Recurrent intestinal-type adenocarcinoma of the vagina with colorectal immunophenotype: primary tumour or metastasis from the colorectum?

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Background

- Primary adenocarcinoma of the vagina is rare, and intestinal-type differentiation is particularly uncommon [1].
- These tumours closely mimic metastatic colorectal carcinoma histologically and immunophenotypically, presenting a significant diagnostic challenge.

Case Presentation

Initial Presentation

A 69-year-old woman presented with vaginal bleeding. Examination revealed a 2cm exophytic lesion at the posterior fourchette.

Histology (fig 1 & 2):

- First fragment consists of connective tissue lined by stratified squamous epithelium with dysplastic glandular structures within the deep stroma accompanied by desmoplastic stromal response.
- Second fragment is polypoid with tubulovillous architecture and areas of low- and high-grade dysplasia with mucin extravasation.

Immunohistochemistry (fig 1):

- CDX2: diffusely positive in the tumour
- CK20: heterogenous expression; positive in the polypoid fragment but negative in the glandular structures within the deep stroma
- CK7, PAX8, ER and vimentin: negative
- p16: heterogenous expression with variable areas of strong positivity, mosaic-pattern and negative areas.

Mullerian markers were negative. Furthermore, lack of diffuse "block-type" staining across the tumour argues against an HPV-associated adenocarcinoma. Given the colorectal immunophenotype of CDX2+/CK7-/CK20+, metastatic disease was initially suspected. However, comprehensive systemic work-up including colonoscopy and imaging revealed no gastrointestinal or extragenital primary.

In the absence of a targetable primary lesion or systemic disease, the patient was managed with close surveillance.

Recurrence

Four years later, a frondy lesion was identified during a follow-up physical examination at the introitus (5 o'clock).

Histological features were similar to the initial lesion (fig 3).

- The tumour showed invasive adenocarcinoma with mixed papillaroid and ductal architecture with goblet cell differentiation. A small amount of stratified squamous epithelium was identified.
- The immunoprofile was identical to the initial specimen. In addition, p53 showed null-type staining pattern.

Repeat systemic evaluation including endoscopy and imaging again failed to identify a primary malignancy elsewhere.

Discussion & Conclusion

- A key diagnostic challenge lies in the overlap of histological and immunophenotypical profiles between primary intestinal-type adenocarcinomas of the vagina and metastatic colorectal carcinoma.
- In this case, the localised recurrence, prolonged disease course, and persistently negative systemic work-up strongly favour a diagnosis of primary vaginal adenocarcinoma, intestinal-type.
- This case underscores the importance of integrating histopathological findings, clinical assessment, imaging, and longitudinal follow-up, to avoid misdiagnosis and to guide appropriate patient management.

