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Bilateral Ovarian Carcinoma Metastatic from the Ampulla of Vater : A Rare Krukenberg Tumor

Carcinoma of the ampulla of Vater is a relatively rare neoplasm and its longterm survival rate is considerably high. However, because of differences in tumor pathologic features and local invasiveness, a 5-year survival rate differ widely. We present a case of metastatic carcinoma of the ampulla of Vater presenting as a Krukenberg tumor in a 59-year-old woman. Eight months earlier, she had been diagnosed as well-differentiated adenocarcinoma of the ampulla of Vater. Abdominal examination revealed a hard mass with mild tenderness in the RLQ area. The laboratory findings were unremarkable except for mild anemia. CT scan of the abdomen revealed enlargement of both ovaries. An exploratory laparotomy disclosed bilateral ovarian masses, 18×12×8 cm and 8×5.5×4 cm in size, respectively. Histologic findings of the both ovarian masses were consistent with metastatic adenocarcinoma from the ampulla of Vater.

Key Words : *Vater's ampulla; Neoplasm metastasis; Ovarian neoplasms*

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INTRODUCTION

Carcinoma of the ampulla of Vater is an uncommon neoplasm, comprising 15-37% of surgically resected pancreatoduodenal tumors and 0.2% of routine autopsy cases (1). In contrast to the prognosis of patients with pancreatic carcinoma, that of ampullary carcinoma is favorable due to the earlier onset of symptoms (1, 2). However, the prognosis of patients with surgically resected ampullary carcinoma was not invariably favorable (1).

We present a very unusual case of metastatic carcinoma of the ampulla of Vater presenting as a Krukenberg tumor. The patient was presented lately with bilateral ovarian masses. To our knowledge, no such cases of metastatic carcinoma of the ampulla of Vater has ever been reported in Korea.

CASE REPORT

A 59-year-old Korean woman was admitted to Korea University Hospital for the evaluation of a right lower quadrant (RLQ) abdominal mass. She complained of RLQ mass and pain for 25 days. Eight months earlier, she had been diagnosed as carcinoma of the ampulla of Vater (Fig. 1) and has taken pylorus preserving pancreatoduodenectomy at our hospital. At that time, histopathologic findings showed

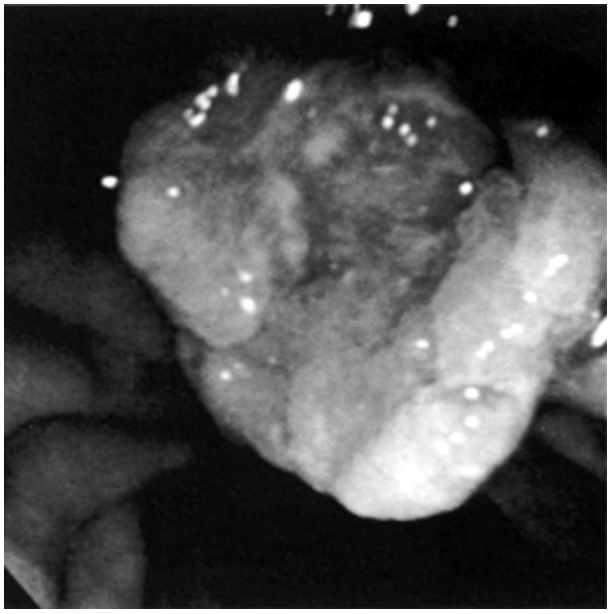

Fig. 1. Duodenoscopy shows an ulcerating mass of the ampulla of Vater, but duodenum was unremarkable.

