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Case Report

Recurrent vaginal squamous cell carcinoma mimicking peri-rectal abscess: The role of endoscopic ultrasound ☆,☆☆

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ABSTRACT

Recurrence of vaginal squamous cell carcinoma (SCC) involving the rectum is extremely rare and usually results from direct spread of the primary tumor. Such cases often present with pelvic metastases and can mimic infectious or inflammatory conditions, complicating diagnosis and delaying treatment. While computed tomography scans are commonly used for diagnosis, they may be misleading. Endoscopic ultrasound (EUS) is crucial for accurately assessing rectal and perirectal lesions. We present the case of a 60-year-old female with a history of vaginal SCC who presented with refractory constipation. Initial imaging suggested a perirectal abscess, but a definitive evaluation with EUS revealed rectal wall thickening and a lesion involving the submucosa. Biopsy confirmed high-grade squamous intraepithelial neoplasia consistent with recurrent vaginal SCC. This case highlights the critical role of EUS in diagnosing recurrent pelvic malignancies with rectal involvement.

Introduction

Local recurrence of vaginal squamous cell carcinoma (SCC) occurs in approximately 23%-26% of patients within 5 years [1]. However, recurrence involving the rectum is exceedingly rare and typically results from the direct spread of the primary vaginal tumor. Such cases are often accompanied by other metastatic lesions in the pelvis, making this a highly uncommon manifestation of vaginal cancer recurrence [2]. When vaginal malignancies invade adjacent structures, such as the rectum, they can present with symptoms resembling infectious or inflammatory conditions. This overlap can complicate diagnosis and delay treatment due to the nonspecific

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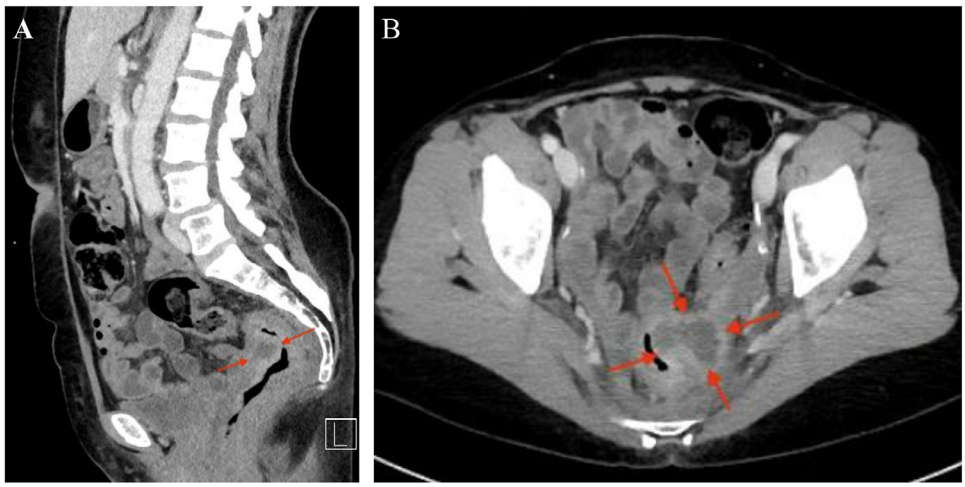

Fig. 1 – (A) CT scan abdomen and pelvis (A: sagittal view, B: axial view) showing suspected mural abscess (red arrows) and significant stool burden consistent with constipation.

nature of the symptoms [3]. While imaging studies like CT scans are commonly the initial diagnostic step, their findings are often nonspecific or misleading [4]. Endoscopic ultrasound (EUS), with its ability to provide high-resolution imaging and enable tissue sampling, plays a crucial role in assessing rectal and perirectal lesions [5]. In this report, we discuss a case of recurrent vaginal SCC presenting as rectal wall involvement, initially misdiagnosed as a perirectal abscess on CT, emphasizing the critical role of EUS in achieving an accurate diagnosis.

