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Cerclage Slippage Following Laparoscopic Trans-Abdominal Cerclage Resulting in Second-Trimester Pregnancy Loss: A Case Report

Dr. M. Lakshmi Sindhuja[1], Dr. Surakshith Battina[2]

Abstract: ***Cervical incompetence is a significant cause of recurrent second-trimester pregnancy loss and preterm birth. Laparoscopic transabdominal cervical cerclage is an effective treatment for women in whom transvaginal cerclage has failed or is technically not feasible. We report the case of a 34-year-old gravida 6, para 1, live 1, abortion 4, with a history of recurrent mid-trimester pregnancy losses and a previous successful pregnancy following laparoscopic transabdominal cerclage, who presented at 16 weeks and 2 days of gestation with abdominal pain, vaginal bleeding, and leaking per vagina. Emergency laparoscopic exploration revealed displacement of the cerclage below the cervico-isthmic junction, resulting in cervical dilatation and pregnancy loss, along with a 2-cm lower uterine segment rent. Laparoscopic removal of the displaced cerclage, adhesiolysis, repair of the uterine rent, and ultrasound-guided evacuation of the products of conception were successfully performed without intraoperative or postoperative complications. This case highlights a rare cause of failure of laparoscopic transabdominal cerclage despite a previous successful pregnancy and emphasizes the importance of meticulous surgical technique, close antenatal surveillance, and prompt laparoscopic management of complications. Laparoscopic surgery remains a safe and effective minimally invasive approach for both placement and emergency removal of transabdominal cerclage.***

Keywords: Cervical incompetence, Laparoscopic transabdominal cerclage, Cerclage slippage, Pregnancy loss, Laparoscopy.

1. Introduction

Cervical incompetence affects about 0.5–1% of all pregnancies. It usually shows up in the second trimester with painless widening of the cervix and feelings of pressure in the pelvis. This occurs in the absence of uterine contractions or rupture of membranes, which can result in premature birth and loss of the baby [1].

It is usually managed by a procedure called transvaginal cervical cerclage. But if this method doesn't work or can't be used because the cervix is too short or has scars, the cerclage can be put in through the abdomen. This method gives more strength to the cervix because it is positioned higher at the cervico-isthmic junction. This placement lowers the chance of the suture moving downwards as the uterus grows[2] . Also, not having anything foreign in the vagina can lower the chance of getting an infection that moves upward. More and more evidence shows that abdominal cerclage is better than having multiple vaginal cerclages when it comes to lowering the chances of early preterm birth and losing the baby in women who have previously had unsuccessful vaginal cerclage.[3,4] This can be done using either open surgery on the abdomen or laparoscopic surgery.

Laparoscopic surgery has become the more popular choice because it leads to similar or even better results for pregnancy and newborn health, while also being less invasive[6,7]. The optimal timing of the procedure remains controversial. The procedure can be performed safely either before conception or during early pregnancy, most commonly in the first trimester, with comparable live birth rates, there are no major differences in the rates of live births. Additionally, a study by Vousden et al and others discovered that putting in a transabdominal cerclage before getting pregnant does not harm fertility[8] . Patients who have an abdominal cerclage need to have a caesarean section. This surgery is done electively between 37 and 39 weeks of pregnancy[9]. During the procedure, the suture can either be taken out or left in if the patient plans to have another pregnancy in the future.

2. Case Report

A 34-year-old woman, gravida 6, para 1, live 1, abortion 4, with a history of one ectopic pregnancy, at 16 weeks and 2 days of gestation, presented with complaints of abdominal pain and bleeding per vagina since 11:00 AM on 29/03/2026, followed by leaking per vagina since 7:00 PM the same day. She had a laparoscopic cervical cerclage in situ and a history of previous lower segment cesarean section.

Her obstetric history was significant for recurrent mid-trimester losses, including preterm deliveries at 22 and 24 weeks, and a spontaneous abortion at 12 weeks. She also had a history of ectopic pregnancy, for which she underwent right salpingo-oophorectomy.

In a previous pregnancy in 2023, a transvaginal ultrasound demonstrated a singleton intrauterine pregnancy corresponding to 12 weeks and 2 days of gestation, with a short cervix, for which a laparoscopic cervical cerclage was placed. The pregnancy progressed to term, and she underwent an elective cesarean section at 37 weeks the infant weight was 2,500 g with Apgar scores of 7 and 8. The mother and the baby did well after surgery.