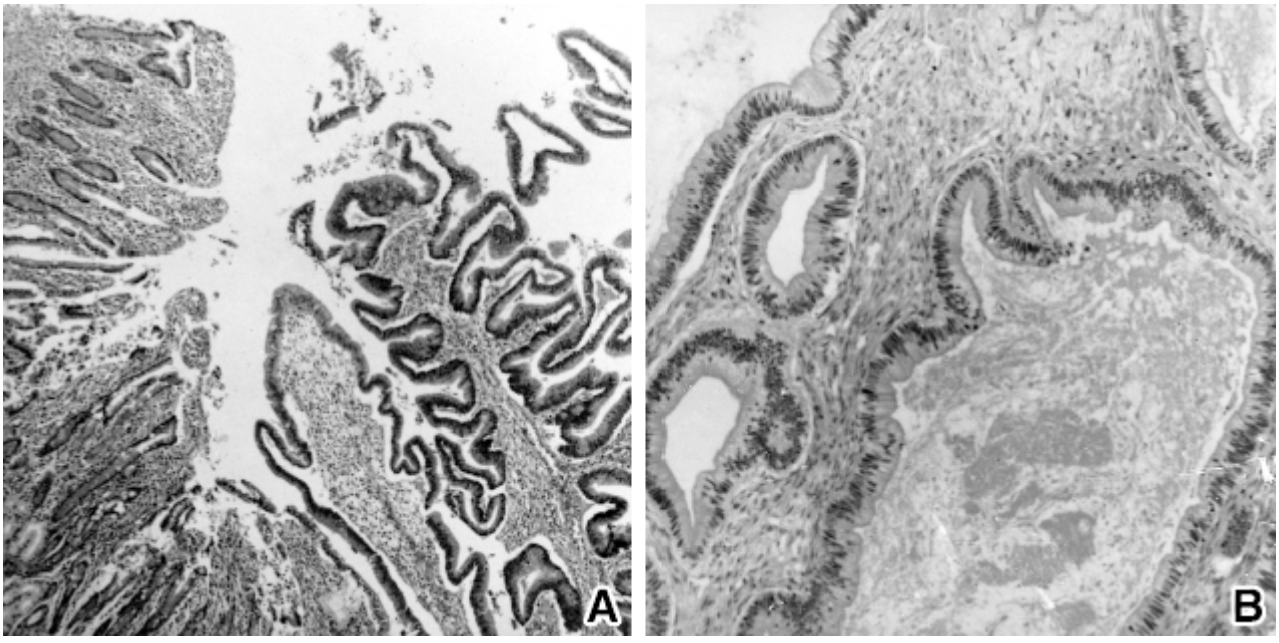

Fig. 2. Microscopic findings of the ampulla of Vater (A) and ovarian masses (B). They were proved to be well-differentiated adenocarcinoma of the ampulla of Vater and Krukenberg tumors metastatized from cancer of the ampulla of Vater (H-E stain, ×100).

well-differentiated adenocarcinoma confined to the ampulla of Vater without involvement of the common bile duct, pancreas, or duodenum (Fig. 2A).

On physical examination she was acutely ill-looking. The vital signs were stable. The conjunctivae were slightly pale, but not icteric. On auscultation of the chest, breathing sounds were normal and the heart sound was regular without murmur. Abdominal examination revealed a palpable hard mass with mild tenderness, about 10×15 cm in size, in RLQ area. Laboratory evaluation revealed hemoglobin 9.8 g/dL, glucose 277 mg/dL, total bilirubin 0.4 mg/dL, aspartate aminotransferase 19 IU/L, alanine aminotransferase 7 IU/L, alkaline phosphatase 97 IU/L, protein 7.0 g/dL, albumin 4.0 g/dL, amylase 45 U/L, carcinoembryonic antigen 13.1 ng/mL, and CA 19-9 20 IU/mL.

