Clinical and Experimental Obstetrics & Gynecology

Clin. Exp. Obstet. Gynecol. **2026**; 53(11): 51681
https://doi.org/10.31083/CEOG51681

Case Report

Erosion of Mersilene Tape Into the Rectum Following Radical Trachelectomy and Cervical Cerclage: A Case Report

Hong Liao[1,2], Ledi Kuang[1,2], Guolin Luo[1,2], Lanxin Du[1,3], Xin Tan[1,2,*]

[1]Department of Obstetrics and Gynecology, West China Second University Hospital, Sichuan University, 610041 Chengdu, Sichuan, China
[2]Key Laboratory of Birth Defects and Related Diseases of Women and Children, Sichuan University, Ministry of Education, 610041 Chengdu, Sichuan, China
[3]Department of Ultrasound, West China Second University Hospital, Sichuan University, 610041 Chengdu, Sichuan, China
*Correspondence: Tan8336@icloud.com (Xin Tan)
Academic Editor: Michael H. Dahan
Submitted: 10 March 2026 Revised: 28 April 2026 Accepted: 6 May 2026 Published: 4 November 2026

Abstract

Background: Radical trachelectomy (RT) combined with pelvic lymphadenectomy (PLND) is a fertility-sparing surgical option for early-stage cervical cancer. To mitigate the risk of preterm delivery and miscarriage, intraoperative cervical cerclage is often recommended. However, cerclage placement may result in serious complications, including cervical stenosis and erosion. **Case:** A nulliparous patient was diagnosed with cervical squamous cell carcinoma classified as International Federation of Gynecology and Obstetrics (FIGO) stage IA1 with lymphovascular space invasion (LVSI). The patient underwent simultaneous laparoscopic RT, PLND, and cervical cerclage. A 5 mm non-absorbable Mersilene tape was used for the cerclage, placed at the uterine isthmus with a posterior knot. 1 year after surgery, the patient experienced complete rectal erosion of the Mersilene tape. The displaced tape was successfully removed through a combined laparoscopic and proctoscopic approach. The uterovaginal junction was intact, and the rectal mucosa showed no evidence of bleeding, ulceration, or perforation. 6 months after tape removal from rectum, the patient underwent a second pre-conceptional laparoscopic cervical cerclage, placed with an anterior knot. No further complications were reported during the 7 monthsof follow-up. **Conclusions:** This case highlights the potential for Mersilene tape to erode into adjacent tissues. Reducing intraoperative organ injury, hematoma formation, and postoperative infection may help reduce the risk of such invasive complications. Long-term follow-up is essential for the timely identification and management of these rare but clinically significant adverse events.

Keywords: radical trachelectomy; Mersilene tape; cervical cerclage; rectal erosion

1. Introduction

Radical trachelectomy (RT) combined with pelvic lymphadenectomy (PLND) is a standard fertility-preserving treatment for women with early-stage cervical cancer, particularly tumors classified as International Federation of Gynecology and Obstetrics (FIGO) stage IB1 and smaller than 2 cm. RT can be performed via several approaches, including transvaginal, transabdominal, laparoscopic, combined vaginal-laparoscopic, and robotic-assisted techniques [1]. To prevent preterm delivery and miscarriage, permanent cervical cerclage around the neocervix is recommended by the European Society of Gynecological Oncology (ESGO) [2]. Prophylactic cerclage following RT was first described by Dargent et al. in 2000 [3], in which a cerclage was placed at the uterine isthmus prior to reanastomosis of the vagina to the uterus. Cerclage placement has been associated with reduced prematurity rates and a decrease in fetal loss from approximately 50% to 22% [4]. Despite these benefits, cerclage may increase the risk of local adverse effects, particularly cervical stenosis. Previous studies have reported higher rates of cervical stenosis in patients undergoing RT with cerclage compared with those without cerclage [5]. Additional complications include bladder irritation, pelvic infection, and suture erosion [6,7]. Vaginal erosion of cerclage is rare, with reported incidence rates ranging from 0.5% to 3.5% [8], and appears to be influenced by suture material, with polypropylene demonstrating greater resistance to erosion [9]. Due to the lack of randomized controlled studies, the necessity and optimal timing of cervical cerclage remain controversial. Here, we report an extremely rare case of complete erosion of cervical cerclage tape into the rectal lumen following RT.