Case presentation

A 60-year-old female with a history of hyperlipidemia and vaginal SCC presented to the emergency department with a 1-week history of constipation. Previous treatments of vaginal SCC included laparoscopic-assisted vaginal hysterectomy in 1995, radical vaginectomy in 2018, and subsequent teletherapy and brachytherapy. She described passing small, pebble-like stools with mucus and reported mild improvement with over-the-counter remedies, including enemas, suppositories, magnesium citrate, and prune juice. However, her symptoms persisted. She denied nausea, fever, chills, hematochezia, melena, or any history of inflammatory bowel disease (IBD). Her last colonoscopy 5 years prior was unremarkable.

On examination, the patient was afebrile. Her blood pressure, heart rate, and respiratory rate were normal. Initial laboratory studies revealed mild anemia with a hemoglobin level of 10.9 g/dL, normal white blood cell count, liver function tests, electrolytes, and renal function. Urinalysis showed trace ketones, small leukocyte esterase, and 1+ proteinuria. A CT scan of the abdomen and pelvis demonstrated a thickened rectal wall with a probable 2.7 × 2.6 cm mural abscess and significant stool burden consistent with constipation (Figs. 1A and B). The patient was started on piperacillin/tazobactam and referred to gastroenterology for endoscopic ultrasound (EUS) guided abscess drainage. Standard endoscopy revealed an 8 mm ulcer in the recto-sigmoid colon (Fig. 2A). EUS demonstrated diffuse rectal wall thickening and a 24 × 16 mm left posterolateral rectal wall noncircumferential lesion predominantly in the submucosal layer, raising concern for a neoplastic process (Fig. 2B). A fine-needle biopsy (FNB) of the lesion was performed, and tissue was sent for histopathological analysis.

Subsequent imaging with an MRI of the pelvis confirmed a complex left-sided perirectal mass measuring 2.4 × 2 × 1.8 cm at the level of mid-rectum with infiltration into the rectum, and a separate 2.8 × 1.3 × 2.9 cm lesion along the right pelvic sidewall (Fig. 3). PET imaging revealed intense radiotracer uptake in the left pelvic mass abutting the rectal wall, as well as moderate metabolic activity in a right pelvic lymph node, concerning metastatic disease. Histopathological analysis of the biopsied tissue demonstrated high-grade squamous intraepithelial neoplasia (Figs. 4A and B) with positive P16 and Ki-67 markers, consistent with a recurrent malignant process (Figs. 5A and B). These findings collectively suggested recurrent vaginal SCC with rectal wall invasion and possible metastatic spread. The patient is following up with general surgery and gynecology for further treatment of recurrent vaginal SCC into the rectum.

Discussion

This case highlights the diagnostic complexity of recurrent pelvic malignancies presenting with nonspecific symptoms. The initial CT findings suggesting a perirectal abscess could have led to a misdiagnosis without further evaluation using advanced imaging modalities. EUS provided critical insights by clarifying the absence of an abscess and identifying a lesion involving the submucosa. The ability of EUS to perform FNB facilitated tissue diagnosis, which confirmed recurrent vaginal SCC. EUS can accurately image deep layers of the rectal wall and nearby structures allowing targeted biopsies to confirm the presence of cancer through FNB [6]. It is superior

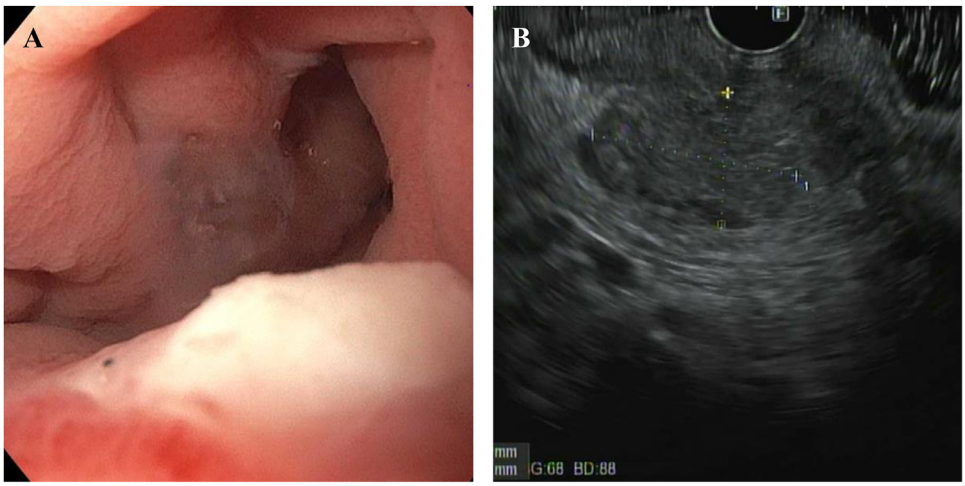

Fig. 2 – (A) Endoscopic view of an ulcer in the recto-sigmoid colon; (B) Endoscopic ultrasound demonstrating left posterolateral rectal wall noncircumferential lesion within the submucosal layer.

