

Endoscopic Ultrasound-Guided Fine-Needle Aspiration for Diagnosis of Pancreatic Metastases Secondary to Ovarian Carcinoma

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ABSTRACT

Pancreatic metastases from ovarian carcinoma are rare. We present a case of a patient with pancreatic metastasis from primary ovarian carcinoma diagnosed by endoscopic ultrasound-guided fine-needle aspiration. Our case illustrates a unique presentation of a patient with ovarian carcinoma presenting with symptoms secondary to common bile duct dilatation from a pancreatic head mass confirmed through a much less invasive approach. This diagnosis was essential in determining management and prognosis for the patient.

INTRODUCTION

Pancreatic lesions are most often primary pancreatic neoplasms. However, not all masses in the pancreas are of pancreatic origin. Some can represent metastatic disease, most commonly secondary to renal cell carcinoma or lung neoplasms.¹⁻³ Pancreatic metastases from ovarian carcinoma are rare, with only 17 cases cited in the literature.^{4,5} Unlike most other cancers, ovarian carcinoma is primarily locally invasive, with spread to other reproductive organs such as the uterus and fallopian tubes, liver, spleen, and sigmoid colon. It is important to correctly determine the origin of pancreatic lesions since there are different treatments and prognoses in patients with primary pancreatic cancer compared with metastatic cancer to the pancreas from other primary malignancies, such as ovarian carcinoma. We present a case of a patient with pancreatic metastasis from primary ovarian carcinoma diagnosed by endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA).

CASE REPORT

A 62-year-old woman with a medical history of BRCA1 mutation and recurrent serous ovarian carcinoma previously on paclitaxel and bevacizumab infusions presented with 4-day history of epigastric and right upper quadrant pain radiating to right flank, exacerbated by inspiration. The patient's relevant family history was uncertain but included uterine or ovarian cancer in both mother and maternal grandmother. Also of note, the patient had first been diagnosed 7 years before current admission and had been on chemotherapy since diagnosis with 4-month breaks between chemotherapy. Most recently, the patient had her last chemotherapy session 2 months before admission.

On presentation, the patient was afebrile, normotensive, and saturating well on room air. Physical examination was pertinent for abdominal tenderness. Laboratory test results were notable for no leukocytosis, alkaline phosphatase 180 U/L, and lactic acid 1.0 mmol/L. Right upper quadrant ultrasound showed mild gallbladder wall thickening, pericholecystic edema, and gallbladder sludge. General surgery was consulted for cholecystectomy and recommended medical management only with an oral trial. The patient was started on intravenous ceftriaxone and metronidazole for presumptive acute cholecystitis.

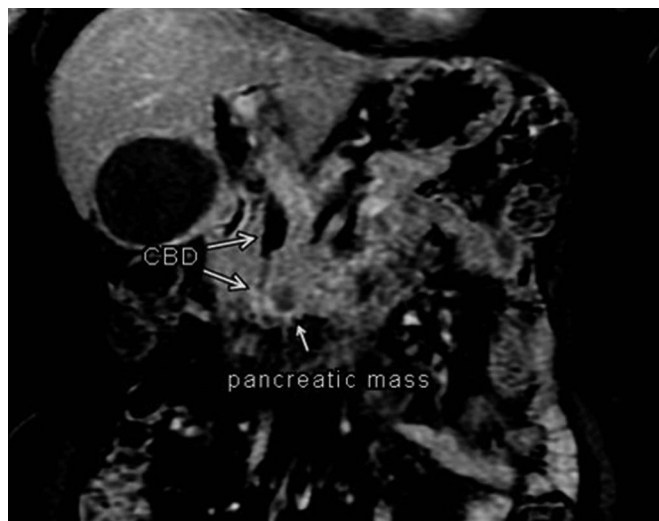


Figure 1. Magnetic resonance cholangiopancreatography revealed a 1.6-cm hypoechoic lesion in the uncinus process in the head of the pancreas with dilated CBD (11–12 mm at maximum diameter) proximal to mass and compressed CBD distal to pancreas. CBD, common bile duct.

On hospital day 2, her bilirubin increased from 1.6 to 4.1 mg/dL. Magnetic resonance cholangiopancreatography revealed a 1.6-cm hypoechoic lesion in the uncinus process of the pancreas suspicious for pancreatic neoplasms (Figure 1). Endoscopic ultrasound was performed, and fine-needle aspiration of the lesion in the head of the pancreas was obtained (Figure 2). Four passes were made with a 25-gauge needle using a transduodenal approach with a good visible core of tissue obtained. Rapid onsite evaluation was used. Because of biliary obstruction from the lesion, an endoscopic retrograde cholangiopancreatography was performed with the placement of 2 stents to treat the obstruction of the mass. Since no diagnosis of malignancy was confirmed at the time, a plastic stent was placed in the ventral pancreatic duct and a metal stent was placed in the common bile duct to allow for drainage. A preliminary report was definitive of primary ovarian carcinoma. Final pathology results showed high-grade carcinoma, positive for paired box gene 8 immunostain, diffusely positive for p53 mutant

phenotype, positive for CK7, and negative for TTF-1 which supports the diagnosis of recurrence of the patient's diagnosis of metastatic serous carcinoma (Figure 3).

