



# Endometrial cancer decades after supracervical hysterectomy for placenta accreta spectrum: A case report

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## ABSTRACT

Endometrial cancer following a supra-cervical hysterectomy is a rare event and a correct diagnosis requires high clinical suspicion. Here we report a case of a woman who developed endometrial cancer years after supracervical hysterectomy was performed for placenta accreta spectrum (PAS) with bladder invasion. The patient presented with urinary bleeding and was diagnosed on cystoscopy; her pathology and unusual history led to the ultimate diagnosis of a primary endometrial cancer in the remaining uterine stump.

## 1. Introduction

As the rate of cesarean delivery in the United States has increased, the rate of placenta accreta spectrum (PAS) has also increased. PAS also increases with the number of previous cesareans; such that PAS occurs in 0.3 % of pregnancies with one prior cesarean versus 6.74 % for women with five or more cesarean deliveries. Due to the significant risk of hemorrhage with attempts at placental removal, most cases of PAS are treated with hysterectomy with the placenta left in situ at the time of cesarean (American College of Obstetricians and Gynecologists and Society for Maternal-Fetal Medicine, 2018).

The American College of Obstetrics and Gynecology recommends performing total hysterectomies at the time of cesarean for PAS, given lower uterine segment and cervical bleeding often hinder performing supra-cervical hysterectomies. (Committee on Obstetric Practice (2002). ACOG committee opinion. Placenta accreta. Number 266, 2002). While supracervical hysterectomies are becoming less common, this mode of surgery remains an option given its potentially less morbid approach. Supracervical hysterectomies have been associated with lower surgical blood loss, reduction of transfusion rates, lower rates of urinary tract injury and shorter hospital stays (Licon et al., 2021). In addition, they may be more feasible due to adhesive disease. PAS can distort anatomical planes, requiring partial or total cystectomy during hysterectomy making a supracervical hysterectomy a more favorable choice (Matsuzaki et al., 2021). In one study, supracervical hysterectomies were performed in 17 of the 122 cases complicated by PAS and were more likely to be performed by a general obstetrician and gynecologist than a gynecologist oncologist (Munoz et al., 2022). In general, supra-cervical hysterectomies have declined since the safety communication

published by the Federal Drug and Administration (FDA) in 2014 discouraging the use of power morcellators due to the concern of disseminating malignant tissue within the peritoneal cavity (Food and Drug Administration, 2014). One study evaluated the trends of mode of hysterectomy using the American College of Surgeons National Surgical Quality Improvement Program from 2012 to 2016. Supracervical hysterectomies were noted to decrease from 13.2 % prior to the FDA communication to 7.4 % within a year and 7.1 % more than a year after. The proportion of supracervical hysterectomies was noted to remain stable from March 2015 to the end of 2016 (Jorgensen et al., 2019).

After a supracervical hysterectomy, endometrial tissue, including endometrial glands of the lower uterine segment may be left behind (Ghomi et al., 2005). In pre-menopausal women, this can lead to persistent cyclic bleeding even after supracervical hysterectomy (Ghomi et al., 2005). In women with risk factors for endometrial cancer, such as obesity or a significant family history, these endometrial glands can have malignant potential.

We report here a 61-year-old woman who was ultimately diagnosed with a stage IVA endometrial cancer following a supracervical hysterectomy for placenta percreta 24 years prior to presentation.

## 2. Case report

In 2023, our 61-year-old patient presented to urology for one month of hematuria. Her past medical history included a body mass index of 42, hyperlipidemia, hypertension, and gastrointestinal esophageal reflux. Her past surgical history included eight prior cesarean sections with the final cesarean in 1999 resulting in a supracervical hysterectomy due to placenta percreta, with placenta invading the bladder. At the time of her

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hysterectomy, a portion of the bladder was resected to completely remove the placenta. She had no complications from that surgery.

When the patient presented to urology, other symptoms included urinary urgency and abdominal cramping. She was postmenopausal and denied any vaginal bleeding. She had never used hormone replacement therapy and reported no abnormal pap smears with the most recent one 8–10 years prior to her initial work up.