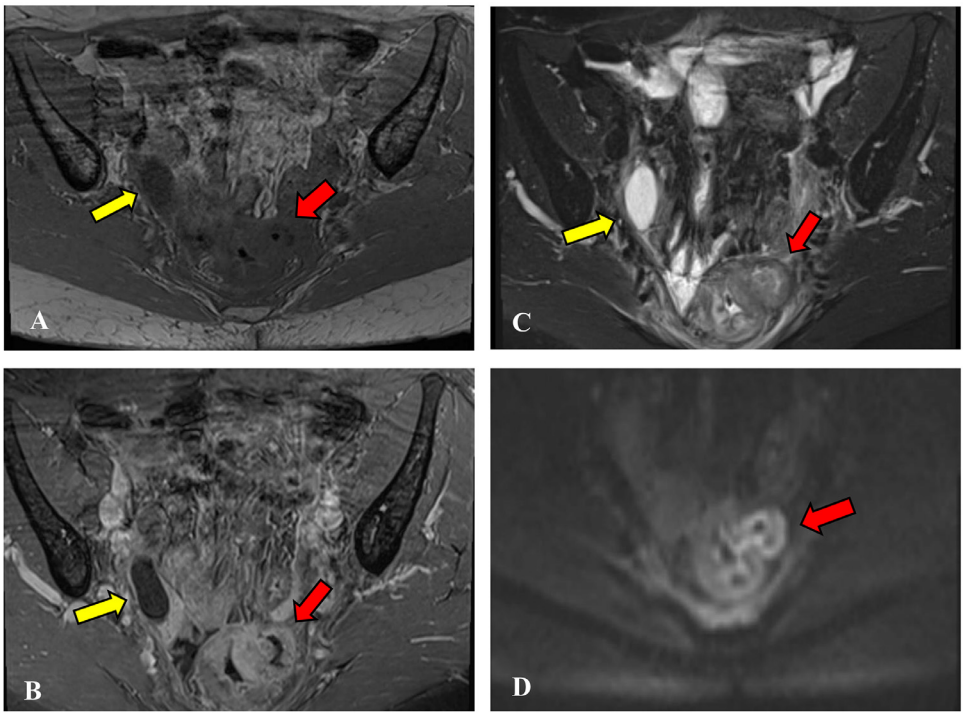

Fig. 3 – MRI pelvis (A: T1 weighted precontrast image, B: T1 weighted postcontrast image) indicating complex left-sided perirectal hypointense mass at the level of mid-rectum with infiltration into the rectum (red arrow) and a separate lesion along the right pelvic sidewall (yellow arrow). (C) shows a T2 weighted image of the MRI pelvis showing hyperintense irregular left-sided peri–rectal mass (red arrow) and a separate lesion on the right pelvic side wall (yellow arrow). (D) is a diffusion-weighted imaging (DWI) sequence of MRI pelvis showing hyperintense irregular peri–rectal mass with restricted diffusion (red arrow), concerning recurrent vaginal cancer with rectal involvement.

to conventional endoscopy for detecting benign or malignant lesions that involve the rectal wall deep into the mucosal layer, which is often the case with recurrent vaginal SCC [7].