On examination, the uterus was enlarged to approximately 16 weeks 'gestational size and was noted to be contracting. Bimanual examination revealed products of conception protruding through the cervical os, with the fetal head palpable at the level of the internal os. In view of these findings, the patient was scheduled for emergency laparoscopic removal of the abdominal cervical cerclage.

Under general anesthesia, the patient was positioned in a semi-lithotomy position, and the abdomen and perineum were prepared and draped in a sterile manner. A supraumbilical

incision was made, and a Veress needle was inserted to establish pneumoperitoneum. Two 10-mm ports and two 5-mm lateral ports were placed.

Intraoperative findings included adhesions between the bladder and the lower uterine segment. The uterus corresponded to a 16-week gestation. The left fallopian tube and ovary appeared normal, while the right tube and ovary were absent. Adhesions involving the bladder, lower uterine segment, and previous uterine scar were carefully dissected and released. The abdominal cerclage (Trubond tape) was found to have slipped below the cervico-isthmic junction due to pressure exerted by the fetal head and was subsequently identified and removed.

The lower uterine segment was noted to be thinned out, with a rent measuring approximately 2 cm. This defect was repaired using V-Loc sutures. Adequate hemostasis was achieved, and bladder integrity was confirmed.

Following cerclage removal, ultrasound-guided evacuation of the products of conception was performed, followed by gentle uterine curettage.