2. Case Presentation

A 26-year-old nulliparous woman was admitted for evaluation of high-grade cervical intraepithelial neoplasia and human papillomavirus (HPV) type 18 positivity. She reported regular menstrual cycles every 28 days since menarche at age 12 and was married.

2.1. Initial Treatment

The patient initially underwent cold knife conization (CKC) of the cervix. Intraoperative frozen-section analysis revealed cervical squamous cell carcinoma with stromal invasion of ≤3 mm. Definitive treatment was deferred pend-

Copyright: © 2026 The Author(s). Published by IMR Press.
This is an open access article under the CC BY 4.0 license.

Publisher's Note: IMR Press stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

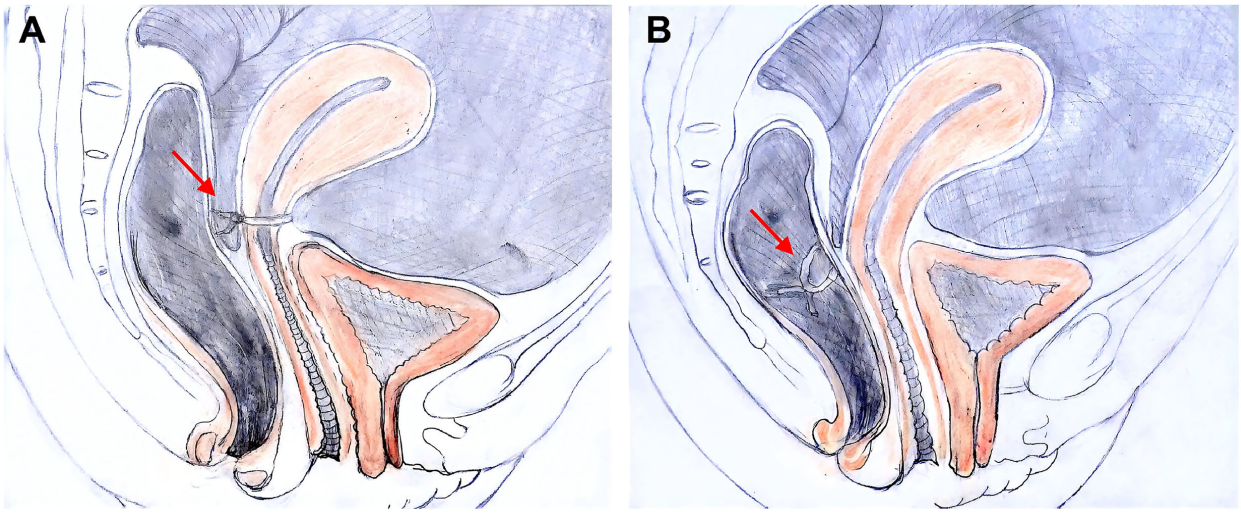


Fig. 1. Schematic illustration of Mersilene tape placement. (A) The entire cervix and 1 cm of the upper vagina were resected. After uterovaginal anastomosis, a 5 mm Mersilene tape (red arrow) was placed at the residual uterine isthmus with the knot positioned posteriorly. (B) No cerclage was identified at the uterovaginal junction. The ring-shaped Mersilene tape (red arrow) adhered to the rectal mucosa surface, consistent with complete erosion of the tape into the rectum.