Recurrent vaginal SCC with rectal wall involvement is rare and often associated with advanced disease [8]. The prognosis of recurrent vaginal SCC with rectal wall involvement is typically guarded due to the advanced stage of cancer. Individual cases should be evaluated based on the extent of spread and patient factors [9]. Accurate diagnosis was essential in this case to avoid unnecessary treatment for an abscess and to ensure timely oncological management. Treatment decisions for recurrent vaginal SCC primarily depend on the recurrence location and previous interventions, leading to individualized, consensus-driven approaches [10]. Most recur-

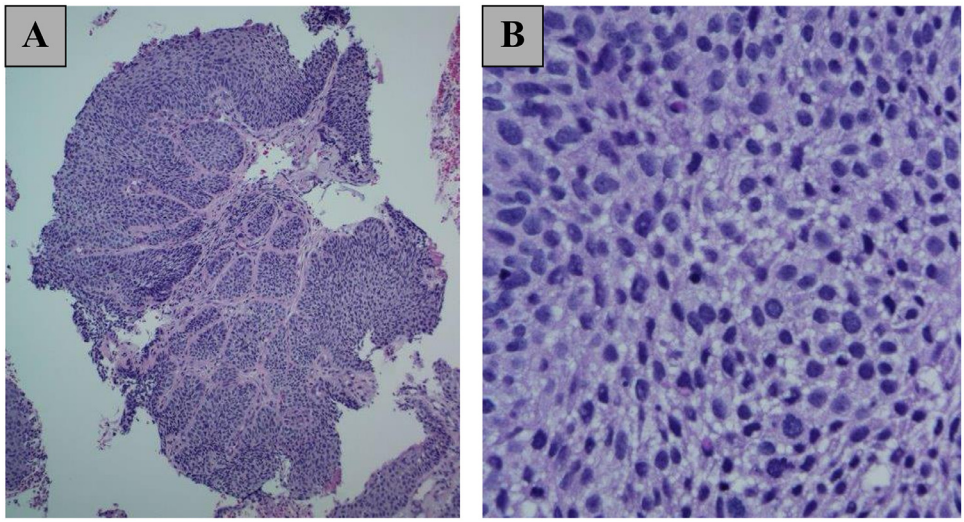

Fig. 4 – Histopathologic examination with hematoxylin and eosin stain showing clusters of tumor cells (A: 10x, B: 60x magnification) indicating high-grade squamous intraepithelial neoplasia.

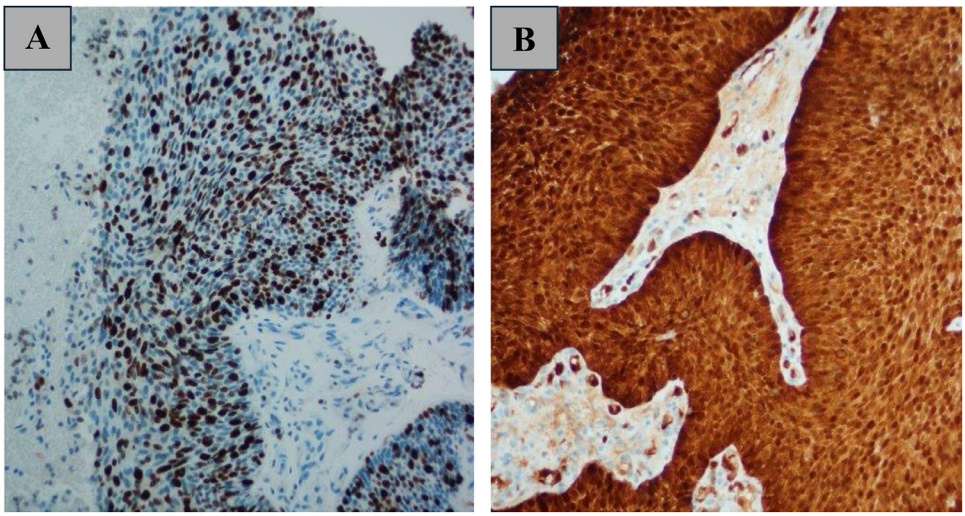

Fig. 5 – (A) Histopathologic examination with Ki-67 immunostain showing high proliferative rate of tumor cells, (B) Histopathologic examination with p16 immunostain demonstrating block-like positivity.

rences occur within 2 years of initial treatment [11]. Wide local excision is currently the preferred treatment for localized recurrences, which generally have a favorable prognosis, with reported 5-year survival rates reaching up to 60% [12]. In contrast, groin and distant recurrences are less common and associated with poor prognosis. Groin recurrences may be managed with surgery, with or without chemotherapy and radiotherapy, depending on prior treatments. For distant recurrences, only palliative options are available [11,12].