Figure 1. Initial presentation - H&E and IHCs

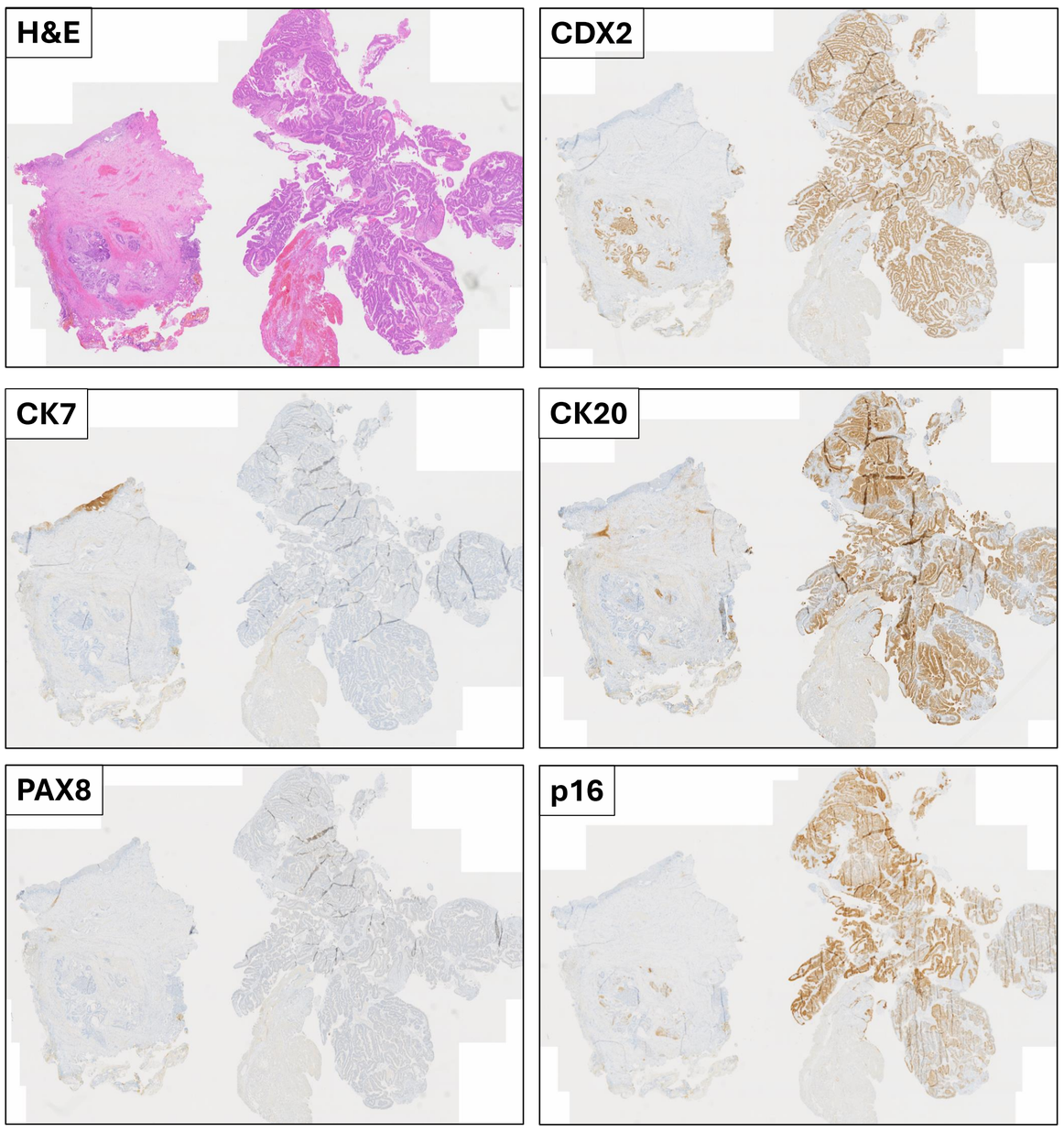


Figure 2. Initial presentation - higher magnification H&E

Left: Dysplastic glandular structures within the deeper stroma with desmoplasia

Right: Areas of low and high-grade dysplasia with mucin extravasation

