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CASE REPORT

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Urachal adenocarcinoma metastatic to the ovary simulating primary mucinous cystadenocarcinoma of the ovary: report of a case

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Abstract A 56-year-old woman had a large multicystic ovarian tumour 4 years after undergoing partial cystectomy for a deeply invasive urachal adenocarcinoma. On microscopic examination the ovarian tumour was a moderately differentiated mucinous cystadenocarcinoma similar to the urachal tumour. Several peritoneal biopsies and the omentum were positive for metastatic adenocarcinoma. Although initially interpreted as representing primary mucinous adenocarcinoma of the ovary with peritoneal spread, subsequent comparison with the previous urachal adenocarcinoma led to re-interpretation of the ovarian tumour as metastatic urachal carcinoma. Metastatic mucinous adenocarcinomas involving the ovary may be misinterpreted as primary ovarian carcinomas and the urinary bladder is a potential source of these neoplasms.

Key words Urachus · Adenocarcinoma · Ovary · Metastasis

Introduction

Metastatic tumours involving the ovary account for diverse problems in differential diagnosis. One of the most common is the misinterpretation of a metastatic mucinous adenocarcinoma involving the ovary as a primary ovarian neoplasm [21]. Primary tumours which may be responsible for metastatic ovarian tumours which mimic primary ovarian mucinous tumours include intestinal [7], pancreatic [15], biliary tract [20], appendiceal [14], and cervical adenocarcinomas [17]. Although adenocarcinomas of the urinary bladder of both urachal and non-urachal type are frequently mucinous [4, 8], and are associated with peritoneal spread in a significant number of cases [1, 13], the literature contains no cases in which spread of one of these tumours to the ovary has mimicked a primary ovarian mucinous tumour. A case of this type is documented in this report.

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Case report

A 52-year-old woman presented because of gross haematuria. Ultrasound suggested a mass in the bladder and an intravenous pyelogram confirmed this. Cystoscopy disclosed a tumour of the bladder dome. A transurethral resection was performed and pathological examination showed adenocarcinoma. Evaluation disclosed no evidence of metastatic disease and a partial cystectomy was performed. The patient received post-operative radiation therapy and remained in relatively good health for almost 4 years until she was found to have an adnexal mass. Laparotomy disclosed a large right ovarian tumour and several nodules on the peritoneum and sigmoid colon. The patient underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy, omentectomy, biopsy of peritoneal nodules and of a nodule on the sigmoid colon. These were interpreted at another institution as showing mucinous adenocarcinoma of the ovary with peritoneal spread and the patient was treated with chemotherapy for ovarian carcinoma. Several months later the patient experienced episodes of diarrhoea and constipation and computerized tomographic scans disclosed masses that compressed the colon. The patient was referred to the Massachusetts General Hospital for further evaluation.

At this hospital, the patient underwent an exploratory laparotomy which disclosed multiple foci of tumour involving the serosal aspect of the distal small bowel and descending colon. The tumour was partially debulked. Slides of the prior ovarian mucinous tumour were then reviewed and interpreted as being suggestive of metastatic disease. The slides of the bladder tumour were then obtained and showed a mucinous adenocarcinoma of urachal origin similar in morphology to the neoplasm of the ovary which was interpreted as a metastasis from the urachal tumour.

Pathological findings

Microscopic examination of the initial bladder transurethral resection specimen showed a mucinous adenocarcinoma that varied from moderately to well differentiated (Fig. 1). The partial cystectomy specimen measured 6×4×5×3 cm. The mucosa contained a 3 cm in diameter ulcerated lesion with an abnormally firm, thick underlying wall. Microscopic examination showed a deeply in-