On an MRI or CT scan of the pelvis, vaginal cancer with rectal metastasis would appear as a mass within the vaginal wall extending directly into the rectal wall, characterized by abnormal tissue thickening and irregular borders on both sides [4]. The rectovaginal septum is often involved. Additionally, enlarged pelvic lymph nodes may be present, indicating possible spread to nearby lymphatic structures [4]. Like vulvar cancer, CT scan aid in assessing disease extent and nodal or metastatic involvement of vaginal cancer, though it has lower sensitivity than MRI and PET-CT [13]. Three-dimensional CT tumor reconstructions can assist in radiation therapy planning. Similarly, PET-CT is valuable for detecting recurrent vaginal cancers and outperforms CT in evaluating disease extent and nodal or metastatic involvement. However, it is less sensitive than MRI for assessing local disease [13]. MRI is useful for determining tumor size and extent due to its superior soft tissue resolution [14]. It reliably detects primary and metastatic cancer, with reported accuracies of up to 82% and 92% for local recurrence and metastasis, respectively. The vaginal muscularis appears as a T2-hypointense outer layer and vaginal gel can aid in wall distention for better tumor evaluation [14].

On the contrary, a perirectal abscess appears as a fluid-filled rim-enhancing collection with a well-defined border associated with surrounding fat stranding and inflammatory changes on a CT scan [15]. Anaerobic infection can also

present with gas bubbles within the collection. MRI with contrast and diffusion weighted imaging (DWI) sequences is the most reliable imaging modality for differentiating perirectal abscesses from other pelvic lesions. On the T1-weighted MRI sequence, it shows up as hypointense with a hyperintense rim of granulation tissue. T2-weighted images show a hyperintense fluid-filled cavity with a well-defined enhancing rim [16].

EUS remains an indispensable tool in evaluating rectal and perirectal lesions, particularly in patients with a history of pelvic malignancy. Its ability to provide high-resolution imaging of the rectal wall and adjacent structures, combined with the option for tissue acquisition, makes it superior to conventional imaging modalities like CT and MRI in specific scenarios [17]. On EUS, a vaginal SCC with rectal metastases would typically appear as a thickened, hypoechoic mass within the vaginal wall, with potential extension into the adjacent rectal wall, demonstrating irregular borders and possible involvement of nearby lymph nodes. This is especially concerning if the mass is seen near the rectal mucosa, indicating a direct invasion of the rectal wall from the vaginal tumor [18]. In contrast, a perirectal abscess typically appears as a hypoechoic fluid collection within the perirectal tissue, often with a well-defined border, indicating a fluid-filled cavity devoid of internal echoes, essentially showing a "black hole" in the surrounding tissue [19]. This can sometimes be accompanied by internal echoes from cellular debris within the abscess.

EUS-FNB of the rectal wall or the extramural perirectal space is also valuable for detecting local disease recurrence during postoperative surveillance or identifying other conditions that may necessitate a different management approach [14,20]. This case highlights the critical role of EUS in diagnosing recurrent pelvic malignancies with rectal involvement. It also underscores the importance of a multidisciplinary approach involving gastroenterology, gynecology, radiology, and oncology in managing complex presentations of recurrent malignancies.

Conclusion

EUS proved invaluable in our case, as it was able to resolve the uncertainty surrounding the initial CT findings, offering clear and precise diagnostic insights. Additionally, using FNB, EUS enabled a definitive diagnosis, providing critical information that would have been difficult to obtain through imaging alone. For patients with a history of pelvic malignancies who present with unusual or unexplained gastrointestinal symptoms, early consideration of EUS in the diagnostic process should be considered as it may lead to more accurate diagnosis and facilitate timely and appropriate treatment, ultimately improving patient outcomes.

Ethics approval

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008(5).

Author contributions

Taha Bin Arif and Tahir Shaikh have given substantial contributions to the conception of the manuscript, acquisition, analysis and interpretation of the data. All authors have participated to drafting the manuscript and revised it critically. All authors read and approved the final version of the manuscript. All authors contributed equally to the manuscript and read and approved the final version of the manuscript.

Patient consent

Informed consent was obtained from the patient to be included in the study.

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