Computer Tomography (CT) urogram revealed a 2.5 cm mass at the dome of the bladder. A cystoscopy confirmed the mass, and a transurethral resection of bladder tumor was performed noting a nodular appearing tumor on the posterior bladder wall with no residual tumor present after resection. Intravesicular gemcitabine was administered at the time of the procedure. The pathology returned moderately to poorly differentiated adenocarcinoma. The histophenotype was nonspecific but was noted it could be consistent with a bladder primary malignancy. The pathology report suggested clinicians use clinical and radiographic correlation to exclude other sites of primary malignancy as no definitive urothelial differentiation was seen. On further review of the pathology, the tumor was noted to be PAX8 and ER positive, consistent with an endometrial primary tumor, and the patient was referred to gynecology oncology (Fig. 1).

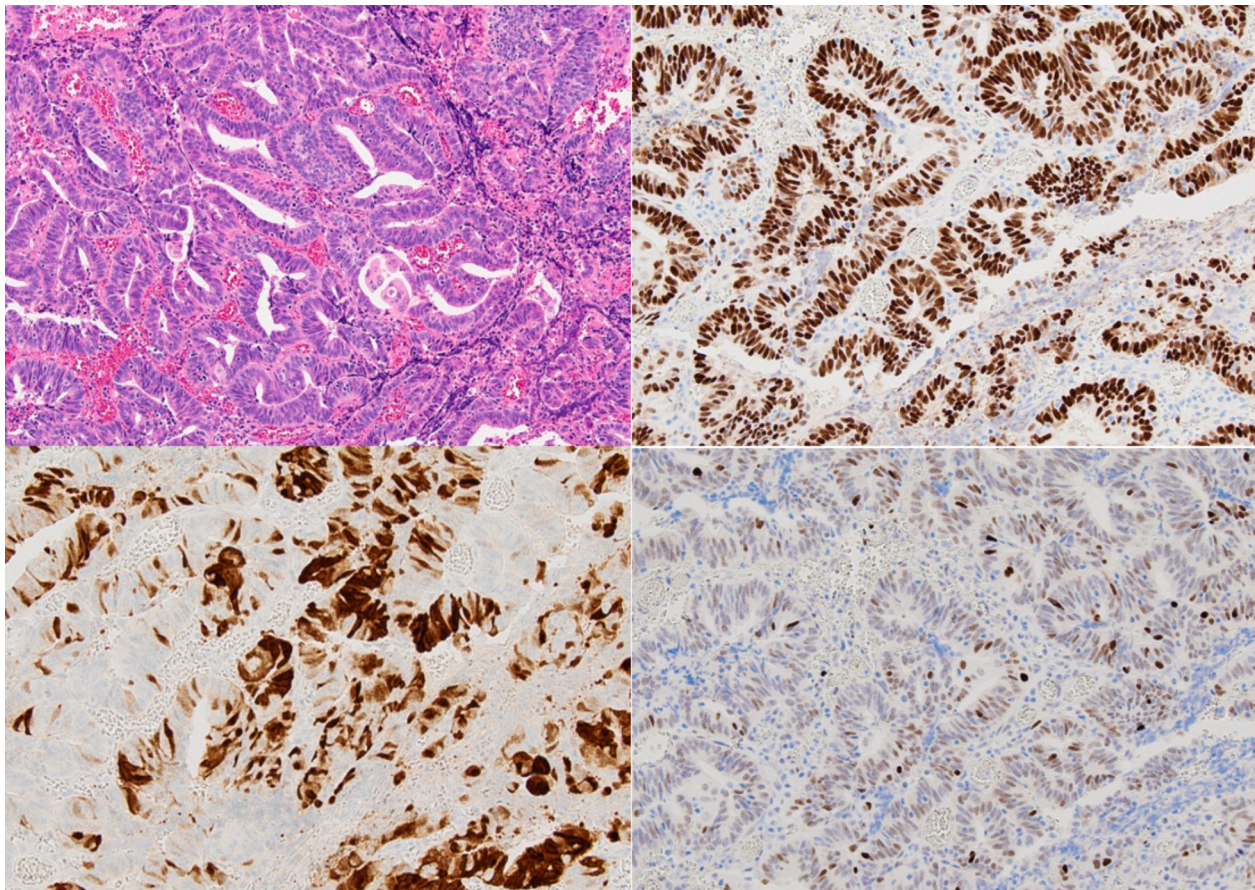
In September 2023 she was evaluated by gynecology oncology for evaluation of a possible endometrial primary tumor. The plan was made for magnetic resonance imaging (MRI) followed by surgical resection with gynecology oncology and urology. A pap smear was performed at her initial evaluation, which returned atypical glandular cells of