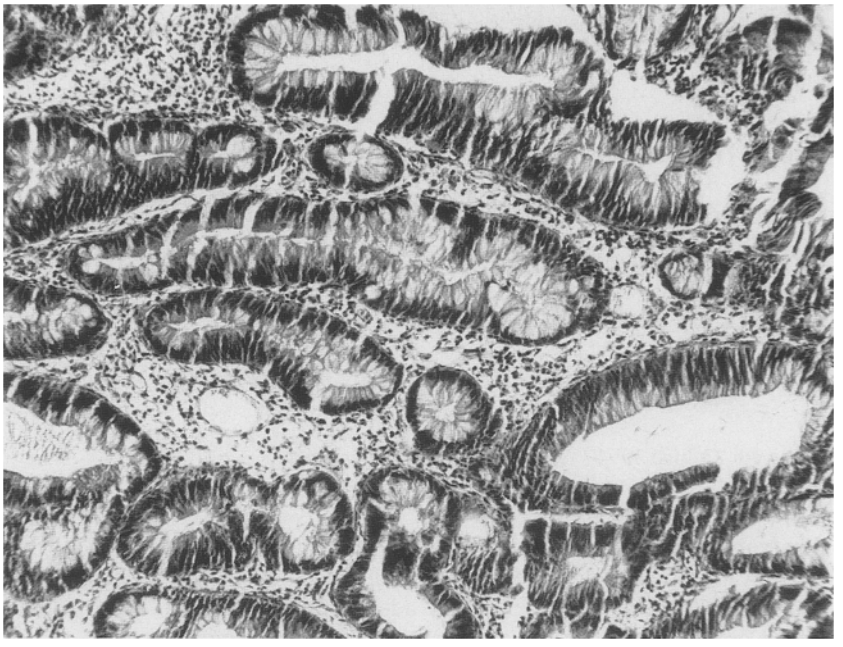

Fig. 1 Well differentiated component of primary urachal tumour. (H&E ×125)

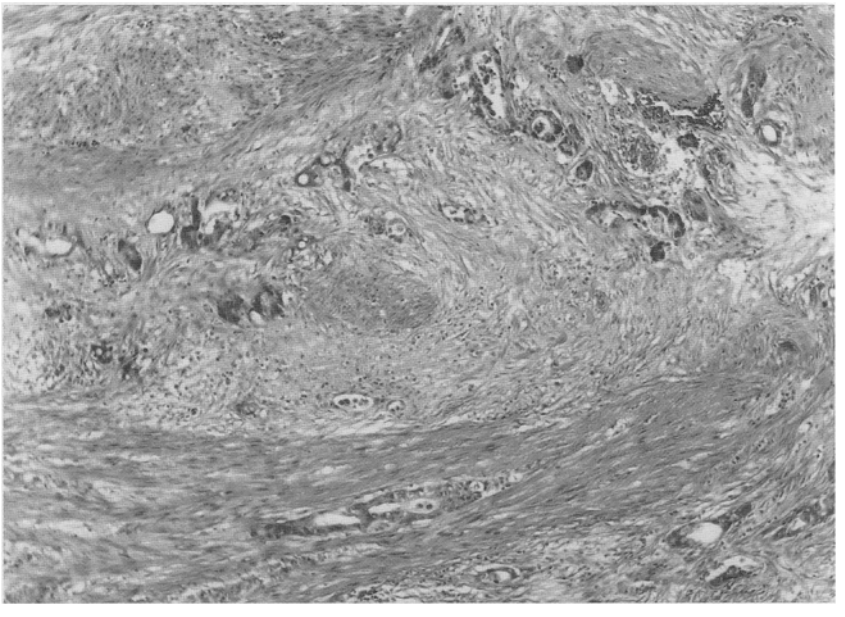

Fig. 2 Moderately differentiated component of mucinous adenocarcinoma of the urachus in partial cystectomy specimen. The tumour is invasive of muscle (H&E ×100)

vasive, moderately differentiated, mucin-producing adenocarcinoma (Fig. 2) extending close to the overlying peritoneum. The right ovarian tumour measured 22×18×11 cm and had an intact external surface. Sectioning revealed a multilocular, thin-walled cystic tumour containing thick mucoid fluid; occasional small, solid, gray-tan areas were present. Microscopic examination showed a mucinous cystadenocarcinoma in which glands and cysts (Fig. 3) were lined by columnar epithelium exhibiting varying degrees of cellular stratification. Some areas of the tumour exhibited only slight atypicality with basal nuclei within columnar mucinous cells whereas other areas exhibited moderate to severe atypicality with marked stratification. Examination of the superficial aspect of the tumour showed the focal presence of small glands embedded in a prominent desmoplastic stroma having the features of a surface implant. No foci of lymphatic or vascular invasion were seen. The other specimens of tumour resected showed mucinous adenocarcinoma with a predominantly small gland pattern. The left ovary was unremarkable.

