From 506 included patients, 176 received primary horizontal mattress uterine closure, completed by a single physician. 330 received conventional uterine closure completed by other physicians in the same South Florida hospital. None of said patients were in labor or had spontaneous rupture of membranes. Clinical, demographic, and post-operative outcomes were collected using patients' operative notes, post-operative notes, and progress notes. The information was then compared for each group. Baseline clinical and demographic features such as gravida, para, pre-pregnancy BMI, admission year, and pre-surgery hematocrit and hemoglobin were statistically similar.

Results

Using the data gathered, the primary horizontal mattress closure group demonstrated significantly lower estimated blood loss ($p<0.001$) and a smaller difference between pre-and post-cesarean section hemoglobin ($p<0.027$) and hematocrit ($p<0.014$) compared to conventional closure methods. There was significant reduction in length of total and postoperative hospital stay ($p<0.001$). No significant differences were found in quantitative blood loss or percentage of patients using opioids as pain management during hospital stay. There was no need for blood transfusion nor an increase in infectious morbidity using this method.

Conclusions

Using the single-layered horizontal mattress suture technique for post-cesarean section uterine closure was a reasonable alternative for closure of hysterotomy. It led to decreased duration of hospital stay and operative blood loss, along with a reduction in opioid use for pain management. The single-layered horizontal mattress suture technique is not inferior to the conventional closure based on the data gathered. This data supports the viability and efficacy of the primary horizontal mattress uterine suture as an option for providing an optimal postoperative course in patients undergoing cesarean section. The value of primary horizontal mattress suture for uterine closure can be confirmed with future prospective studies and potential research on implications in reduction of uterine scar defects.

Figures and Images