unknown significance, high risk human papilloma virus (HPV) negative. On repeat imaging, the patient was noted to have abnormal soft tissue expanding from the residual cervix or vaginal apex which was contiguous with the bladder. Previously seen bladder mass was no longer identified (Fig. 2).

One month later, she underwent surgery with gynecologic oncology and urology including an exploratory laparotomy, bilateral salpingo-oophorectomy, bilateral pelvic lymph node dissection, resection of the cervix with residual lower uterine segment and associated remaining soft tissue with bladder (performed by urology). There was sufficient bladder remaining to reconstruct the native bladder and a urinary conduit was not required.

Pathology returned endometrioid adenocarcinoma, grade 3, stage IVA (based on bladder involvement). The adenocarcinoma extended into the muscularis propria of the bladder and was within 0.1 cm of the cauterized bladder margin edge. All lymph nodes were negative. Tumor next-generation sequencing was performed and revealed a POLE pathogenic variant. The patient recovered from her surgery well and notably had normal bladder function.

Based upon the stage and grade of disease, adjuvant therapy was recommended. Due to very low bladder capacity, pelvic radiotherapy was felt to be contra-indicated. The patient was offered chemotherapy with immunotherapy versus hormonal therapy only and opted for hormonal therapy with the plan to remain on a regimen of alternating megestrol acetate 40 mg twice daily and a selective estrogen receptor modulator 40 mg twice daily every 3 weeks for two years.



**Fig. 1.** Top Left: H&E photo at 10x magnification of adenocarcinoma invading the muscularis of the bladder. Focal squamous metaplasia is seen, a finding often associated with endometrioid adenocarcinoma. Top Right: Estrogen Receptor (ER) immunohistochemistry at 10x magnification which demonstrates strong, diffuse nuclear positivity. This finding supports a gynecologic primary site and argues against a bladder primary tumor. Bottom Left: P16 immunohistochemistry at 10x magnification which demonstrates a mosaic pattern. This finding supports a diagnosis of endometrioid adenocarcinoma and argues against serous carcinoma. Bottom Right: P53 immunohistochemistry at 10x magnification which demonstrates wild-type expression. This finding supports a diagnosis of endometrioid adenocarcinoma and argues against serous carcinoma.



