



## Omental Cake in a Male

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A 54 year old man was admitted for evaluation of abdominal fullness of 2 weeks duration. He denied any additional complaints. Physical examination at admission revealed a tense ascites. Laboratory tests, including liver function, were within normal limits. Figure 1, a contrast-enhanced computed tomography scan, shows peritoneal fluid with characteristics of exudates. The cytologic examination was non-diagnostic. Laparoscopic biopsy of the peritoneum disclosed a poorly differentiated adenocarcinoma of an unknown primary site. Three weeks later the patient developed jaundice, and the

laboratory picture showed cholestasis: total bilirubin level 13.4 mg/dl with a predominant direct hyperbilirubinemia. Three-phase CT and subsequent endoscopic retrograde cholangiopancreatography (Figures 2 and 3) demonstrated cholangiocarcinoma.

Diffuse peritoneal infiltration, designated omental cake, occurs most commonly as secondary to intraperitoneal tumor spread. Although rare, additional causes include inflammatory conditions such as tuberculosis, Crohn's disease, phlegmonous pancreatitis, and benign tumor such as desmoid fibroma [1]. The distribution of intraabdominal tumor seeding

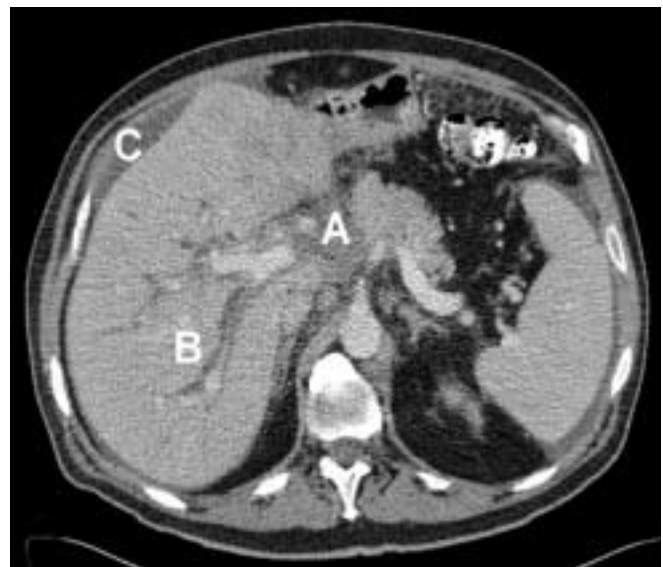


Figure 2. Three-phase CT shows 2x2 cm soft tissue mass obstructing the common bile duct [A] with intrahepatic bile duct dilatation [B] and ascites [C].

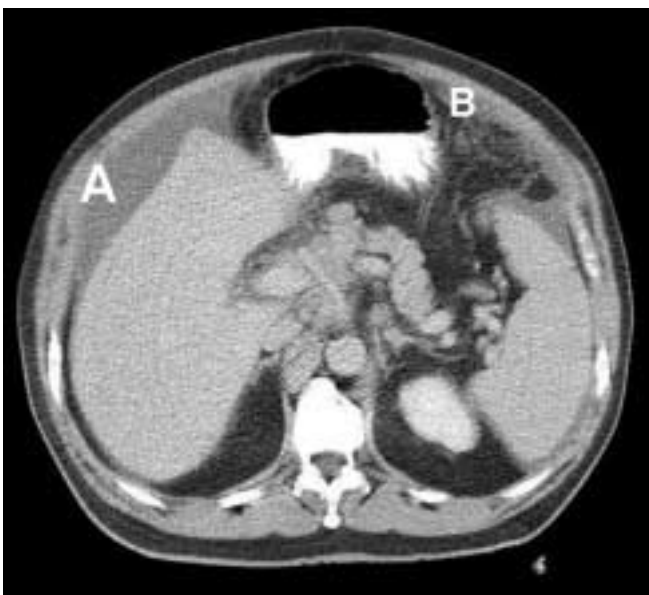


Figure 1. Contrast-enhanced CT demonstrates ascites [A] and omental cake [B].



Figure 3. ERCP demonstrates 2 cm irregular narrowing of the common bile duct with intrahepatic bile duct dilatation.

is attributed to four mechanisms: a) direct spread from intraabdominal cancers of prostate, uterus, kidney, gastrointestinal malignancies or primary peritoneal tumor; b) peritoneal dissemination, related to the presence of ascitic fluid spreading from ovarian carcinoma; c) hematogenous distribution from distant sites, e.g., breast, lung and melanoma; and d) lymphatic extension, generally associated with primary gastrointestinal lymphoma [2].

While omental cake is classically associated with ovarian carcinoma in females, identification of the primary source in males is sometimes difficult. In most cases the first clinical presentation of the omental cake is ascites [3]. CT scanning is a precise, non-invasive and effective method

for the detection of peritoneal disease. The principal CT findings of the omental cake are the presence of grossly abnormal and thickened omentum and ascites (74%) [4]. Indeed, the pattern of tumor involvement of omentum seen in peritoneal carcinomatosis is indistinguishable from that seen in lymphomatosis. Diffuse distribution of enlarged lymph nodes may be helpful signs of lymphatic peritoneal dissemination [5]. CT data and cytologic diagnosis of peritoneal fluid are not informative, as in our patient, and CT-guided or laparoscopic biopsy of peritoneal core is required. Our case is of particular interest for several reasons: first, cholangiocarcinoma rarely presents as ascites or omental cake, especially if the cake appears before any signs of biliary obstruction. Second, the disease was not visualized on recurrent abdominal CT, and peritoneal core biopsy did not provide a definitive diagnosis. Finally, the diagnosis of cholangiocarcino-

ma was confirmed by three-phase CT and ERCP.

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