ing final paraffin-embedded histopathology, following discussion with the patient and her family. Final histopathology confirmed FIGO stage IA1 cervical squamous cell carcinoma with lymphovascular space invasion (LVSI) [10]. Following multidisciplinary consultation with gynecologic oncologists and reproductive endocrinology specialists, the patient elected to undergo fertility-sparing treatment comprising laparoscopic RT with PLND and simultaneous prophylactic cervical cerclage. RT and PLND were performed laparoscopically [11]. The entire cervix and approximately 1 cm of the upper vagina were resected. The ascending branches of the uterine arteries were preserved, and the parametrial tissues were divided under direct laparoscopic visualization. Colpotomy, cervical amputation, caudal paracolpium division, and uterovaginal anastomosis were completed vaginally. Following RT and PLND, a 5 mm non-absorbable polyester tape with double-armed 48 mm needles (RS-22; Mersilene, Ethicon, Inc., Somerville, NJ, USA) was placed around the residual uterine isthmus for cerclage, with the knot tied posteriorly to the uterus, as shown in Fig. 1A [12]. An oil-soaked gauze was placed inside the vagina for 24 hours postoperatively. Final pathology demonstrated negative surgical margins, no residual LVSI, and no evidence of lymph node metastasis in any of the resected pelvic lymph nodes. The patient resumed menstruation 1 month after surgery and was followed at 3-month intervals.

HPV testing and liquid-based cytology of the vaginal cuff were negative at 9 months postoperatively. Transvaginal ultrasound performed 6 months after surgery demonstrated absence of the cervix and a ring-shaped hyperechoic structure at the uterovaginal junction, consistent with the cerclage *in situ* (Fig. 2, A1,A2).

2.2. Clinical Findings

1 year after surgery, the patient reported a foreign body sensation protruding from the anus during defecation, which was manually reducible. Physical examination revealed a smooth and intact uterovaginal junction. Digital rectal examination detected a ring-shaped structure approximately 5 cm above the anal verge, loosely adherent to the rectal mucosa. Transvaginal ultrasound demonstrated an intact uterovaginal junction with no evidence of the cerclage, suggesting tape migration and erosion into the rectum (Fig. 2, B1,B2).

2.3. Therapeutic Intervention

Combined laparoscopy and proctoscopy were performed. No cerclage was identified at the uterine isthmus, and the uterine corpus was found to be densely adherent to the anterior rectal wall. Following adhesiolysis, the rectal serosa appeared intact. Proctoscopy revealed the ring-shaped Mersilene tape adherent to the rectal mucosa (Fig. 1B), without associated bleeding, ulceration, or perforation. The tape, which retained a closed-loop configuration secured by 5 square knots, was carefully removed. Following saline irrigation, a negative rectal air-leak test confirmed the absence of rectal injury. The patient fasted for 1 week, followed by a soft diet for another week, before resuming a normal diet.

2.4. Follow-up and Outcomes

The patient continued routine follow-up with HPV testing and cytology every 3 months. 6 months after tape removal from rectum, a second pre-conception laparoscopic cervical cerclage was performed with the knot placed anteriorly (Fig. 2, C1,C2). At 7-month follow-up, no cerclage-