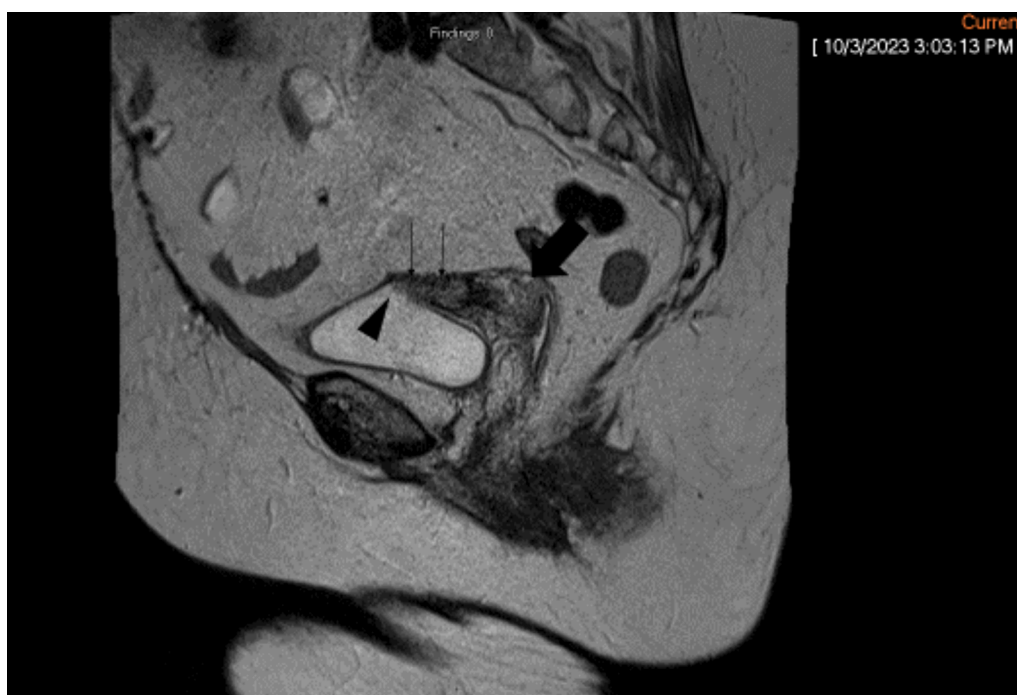


Fig. 2. MRI left paramedian sagittal view of the cervix (thick arrow) with tumor (thin arrows) frankly invading the bladder (arrow head).

### 3. Discussion

Endometrial cancer following a hysterectomy for PAS is rare with no documented case reports. Though hematuria has been documented as a presenting symptom for endometrioid adenocarcinoma, this is also a rare occurrence (Betancourt and Samulski, 2021). This case highlights the risk of endometrial cancer recurrence in a patient with a placenta percreta involving the bladder who underwent supracervical hysterectomy. A high index of suspicion for an endometrial primary tumor is necessary in this atypical clinical scenario as standard treatment for a bladder primary tumor would not be sufficient.

Our patient presented primarily with bladder symptoms, which is not surprising given her history of placenta percreta with extension into the bladder. At the time of her cesarean-hysterectomy, she had a portion of her bladder resected due to placental involvement. The placenta and the surgery together likely impacted tissue planes between the bladder and the remaining uterine stump, leading to early spread of disease in this case into the bladder. Despite the high grade of disease, there was no evidence of metastasis to either regional lymph nodes or the peritoneal cavity.

Due to invasion of the bladder, the patient had stage IV disease. Based on the National Comprehensive Cancer Network guidelines, after surgical staging of stage IV endometrial cancer, treatment should include systemic therapy with the option to include external beam radiation therapy and/or vaginal brachytherapy (Network and Neoplasms, 2024). This recommendation seeks to reduce the risk of recurrence and associated death. However, given her history, this patient had an unusual presentation. It is likely that the early spread into the bladder was due to the disruption of planes (as detailed above) rather than a propensity of the tumor to spread to adjacent organs. Given full resection of the tumor and no lymph node involvement, the patient was counseled on the low risk of recurrence, though the risk of recurrence was not zero given the adenocarcinoma extended into the muscularis propria of the bladder and was within 0.1 cm of the cauterized bladder margin edge. The decision was made to not offer external beam radiation and/or vaginal brachytherapy due to very low bladder capacity. Given the tumor was ER positive on immunohistochemistry, it was reasonable to treat with hormonal therapy. After counseling, the

patient preferred hormonal therapy to chemotherapy with immunotherapy. If additional therapy is indicated, pembrolizumab would be appropriate immunotherapy given POLE variants respond well to checkpoint inhibitors due to their high immunogenicity (Mittica et al., 2017).

### 4. Conclusion

This report highlights a patient with endometrial cancer that developed in a uterine stump years after supracervical hysterectomy for placenta percreta. Her prior surgery and unusual presentation required a high index of suspicion for endometrial cancer. Given the increasing rates of peri-partum hysterectomy for PAS and the rise of obesity rates in the US, cases such as this may be more common in the future. Therefore, when appropriate and feasible, surgeons should take care to perform a total hysterectomy to reduce this risk.