DISCUSSION

Pancreatic metastases from ovarian carcinoma are rare, but their diagnosis should be considered and confirmed by EUS-FNA in all patients with ovarian cancer who present with new pancreatic masses. Studies of EUS-FNA of pancreatic lesions have found that the majority (60%) of pancreatic lesions are malignant with the primary pancreatic origin. Metastasis to the pancreas ranges from 4.2% to 10.7% of lesions with origins of the neoplasm including kidney, colon, lung, breast, and rarely ovarian.^{3,6,7} Previous methods of diagnosis in the literature have been invasive. They have included percutaneous biopsy which has been associated with increased risk of seeding, and surgical exploration/resection, which can be associated with significant morbidity.^{4,8} Percutaneous biopsies have an increased risk of iatrogenic seeding of cancerous cells when compared with EUS-guided FNA.⁹ EUS-FNA is becoming an increasingly superior technique for biopsy because of its diagnostic efficacy and safety profile.¹⁰

Genetic risk factors for ovarian cancer include a family history of BRCA1 and BRCA2 or hereditary nonpolyposis colorectal cancer syndrome.¹¹ Other risk factors include delayed child-bearing, early menarche, endometriosis, or estrogen replacement therapy >5 years.¹¹ Our patient has BRCA1 mutation, and it is not documented whether she had other risk factors.

Differentiating primary from secondary malignancy is essential for the management and prognosis of the disease. Preferred management of ovarian cancer involves surgical debulking followed by intravenous platinum/taxane-based chemotherapy, typically with agents such as paclitaxel.^{12,13} Advanced ovarian carcinoma is defined as an extension to the peritoneum outside of the pelvis with positive retroperitoneal or inguinal lymph nodes and associated 5-year mortality of 20% (stage III)

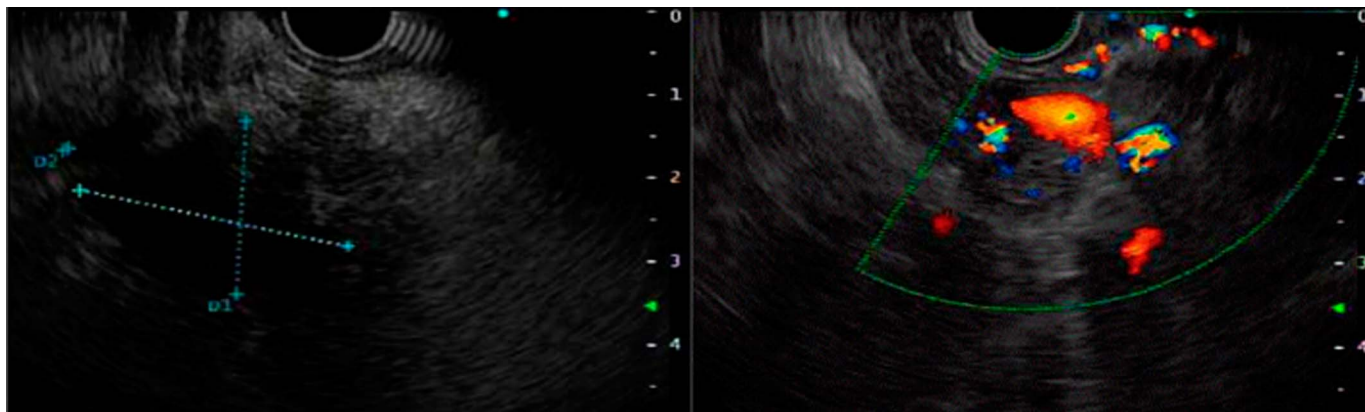


Figure 2. Endoscopic-ultrasound endoscopy depicting lesion in the pancreas.