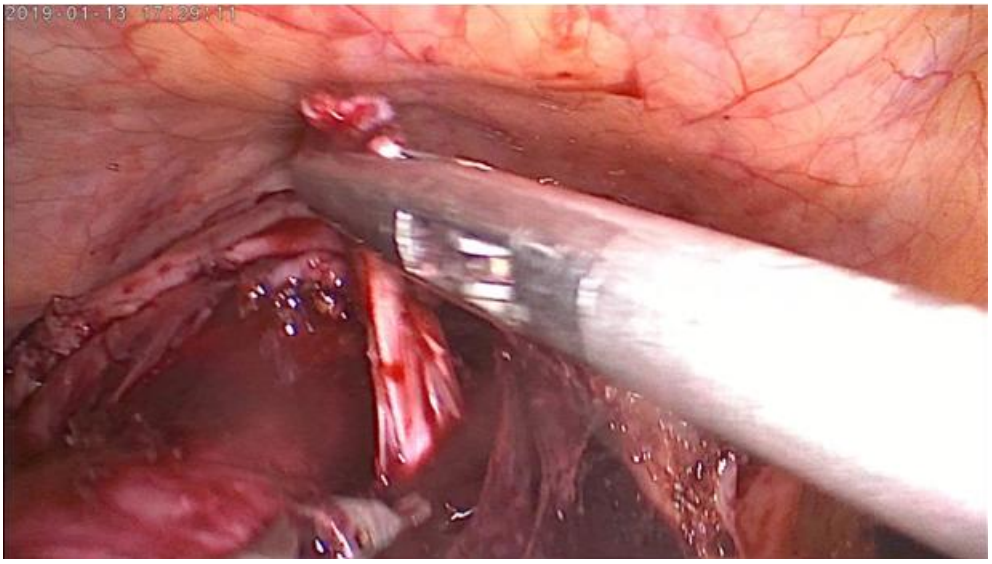

Figure 1: Removal of Cervical stitch

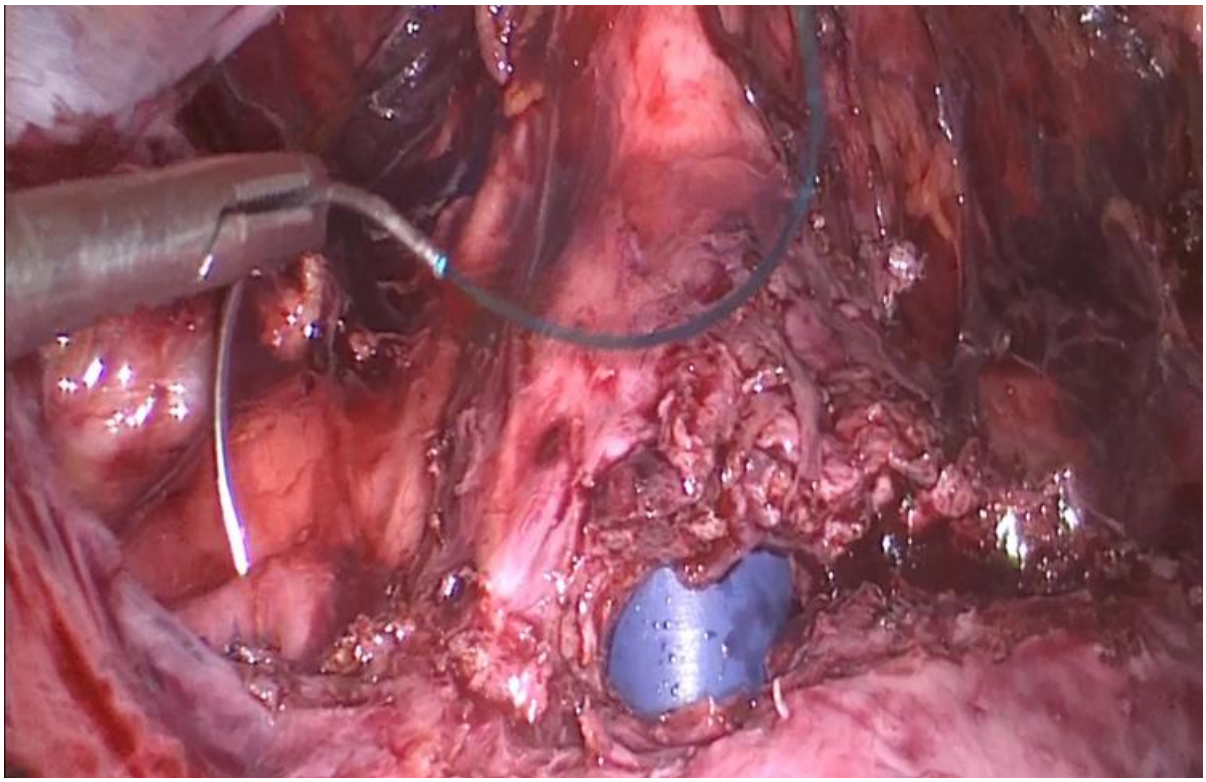

Figure 2: Rent in lower uterine segment

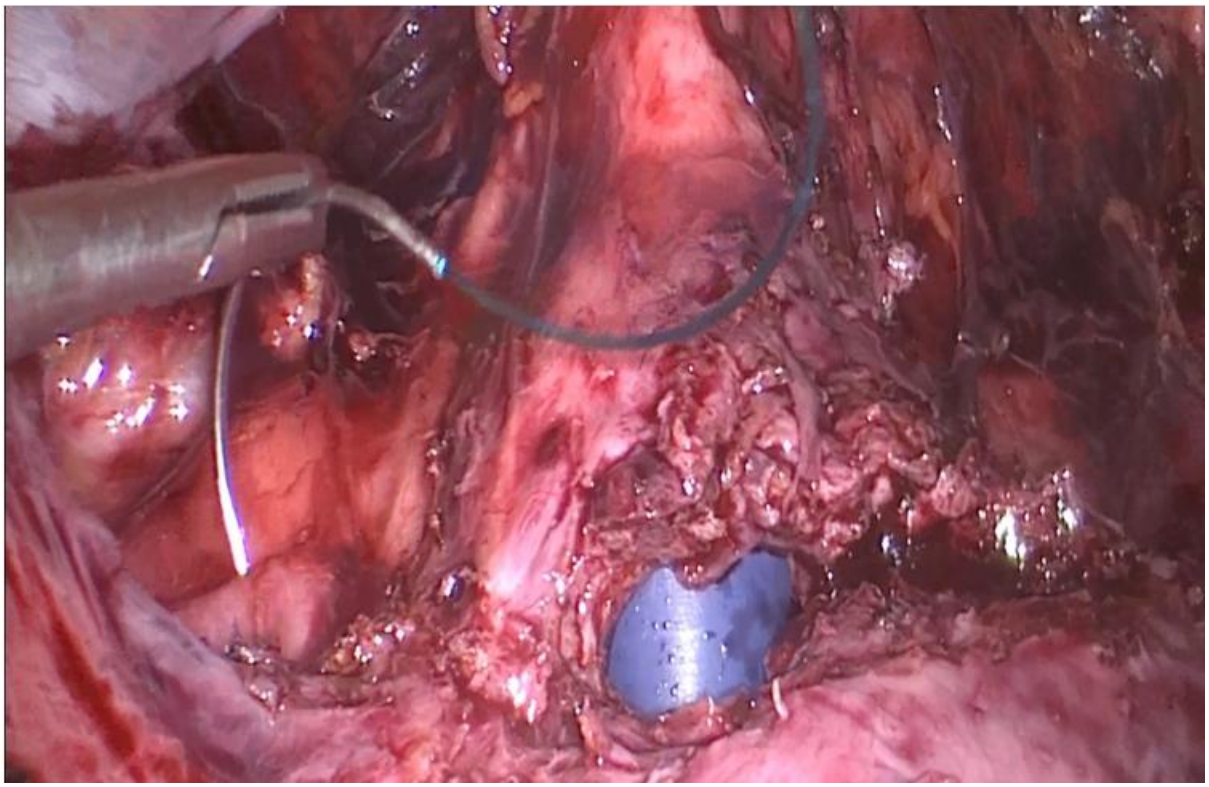

Figure 3: Closure of the uterine rent

3. Discussion

A total of 25 laparoscopic abdominal cerclage procedures have been performed at our institution. Among these, six patients achieved two successful deliveries following cerclage placement. One patient experienced the second-trimester pregnancy loss described in the present report. Another patient underwent cervical cerclage placement at 14 weeks of gestation but subsequently suffered a second-trimester pregnancy loss. Following a repeat laparoscopic cervical cerclage, that patient later achieved a successful pregnancy outcome.

These outcomes demonstrate a high overall success rate, comparable to that reported in the existing literature, and further support the safety and efficacy of laparoscopic transabdominal cerclage (TAC) in carefully selected patients[4,6,7].

The current case is distinguished by the uncommon complication of cerclage slippage below the cervico-isthmic junction, resulting in loss of adequate cervical support. Consequently, progressive cervical dilatation occurred, culminating in expulsion of the products of conception. Although infrequent, displacement of the cerclage is a recognized cause of procedural failure and may be related to technical factors during placement as well as individual anatomical characteristics[10,11].

Several contributing factors may have played a role in the adverse outcome observed in this patient. The history of a previous lower segment cesarean section may have altered the pelvic anatomy and contributed to the development of adhesions between the bladder and the lower uterine segment, findings that were confirmed intraoperatively. Furthermore, thinning of the lower uterine segment, together with increasing intrauterine pressure as the pregnancy advanced, may have promoted inferior migration of the cerclage. The presence of a uterine rent identified during surgery also indicates localized structural weakness, which may have been compounded by prior surgical intervention and persistent mechanical stress.