### CRedit authorship contribution statement

**Lauren T. Gilgannon:** Writing – original draft. **Linda R. Duska:** Writing – review & editing, Supervision.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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### References

- American College of Obstetricians and Gynecologists, & Society for Maternal-Fetal Medicine (2018). Obstetric Care Consensus No. 7: Placenta Accreta Spectrum. *Obstetrics and gynecology*, 132(6), e259–e275. doi: 10.1097/AOG.0000000000002983.

- Committee on Obstetric Practice (2002). ACOG committee opinion. Placenta accreta. Number 266., January 2002. American College of Obstetricians and Gynecologists. *International Journal of Gynaecology and Obstetrics: the Official Organ of the International Federation of Gynaecology and Obstetrics* 77 (1), 77–78. [https://doi-org.proxy1.library.virginia.edu/10.1016/s0020-7292\(02\)80003-0](https://doi-org.proxy1.library.virginia.edu/10.1016/s0020-7292(02)80003-0).
- Licon, E., Vestal, N.L., Sangara, R.N., Miller, H., Jooya, N., Matsuzaki, S., Bender, N.M., Sasso, E.B., Matsuo, K., 2021. Planned supracervical hysterectomy for surgical management of placenta accreta spectrum: A comparative study. *European Journal of Obstetrics, Gynecology, and Reproductive Biology* 261, 249–251. <https://doi.org/10.1016/j.ejogrb.2021.04.039>.
- Matsuzaki, S., Mandelbaum, R.S., Sangara, R.N., McCarthy, L.E., Vestal, N.L., Klar, M., Matsushima, K., Amaya, R., Ouzounian, J.G., Matsuo, K., 2021. Trends, characteristics, and outcomes of placenta accreta spectrum: a national study in the United States. *American Journal of Obstetrics and Gynecology* 225 (5), 534.e1–534.e38. <https://doi-org.proxy1.library.virginia.edu/10.1016/j.ajog.2021.04.233>.
- Munoz, J.L., Blankenship, L.M., Ramsey, P.S., McCann, G.A., 2022. Importance of the gynecologic oncologist in management of cesarean hysterectomy for Placenta Accreta Spectrum (PAS). *Gynecologic Oncology* 166 (3), 460–464. <https://doi.org/10.1016/j.ygyno.2022.06.025>.
- U.S. Food and Drug Administration . UPDATED laparoscopic uterine power morcellation in hysterectomy and myomectomy: FDA safety communication [archived] . Silver Spring (MD) : FDA ; 2014 . Available at: <https://wayback.archive-it.org/7993/20170404182209/https://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/ucm424443.htm>. Retrieved August 3<sup>rd</sup>, 2024.
- Jorgensen, E.M., Modest, A.M., Hur, H.C., Hacker, M.R., Awtrey, C.S., 2019. Hysterectomy Practice Patterns in the Postmorcellation Era. *Obstetrics and Gynecology* 133 (4), 643–649. <https://doi.org/10.1097/AOG.0000000000003181>.
- Ghomi, A., Hantes, J., Lotze, E.C., 2005. Incidence of cyclical bleeding after laparoscopic supracervical hysterectomy. *Journal of Minimally Invasive Gynecology* 12 (3), 201–205. <https://doi.org/10.1016/j.jmig.2005.03.008>.
- Betancourt, R.L., Samulski, D.T., 2021. Endometrial adenocarcinoma presenting in a voided urine cytology specimen: Case report. *Diagnostic Cytopathology* 49 (11), E419–E422. <https://doi-org.proxy1.library.virginia.edu/10.1002/dc.24838>.
- National Comprehensive Cancer Network. Uterine Neoplasms. Version 2.2024 – March 6, 2024. [https://www.nccn.org/professionals/physician\\_gls/pdf/uterine\\_blocks.pdf](https://www.nccn.org/professionals/physician_gls/pdf/uterine_blocks.pdf).
- Mittica, G., Ghisoni, E., Giannone, G., Aglietta, M., Genta, S., Valabrega, G., 2017. Checkpoint inhibitors in endometrial cancer: preclinical rationale and clinical activity. *Oncotarget* 8 (52), 90532–90544. <https://doi-org.proxy1.library.virginia.edu/10.18632/oncotarget.20042>.