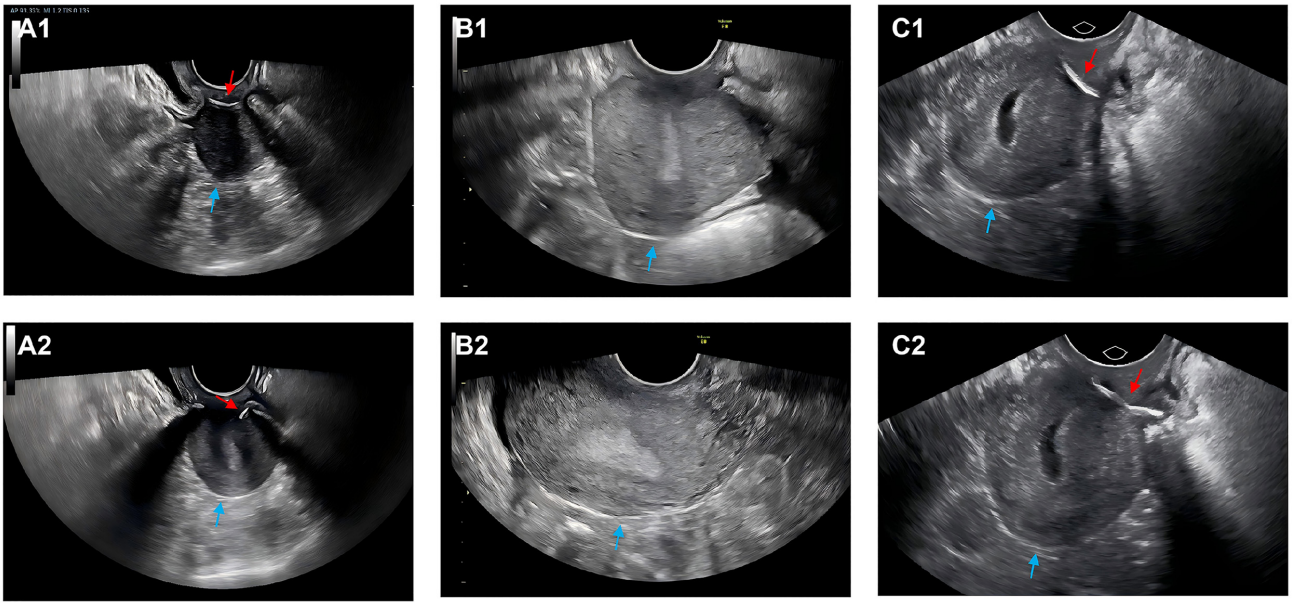


Fig. 2. Transvaginal ultrasound images. (A1,A2) 6 months after surgery, a ring-shaped hyperechoic area (red arrow) was identified at the uterovaginal junction of the uterine corpus (blue arrow). (B1,B2) 1 year after surgery, the uterovaginal junction (blue arrow) appeared continuous and intact, but no hyperechoic area was observed at the junction. (C1,C2) 6 months after the second prophylactic cerclage, a ring-shaped hyperechoic area (red arrow) was seen at the junction of the uterine corpus (blue arrow) and vagina.

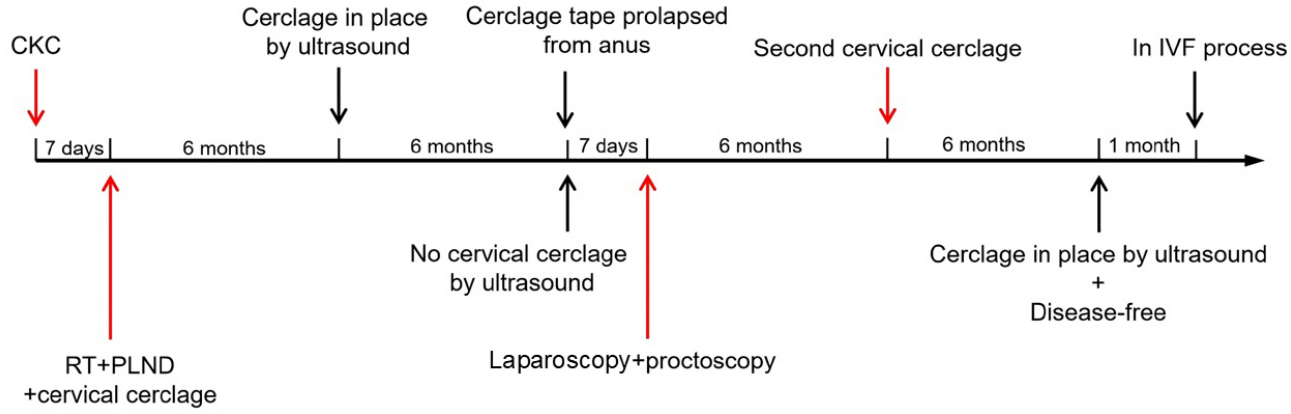


Fig. 3. Timeline of presentation, diagnosis, treatment, and follow-up. CKC, cold knife conization; RT, radical trachelectomy; PLND, pelvic lymphadenectomy; IVF, *in vitro* fertilization. Red arrows point to the time of operations; black arrows point to the time of other significant clinical symptoms or events.