It is noteworthy that this patient had previously achieved a successful pregnancy following laparoscopic cerclage placement, demonstrating that a favorable outcome in one pregnancy does not eliminate the possibility of cerclage failure in subsequent pregnancies. This observation emphasizes the importance of ongoing surveillance and individualized management in patients undergoing abdominal cerclage.

Laparoscopy played a crucial role in the management of this case, both in relation to cerclage placement and in addressing the subsequent complication. Laparoscopic removal of the displaced cerclage enabled accurate delineation of pelvic anatomy, safe adhesiolysis, and repair of the uterine defect while minimizing surgical morbidity. These findings further highlight the value of minimally invasive surgery in both planned and emergency clinical scenarios.

This case highlights the importance of meticulous surgical technique, careful patient selection, and close antenatal surveillance. Prompt identification of complications such as cerclage migration or failure is essential for optimizing maternal outcomes and facilitating timely intervention.

4. Conclusion

Laparoscopic transabdominal cerclage remains a highly effective treatment option for cervical incompetence in appropriately selected high-risk patients and has

demonstrated excellent success rates in our institutional experience. Nevertheless, uncommon complications such as cerclage slippage may occur and can result in pregnancy loss. Meticulous surgical technique, recognition of potential risk factors, and vigilant antenatal surveillance are critical for maximizing the success of the procedure and achieving favorable maternal and pregnancy outcomes.

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