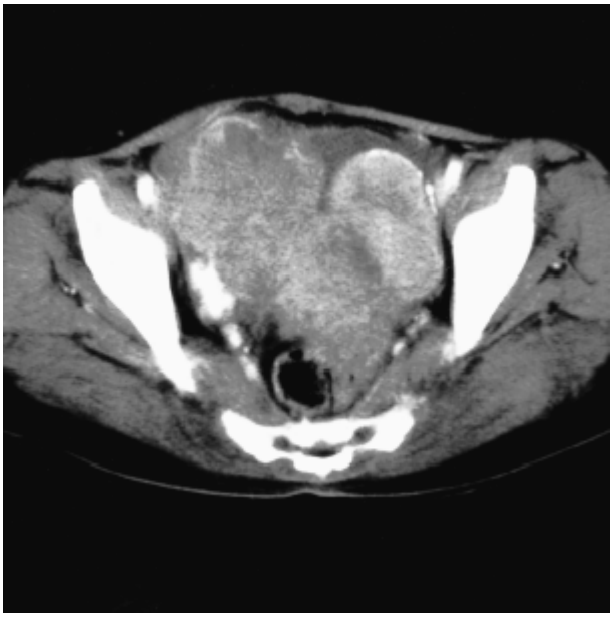

Fig. 3. Computed tomographic imaging of the abdomen reveals two large ovarian masses in the pelvic cavity.

CT scan of the abdomen revealed enlargement of both ovaries with ascites (Fig. 3). An exploratory laparotomy was done and bilateral salpingoophorectomy was carried out. On laparotomy both ovaries were located in pelvic inlet and enlarged. The right ovary was larger than the left ovary and no adhesion to adjacent structure was noted. There were bloody ascites, about 500 mL in amount, and findings of peritoneal seeding such as plaques and thickening of the parietal peritoneum. The right ovarian mass measuring 18 ×12×8 cm was irregular, multilobular, and solid. The left ovarian mass was also similar, 8×5.5×4 cm in size. The appearance of the cut surface was multilobular, yellowish gray tan, and had solid with multiple central necrosis. Microscopic findings of both ovarian masses were glandular structures with villous papillae, frequent intraluminal necrosis, elongated nucleus, and lack of squamous metaplasia. Thus, the histologic findings were identical to those of the previous ampullary carcinoma, consistent with the metastatic spread from the carcinoma of the ampulla of Vater (Fig. 2B).

DISCUSSION

Carcinoma of the ampulla of Vater is a relatively rare neoplasm, comprising 0.20% of routine autopsy cases (3, 4). It is generally assumed that carcinoma of the ampulla of Vater exhibits a relatively good prognosis with surgical intervention, probably due to the earlier onset of symptoms (5). However, many cases have a poor prognosis, similar to that of most pancreatic carcinomas, even if surgical procedures are performed (6). A multicenter study in Japan reported a 5-year survival rate of only 6% (6). Kamisawa et al. reported that pancreatic invasion, lymph node metastasis, and histology of the tumor were significantly related to poor prognosis in carcinoma of the ampulla of Vater (1). However, the most important factor influencing the survival rate was the extent of the lymph node dissection (2).

Krukenberg tumors are metastatic cancers in the ovary and are relatively uncommon, accounting for only about 3-5% of ovarian tumors (7). Primary cancer resides in the stomach, colon, common bile duct, gallbladder, or breast (7, 8). Among them, primary gastric carcinoma is the most common cause of Krukenberg tumors (7-9). Typically, Krukenberg tumors were bilateral, asymmetrically large, and solid. In those patients previously treated for a primary carcinoma, the interval before the ovarian metastases, which are clinically apparent, is usually short. Most occur in less than two years, but instances with longer intervals up to 12 years have been reported (7, 10). In our patient, the interval was eight months after pancreaticoduodenectomy. Very few cases documenting ovarian metastases from cholangiocarcinoma or gallbladder carcinoma have been reported in the literature (7, 8, 10). However, the present case is the first reported case of ovarian metastasis from the ampullary cancer which was resected previously.

The histopathologic investigation of our specimens demonstrated adenocarcinoma of the ampulla of Vater, which recurred eight months later as a Kurkenberg tumor. In this case, the presentation of bilateral ovarian masses and widespread peritoneal metastases initially mimicked as primary ovarian carcinoma with carcinoma peritonei. It is important to be aware of this pattern of metastasis and presentation in a carcinoma of the ampulla of Vater.

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