related complications were observed, and the patient had initiated *in vitro* fertilization. The timeline of presentation, diagnosis, treatment, and follow-up is shown in Fig. 3.

3. Discussion

While RT is an established fertility-sparing option for early-stage cervical cancer, the necessity of concurrent cervical cerclage remains a subject of clinical debate. Proponents argue that routine cerclage placement restores mechanical integrity to the significantly shortened cervix, thereby reducing the risk of preterm delivery [2]. However, there exists a systematic review suggest that while cerclage may increase the rate of pregnancy attempts, it does not significantly improve live birth rates compared to patients managed without cerclage [13]. Despite the lack of conclusive evidence, the use of a 5 mm non-absorbable braided polyester tape remains common practice. The clinical controversy lies in balancing the potential obstetric benefits of cerclage against the risk of rare but severe complications, such as tissue erosion and fistula formation.

In this case, preservation of the uterine isthmus allowed for Mersilene tape placement. Standard laparoscopic practice typically involves tying the knot anteriorly on the isthmic surface. However, to minimize potential bladder irritation, the knot was instead tied within the rectouterine pouch (pouch of Douglas) [12].

This technical modification inadvertently created a localized pressure point against the rectum. Postoperative anatomical changes, specifically the close proximity of the posterior knot to the rectal serosa following the release of the pneumoperitoneum, likely contributed to the progression of erosion. While our institution has performed hundreds of anterior-knot cerclages without incident, this case demonstrates that posterior knotting, particularly in the context of the extensive dissection required for RT and PLND, introduces a latent risk for rectal erosion. Erosion is a rare but serious complication in which the cerclage penetrates surrounding tissues, potentially resulting in fistula formation [14]. This may occur as early as 12 weeks after transvaginal cerclage placement and has been reported to persist for up to 13 years. Erosion of Mersilene tape into the bladder may result in recurrent urinary tract infections, bladder calculi, hematuria, and vesicocervical fistula [15,16,17,18], and may be attributable to tape placement in close proximity to the bladder or inadvertent disruption of anatomical layers during surgery. Beyond the bladder, erosion has also been reported involving the cervix and vagina [19,20]. The location of the tape knot is crucial, as anterior knots minimize the risk of adhesions in the Douglas pouch but may increase the likelihood of bladder erosion [21]. Conversely, posterior knot placement may predispose to rectal erosion.

The transmural migration of cerclage tape into the rectal lumen is a remarkable phenomenon. Theoretically, the rectum is less susceptible to erosion than the bladder due to its thicker, more robust muscular wall. Nevertheless, rectal erosion caused by mesh used in pelvic floor repair has been reported [22,23]. The precise mechanism underlying erosion and extrusion remains unclear. Proposed contributing factors include infection, external pressure from the mesh on surrounding tissues, missed rectal injuries, sutures placed too deeply through the rectal wall, and technical misplacement during the initial procedure [24]. Therefore, we hypothesize that a combination of mechanical friction from the synthetic tape material and a localized inflammatory response facilitated this erosion-migration cycle. This process mirrors the documented behavior of migrated intrauterine devices (IUDs) and pelvic floor repair meshes [22,23,24,25]. In such cases, foreign bodies often penetrate visceral walls without causing acute perforation or peritonitis, as the surrounding tissue undergoes progressive remodeling and healing concurrent with object migration. In the present case, we propose that the posterior knot first penetrated the rectal serosa; subsequently, intestinal peristalsis and the passage of fecal contents provided a continuous tractive force, drawing the tape progressively into the rectal lumen. The dense adhesions found in the Douglas pouch further suggest that a significant chronic inflammatory response served as a catalyst for this gradual transmural tissue penetration.

