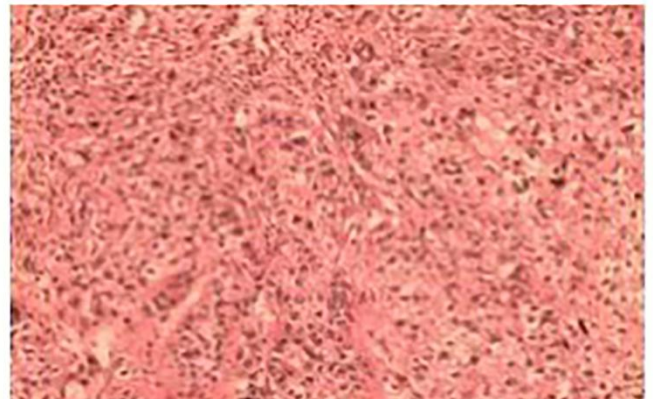


Supplementary Figure 1

Specimen Type and Findings: A segment of the sigmoid colon with perforation, measuring 12.3 cm in length and 3 cm to 4 cm in diameter. Both ends are attached with steel staples. At a distance of 2.5 cm from one side of the staple line and 8 cm from the other side, there is a rupture measuring 2.7 cm by 1.8 cm. The serosal surface of the bowel wall is congested, edematous, and covered with purulent exudate, while the mucosal surface is edematous. Additionally, a piece of free fatty tissue measuring 9.5 cm by 5 cm by 4 cm is observed, with the fat surface also covered with purulent exudate. Two lymph nodes are found around the bowel, measuring 0.3 cm and 0.5 cm in diameter.

Microscopic Findings (with attached figures):



Pathological Diagnosis: The entire layer of the sigmoid colon wall shows low to moderately differentiated squamous cell carcinoma with perforation. Mucinous adenocarcinoma nodules are found within the mesentery. Inflammatory exudate and necrosis are visible on the serosal surface. Vascular and neural invasion by cancer cells is observed. No cancer is found at the margins of the specimen. No metastasis is found in the pericolic lymph nodes (0/2).

Immunohistochemical Results: [-4 Colon] P16(+), P40(partially+), P63(+), CKpan(+), CK5/6(+), CK7(+), Ki-67(+70%), GATA3(-), CK20(-), CD15(-), P504S(-), Napsin A(-), [-9 Mesenteric Nodule] CK7(+), P16(+), Villin(+), Pax-8(-), CK20(-), CDX-2(focal+).

Note: The entire layer of the colon wall shows low to moderately differentiated squamous cell carcinoma, while mucinous adenocarcinoma nodules are found within the mesentery. In combination with the medical history and immunohistochemical results, the origin from the cervix is more likely. Please consider this in the clinical context.

Supplementary Figure 2

Specimen Type and Findings: A nodular tumor from the pelvic region, including the entire bladder, uterus with bilateral adnexa, vagina, urethra, a segment of small intestine, rectum, and perineal skin. The tumor measures 9 x 8 x 7 cm, with a rough surface. The cut section is grayish-white and light brown, solid, friable, with necrosis and cystic changes. The tumor surface is connected to muscle, ileocecal bowel, rectum, and uterus. The muscle measures approximately 5.5 x 4 x 1.5 cm, with a brown, solid, and soft cut section. The ileocecal bowel contains a colon segment measuring 3 cm in length and 5 cm in diameter, with no remarkable findings on the mucosal surface. Two lymph nodes are found around the bowel, measuring 0.5 cm and 0.7 cm in diameter. A segment of small intestine measures 25 cm in length and 2-3 cm in diameter, with the serosal side showing tumor involvement, leading to local perforation of the small intestine. The appendix measures 3.5 cm in length and 0.7 cm in diameter, with a smooth serosal surface. Approximately 6 cm from the ileocecal valve, adhesion between the small intestine and rectum is observed. The rectum measures 15 cm in length and 3-4 cm in diameter, with one side of the bowel wall involved by the tumor and the other side adherent to the posterior uterine wall. The distal end of the rectum is connected to the perianal and perineal skin, measuring 8 cm x 2.5 cm. In front of the rectum, the uterus is visible, with a uterine body measuring 7 x 3.5 x 3.5 cm, with a rough endometrial surface. Local adhesion between the posterior uterine wall and the tumor is observed, with a fistula formed between the uterine cavity and the cystic change area of the tumor. The cervix measures 2.5 cm in length and 2 cm in diameter, with a relatively smooth surface, connected to a vagina measuring 4 cm in length and 3 cm in diameter, with a smooth mucosal surface. The bladder measures 5 x 5 x 2 cm, with a wall thickness of 1 cm to 1.5 cm and a relatively smooth mucosal surface. The urethra measures 4.5 cm in length and 1.7 cm in diameter, with no remarkable findings on the urethral mucosa. The left ureter measures 0.8 cm in length and 0.5 cm in diameter, and the right ureter measures 1.0 cm in length and 0.8 cm in diameter. The bilateral adnexal structures are not clearly identifiable.