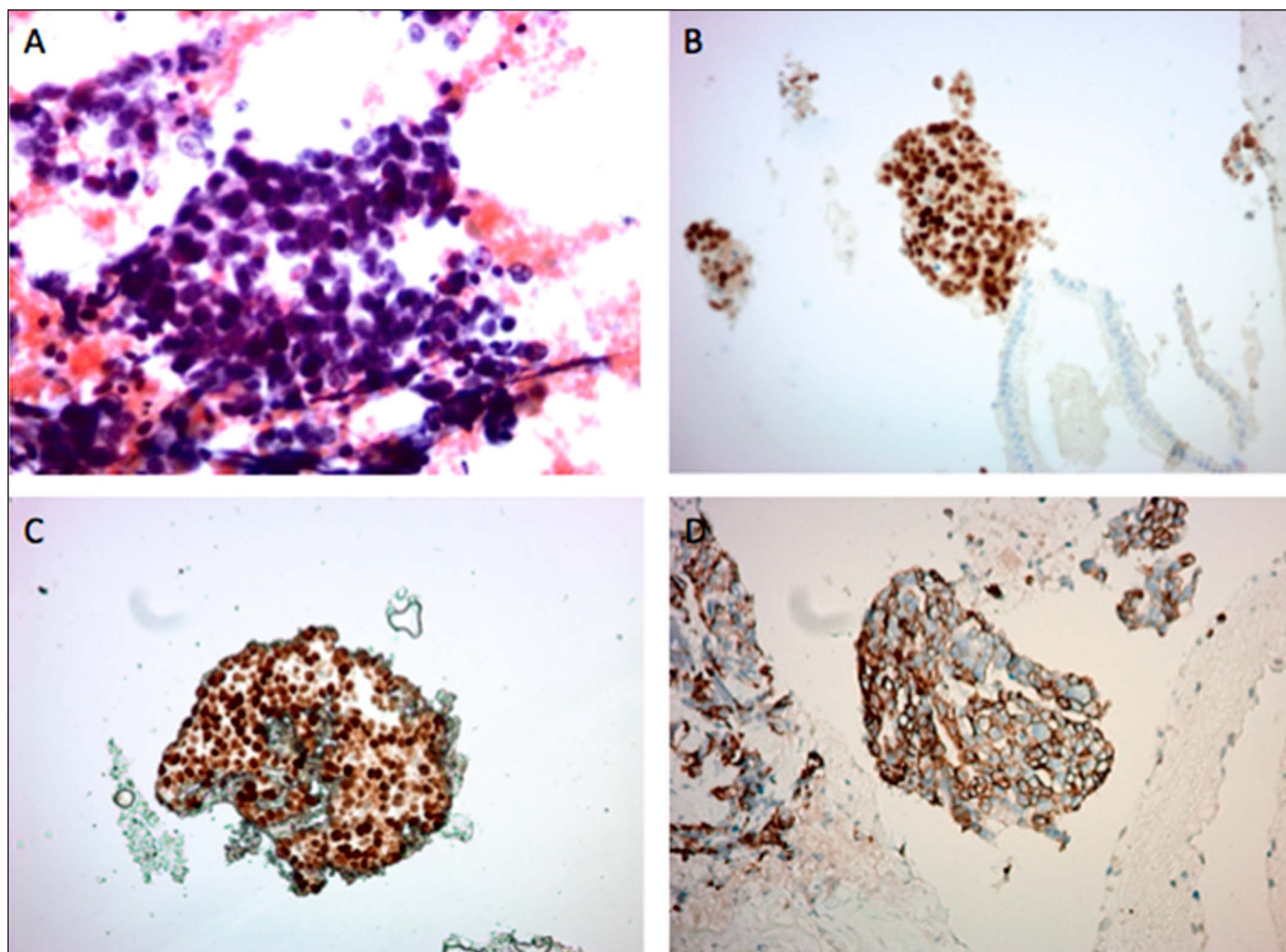


Figure 3. Fine-needle aspiration of pancreatic uncinus process mass. (A) Pap smear showing collections of malignant cells with hyperchromatic nuclei, high N/C ratio, nuclear pleomorphism, and occasional mitotic figures. (B) PAX-8 immunostaining showing diffuse nuclear positivity. (C) P53 immunostaining showing mutant-type diffuse nuclear positivity. (D) CK7 immunostaining showing diffuse membranous positivity. The immunostaining profile supports the diagnosis of metastatic serous carcinoma. Original magnification: A: $\times 400$ magnification; B–D: $\times 200$ magnification.

or with distant metastases and associated 5-year mortality of less than 10% (stage IV). Patients with advanced ovarian carcinoma require evaluation with gynecology-oncology to assess the likelihood of ability for cytoreduction to <1 cm. If cytoreduction to <1 cm is unlikely, patients typically require neoadjuvant chemotherapy before surgery. Patients with progressive disease resistant to platinum-based chemotherapy have median progression-free survival of 3–4 months. They are typically not recommended to have surgery with emphasis on end-of-life care.^{12,13} On the other hand, treatment of BRCA-mutant pancreatic cancer typically starts with chemotherapy. The chemotherapeutic regimen includes gemcitabine plus oxaliplatin, irinotecan, fluorouracil, and leucovorin (FOLFIRINOX) with surgical resection providing the only chance for cure. The 5-year overall survival rate in patients with pancreatic cancer is 2%–9%.¹⁴ Patients with locally advanced pancreatic cancer with inability for surgical resection have 5-year survival

rate of 6–11 months, and patients with metastatic pancreatic cancer have 5-year survival rate of 2–6 months.¹⁴

Our case illustrates a unique presentation of a patient with ovarian carcinoma presenting with symptoms secondary to common bile duct dilatation from a pancreatic head mass confirmed through a much less invasive approach: EUS-FNA. This diagnosis was essential in determining management and prognosis for the patient.

DISCLOSURES

Author contributions: S. Chan wrote the manuscript. W. Wassef revised the manuscript and is the article guarantor.

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Informed consent could not be obtained from the family of the deceased patient despite several attempts. All identifying information has been removed from this case report to protect patient privacy.

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