This case provides several critical insights for surgeons performing fertility-sparing radical procedures. Firstly, regarding knot placement and geometry: the location of the cerclage knot is not merely a matter of surgeon preference. While anterior knots may carry a risk of bladder erosion [21], posterior knots placed within the restricted anatomical space of a post-RT pelvis may predispose the patient to rectal migration. Secondly, regarding the role of surgical extent, substantially higher erosion rates have been reported in patients undergoing complex abdominal or minimally invasive surgeries (8.3% to 11.2%) compared to elective pre-conception cerclage (1.3%). It is reasonable to infer that the extent of the surgery and postoperative adhesions are related to erosion [26,27]. Thirdly, regarding vigilance in follow-up, because erosion develops gradually and may remain asymptomatic for months, a high index of clinical suspicion is warranted. Chronic pelvic discomfort or changes in bowel habits following cerclage placement should prompt investigation for tape migration.

Limitations

One limitation of this report is the absence of original intraoperative photographs. Although hand-drawn illustrations were provided to replicate the surgical field as accurately as possible, this substitution may limit the reader's ability to fully appreciate the operative findings. Additionally, as a single case report, these findings and complications may not be generalizable. Readers should exercise clinical judgment when interpreting and applying the observations presented herein.

4. Conclusions

In this report, we present a rare case of rectal erosion caused by Mersilene tape, providing a comprehensive overview of the patient's clinical presentation, diagnostic, and treatment. To our knowledge, this represents the first documented case of rectal migration of a cerclage tape following RT. Our findings suggest that while posterior knot placement may reduce the risk of bladder erosion, it requires careful consideration of rectal proximity. Ultimately, prevention of such complications relies on minimizing intraoperative tissue trauma and careful selection of the anatomical site for suture fixation. We hope this case stimulates further research toward the development of standardized protocols for cerclage placement in the complex setting of post-trachelectomy surgical management.

Abbreviations

RT, radical trachelectomy; PLND, pelvic lymphadenectomy; LVSI, lymphovascular space invasion; ESGO, European Society of Gynecological Oncology; CKC, cold knife conization; NCCN, National Comprehensive Cancer Network; SCC, squamous cell carcinoma; FIGO, International Federation of Gynecology and Obstetrics; HPV, human papillomavirus; IUD, intrauterine device.

Availability of Data and Materials

Only de-identified information is available and that access is subject to institutional approval and patient privacy restrictions.

Author Contributions

Conceptualization: HL, GL, XT. Data curation: LK, HL, LD, GL. Resources: XT. Formal analysis: LK, HL, GL, LD. Writing-original draft: LK, HL. Writing-review & editing, Supervision: XT. All authors contributed to critical revision of the manuscript for important intellectual content. All authors have approved the final version of the manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

This study was reviewed and approved by the ethics committee and the data inspectorate of West China Second University Hospital of Sichuan University and was conducted in accordance with the Declaration of Helsinki to the ethics statement. The Ethics approval number is No. 112. Informed consent was obtained from the patient.

Acknowledgment

Not applicable.

Funding

This research received no external funding.

Conflicts of Interest

The authors declare no conflicts of interest.

Declaration of AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work, the authors used Gemini 3 in order to check spelling and grammar. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Supplementary Material

Supplementary material associated with this article can be found, in the online version, at https://doi.org/10.31083/CEOG51681.