Microscopic Findings (with attached figures):



Pathological Diagnosis: 【Pelvic region, entire bladder, uterus with bilateral adnexa, vagina, urethra, a segment of small intestine, rectum, and perineal skin】 Moderately differentiated squamous cell carcinoma is observed infiltrating the pelvic fibrofatty tissue, with necrosis and cystic changes, measuring approximately 9 x 8 x 7 cm. The tumor has perforated through the small intestinal wall. No cancer is found at the resection margins of the ileocecal bowel. No metastasis is found in the pericolic lymph nodes (0/2). No cancer is found in the appendix. No cancer is found at the upper resection margin of the rectum. Most of the endometrium is lost. A fistula is formed between the local uterine cavity and the cystic change area of the tumor. No residual cancer is found in the circumferential margin of the cervix. No cancer involvement is found in the bladder. No cancer is found at the ureteral resection margins. No cancer is found at the skin resection margins.

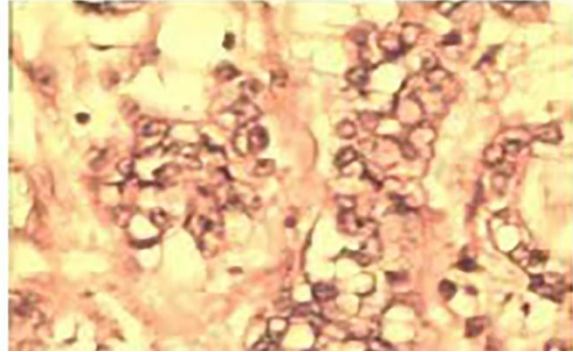
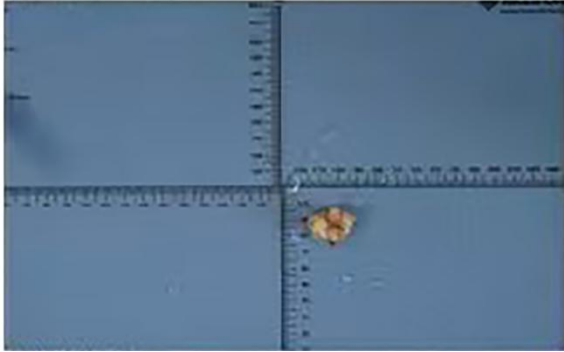
Immunohistochemistry: Ki-67(+70%), p16(+), P40(partially+), CK5/6(+).

Note: Please further identify the primary location of the tumor based on clinical history.

Supplementary Figure 3

Specimen Type and Findings: One tumor measuring 2.5 cm x 2 cm x 1.2 cm. The cut surface is grayish- white and light brown, solid, and soft.

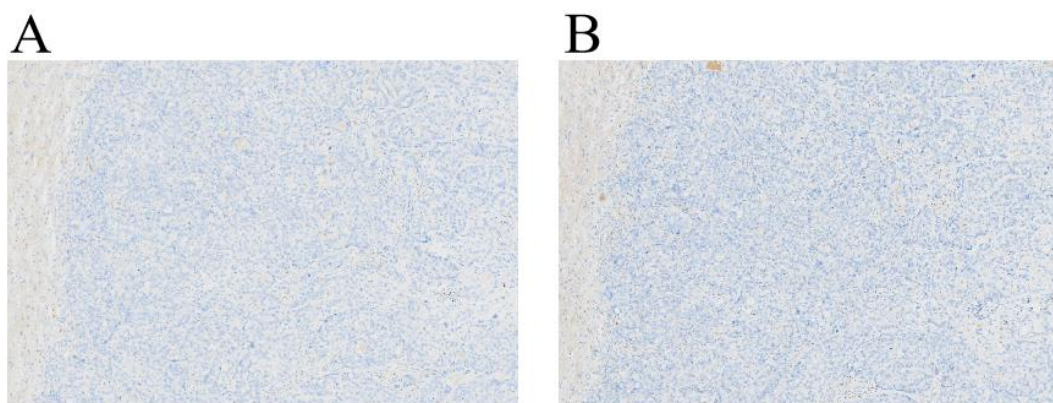
Microscopic Findings (with attached figures):



Pathological Diagnosis: 【Intracranial】 Brain metastatic adenocarcinoma, it a possibility of minor cancer tissue showing squamous cell carcinoma differentiation. The cancer tissue is predominantly poorly differentiated, with a small portion moderately differentiated. Some areas show glandular structures, some show solid growth, and some regions are associated with mucinous secretion. In combination with the medical history and immunohistochemical results, a cervical origin is highly suspected.

Immunohistochemical Results: CK-pan(+), Ki-67(+80%) P16(diffusely+) , CK7(+), CK20(-), CEA(+), CK5/6(scattered few+), P40(scattered few+), PAX-8(-), P53(+90%, mutated type expression), ER(-), PR(-).

Supplementary Figure 4



Section stained of BM metastatic tissue. A. Section stained with ER is negative (total magnification x40); B. Section stained with PR is negative (total magnification x40).