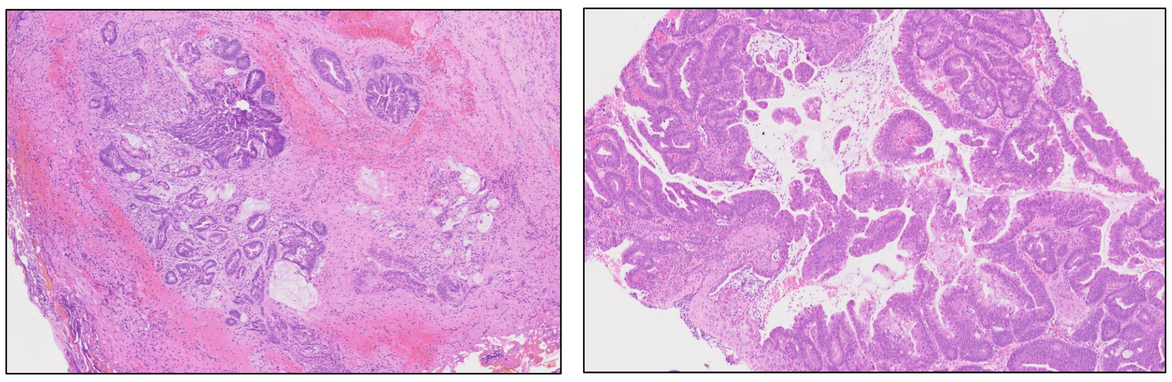
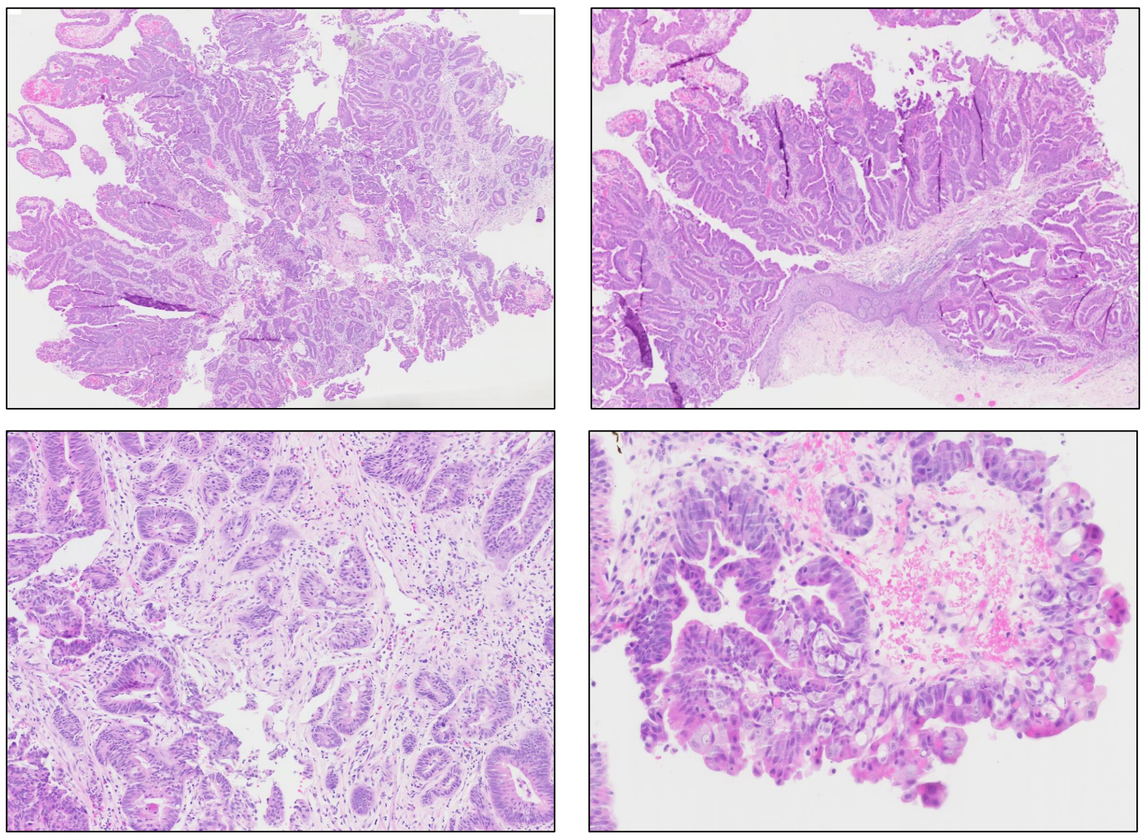


Figure 3. Recurrence - low and high-magnification H&Es



Reference

1. WHO Classification of Tumours: Female Genital Tumours. 5th ed. Tumours of the vagina. Mucinous carcinoma, intestinal type, of the vagina