References

[1] Dostalek L, Åvall-Lundqvist E, Creutzberg CL, Kurdiani D, Ponce J, Dostalkova I, et al. ESGO Survey on Current Practice in the Management of Cervical Cancer. International Journal of Gynecological Cancer: Official Journal of the International Gynecological Cancer Society. 2018; 28: 1226–1231. https://doi.org/10.1097/IGC.0000000000001314

[2] Cibula D, Raspollini MR, Planchamp F, Centeno C, Chargari C, Felix A, et al. ESGO/ESTRO/ESP Guidelines for the management of patients with cervical cancer - Update 2023. International Journal of Gynecological Cancer: Official Journal of the International Gynecological Cancer Society. 2023; 33: 649–666. https://doi.org/10.1136/ijgc-2023-004429

[3] Dargent D, Martin X, Sacchetoni A, Mathevet P. Laparoscopic vaginal radical trachelectomy: a treatment to preserve the fertility of cervical carcinoma patients. Cancer. 2000; 88: 1877–1882.

[4] Mathevet P, Laszlo de Kaszon E, Dargent D. Fertility preservation in early cervical cancer. Gynecologie, Obstetrique & Fertilite. 2003; 31: 706–712. https://doi.org/10.1016/s1297-9589(03)00200-5

[5] Li X, Li J, Wu X. Incidence, risk factors and treatment of cervical stenosis after radical trachelectomy: A systematic review. European Journal of Cancer (Oxford, England: 1990). 2015; 51: 1751–1759. https://doi.org/10.1016/j.ejca.2015.05.012

[6] Plante M, Renaud MC, Roy M. Radical vaginal trachelectomy: a fertility-preserving option for young women with early stage cervical cancer. Gynecologic Oncology. 2005; 99: S143–S146. https://doi.org/10.1016/j.ygyno.2005.07.067

[7] Pareja F R, Ramirez PT, Borrero F M, Angel C G. Abdominal radical trachelectomy for invasive cervical cancer: a case series and literature review. Gynecologic Oncology. 2008; 111: 555–560. https://doi.org/10.1016/j.ygyno.2008.07.019

[8] Segarra-Vidal B, Persson J, Falconer H. Radical trachelectomy. International Journal of Gynecological Cancer: Official Journal of the International Gynecological Cancer Society. 2021; 31: 1068–1074. https://doi.org/10.1136/ijgc-2020-001782

[9] Johansen G, Lönnerfors C, Falconer H, Persson J. Reproductive and oncologic outcome following robot-assisted laparoscopic radical trachelectomy for early stage cervical cancer. Gynecologic Oncology. 2016; 141: 160–165. https://doi.org/10.1016/j.ygyno.2016.01.028

[10] Bhatla N, Berek JS, Cuello Fredes M, Denny LA, Grenman S, Karunaratne K, et al. Revised FIGO staging for carcinoma of the cervix uteri. International Journal of Gynaecology and Obstetrics: the Official Organ of the International Federation of Gynaecology and Obstetrics. 2019; 145: 129–135. https://doi.org/10.1002/ijgo.12749

[11] Lee CL, Huang KG, Wang CJ, Yen CF, Lai CH. Laparoscopic radical trachelectomy for stage Ib1 cervical cancer. The Journal of the American Association of Gynecologic Laparoscopists. 2003; 10: 111–115. https://doi.org/10.1016/s1074-3804(05)60244-7

[12] Kuang L, Luo G, Tan X, Liao H. A simplified preconceptional laparoscopic cervical cerclage for cervical insufficiency: a retrospective study from a single center. BMC Pregnancy and Childbirth. 2024; 24: 806. https://doi.org/10.1186/s12884-024-07006-9

[13] Szubert S, Nadolna M, Wawrzynowicz P, Horała A, Kołodziejczyk J, Koberling Ł, et al. Surgical Techniques for Radical Trachelectomy. Cancers. 2025; 17: 985. https://doi.org/10.3390/cancers17060985

[14] Alani S, Wang J, Suarthana E, Tulandi T. Complications Associated with Cervical Cerclage: A Systematic Review. Gynecology and Minimally Invasive Therapy. 2023; 12: 4–9. https://doi.org/10.4103/gmit.gmit_61_22