Discussion

The relatively limited attention that the spread of urinary tract tumours to the ovary has received has focused on the problems that may arise in distinguishing a metastat-

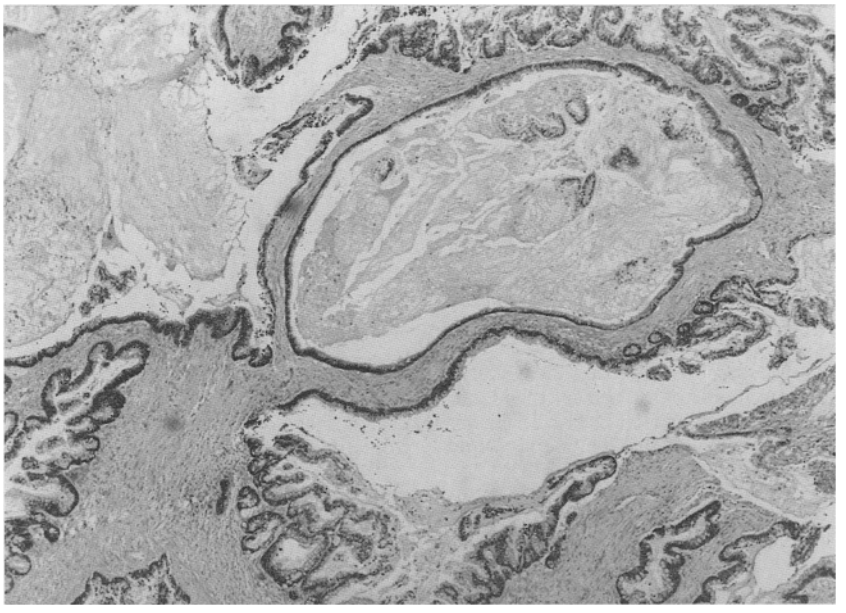

Fig. 3 Metastatic mucinous adenocarcinoma involving ovary. Many large cysts are present. (H&E ×31)

ic carcinoma of transitional cell type from a primary transitional cell neoplasm of the ovary [19] and a metastatic renal cell adenocarcinoma from a primary ovarian clear cell adenocarcinoma [16]. These problems were reviewed relatively recently and will not be repeated here other than to mention three subsequently reported noteworthy cases. In two, transitional cell carcinomas of the renal pelvis produced bulky ovarian metastases [6, 9]. In a third, bilateral ovarian metastases of a renal cell adenocarcinoma, which preceded identification of the primary tumour by 7 months, caused the initial misdiagnosis of ovarian clear cell carcinoma [12]. Spread of urinary tract tumours of other types to the ovary is rare. Four of the five adenocarcinomas of the bladder with ovarian spread have been signet ring cell carcinomas [2, 3, 10, 21], illustrating the propensity that Saphir [11] emphasized many years ago for signet-ring cell carcinomas from diverse sites to spread to the ovary more frequently than adenocarcinomas of other types. One of these cases is noteworthy because the primary bladder tumour was not discovered until autopsy [2], and another because the ovarian metastasis did not occur until 7 years after the primary bladder tumour had been resected [21]. There is only one report in the literature in which an adenocarcinoma of the bladder of non-signet-ring cell type has spread to the ovary. In that case a 43-year-old woman had metastasis to the right ovary at the same time the primary bladder tumour was discovered [5]. The size of the ovarian metastasis was not provided.

Despite the rarity of documented cases of ovarian spread of adenocarcinoma of the bladder, it is not surprising that it is encountered occasionally given that peritoneal spread of vesical adenocarcinoma is not rare, being present at autopsy in 17% of patients in one series [1] and prior to autopsy in 18% of the cases in another series [13]. The tumours in the latter series were all of urachal origin. That the tumour in the case being reported was urachal is of note given the fact that three of the four signet-ring cell adenocarcinomas of the bladder with ovarian spread have involved the dome and therefore may have been of urachal origin [3, 10, 19], suggesting that ovarian spread may be more common in cases of urachal than non-urachal adenocarcinoma of the bladder.

As criteria for the distinction between primary and metastatic mucinous tumours of the ovary have been discussed in detail elsewhere recently [18, 21], they will not be reiterated here other than to note three features of this case that are relevant to the correct recognition of a mucinous ovarian tumour as metastatic. The first is the obvious importance of due consideration of the history of a prior extra-ovarian adenocarcinoma in any patient presenting with an "ovarian" adenocarcinoma. This important clinical information was initially overlooked in this case. From the morphological viewpoint, a characteristic surface implant, a very helpful feature in suggesting the metastatic nature of mucinous adenocarcinomas of the ovary [21], was present in the current case. Finally, as with metastatic mucinous tumours of other types, foci in the ovarian metastasis in this case had a deceptively innocuous appearance. In conclusion, although rare, the urinary bladder may be the primary site in cases of metastatic mucinous adenocarcinoma to the ovary and the ovarian tumour, or tumours, must be evaluated using criteria similar to those helpful in the evaluation of metastatic mucinous tumours from other organs.

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