[15] Li S, Zhao S, Zhang Y, Zhang B. Bladder Erosion and stone formation: a rare complication of laparoscopic cervical cerclage. BMC Women's Health. 2025; 25: 329. https://doi.org/10.1186/s12905-025-03873-2

[16] Ruan JM, Adams SR, Carpinito G, Ferzandi TR. Bladder calculus presenting as recurrent urinary tract infections: a late complication of cervical cerclage placement: a case report. The Journal of Reproductive Medicine. 2011; 56: 172–174.

[17] Madueke-Laveaux OS, Platte R, Poplawsky D. Unique complication of a Shirodkar cerclage: remote formation of a vesicocervical fistula in a patient with the history of cervical cerclage placement: a case report and literature review. Female Pelvic Medicine & Reconstructive Surgery. 2013; 19: 306–308. https://doi.org/10.1097/SPV.0b013e3182996cee

[18] Tulandi T, Eiley D, Abenhaim H, Ziegler C. Complete Erosion of Abdominal Cerclage Into the Bladder. Journal of Obstetrics and Gynaecology Canada: JOGC = Journal D'obstetrique et Gynecologie du Canada: JOGC. 2021; 43: 1083–1085. https://doi.org/10.1016/j.jogc.2021.03.017

[19] Hawkins E, Nimaroff M. Vaginal Erosion of an Abdominal Cerclage Seven Years after Laparoscopic Placement. Journal of Minimally Invasive Gynecology. 2013; 20: S144–S145. https://doi.org/10.1016/j.jmig.2013.08.493

[20] Demirel C, Celik HG, Kazanci F, Tulek F. The Mersilene Tape Passing Through the Cervical Canal During Preconceptional Laparoscopic Abdominal Cerclage. Journal of Minimally Invasive Gynecology. 2023; 30: 687–688. https://doi.org/10.1016/j.jmig.2023.05.016

[21] Abdallah W. Updates on laparoscopic cervical cerclage: obstetric outcomes and surgical techniques. Future Science OA. 2023; 9: FSO885. https://doi.org/10.2144/fsoa-2023-0051

[22] Paine M, Harnsberger JR, Whiteside JL. Transrectal mesh erosion remote from sacrocolpopexy: management and comment. American Journal of Obstetrics and Gynecology. 2010; 203: e11–3. https://doi.org/10.1016/j.ajog.2010.04.028

[23] Balla A, Quaresima S, Smolarek S, Shalaby M, Missori G, Sileri P. Synthetic Versus Biological Mesh-Related Erosion After Laparoscopic Ventral Mesh Rectopexy: A Systematic Review. Annals of Coloproctology. 2017; 33: 46–51. https://doi.org/10.3393/ac.2017.33.2.46

[24] Mathew MJ, Parmar AK, Reddy PK. Mesh erosion after laparoscopic posterior rectopexy: A rare complication. Journal of Minimal Access Surgery. 2014; 10: 40–41. https://doi.org/10.4103/0972-9941.124473

[25] Goldstuck ND, Wildemeersch D. Role of uterine forces in intrauterine device embedment, perforation, and expulsion. International Journal of Women's Health. 2014; 6: 735–744. https://doi.org/10.2147/IJWH.S63167

[26] Han L, Chen Y, Zheng A, Tan X, Chen H. Minimally invasive versus abdominal radical trachelectomy for early-stage cervical cancer: a systematic review and meta-analysis. American Journal of Cancer Research. 2023; 13: 4466–4477.

[27] Ades A, Parghi S, Aref-Adib M. Laparoscopic transabdominal cerclage: Outcomes of 121 pregnancies. The Australian & New Zealand Journal of Obstetrics & Gynaecology. 2018; 58: 606–611. https://doi.org/10.1111/ajo.12774