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Ovarian metastasis from unusual primary

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Abstract
The ovary is a common site of metastasis from various organs, especially of the gastrointestinal tract. However, little is known about gallbladder carcinoma metastasizing to ovaries. We report a case of metastatic gallbladder carcinoma which mimicked a primary ovarian tumour in a 41 year old North Indian woman. Clinically the patient presented with pain abdomen. Radiology suggested the possibility of a primary ovarian tumour. The gross features also mimicked the primary malignant ovarian tumour. Histopathological examination showed adenocarcinoma, bilateral ovaries with involvement of greater omentum. On IHC examination tumour cells were positive for CK7, CK19, CK 20 & CDX-2 which suggested the possible primary of the pancreaticobiliary region.

Keywords: Gall bladder carcinoma, metastasis, ovarian malignancy

Introduction

Cancer is the leading cause of morbidity and mortality globally. As per WHO report, cancer is responsible for an estimated 9.6 million deaths which are about the second most common cause of death worldwide in the year 2018 [1]. The incidence of cancer in India follows an upward trend due to an increase in smoking habits, chronic infection and rapid industrialization. A global report released by WHO on 4th February 2020 mentioned that one in ten Indians will develop cancer in their lifetime while one in fifteen will die of the disease. As per Global burden of disease data published in JAMA Oncology, breast cancer is the most common cancer overall while stomach cancer is the leading cause of death in the overall population [2].

Gall bladder cancer is the fifth most common malignancy of the gastrointestinal tract and the outcome of this is poor [3]. Although the incidence of gallbladder carcinoma is fewer out of all the reported malignancies, it is a fatal disease with a poor prognosis owing to the tendency of the tumour to metastasize early to the regional lymph nodes and spread into the liver bed [4]. Gall bladder carcinoma metastasizes locally, bloodborne dissemination is uncommon and usually occur late. Extra-abdominal metastasis is rare and lung is the most common site. Rare site of metastasis includes heart, bone, central nervous system, kidney and hernial sites [5]. The ovary is the common site of metastasis for gastrointestinal neoplasm and they are named Krukenberg tumours [6]. Adenocarcinoma of gall bladder metastasis to the ovary is quite rarely reported in the medical literature [7].

Here in this case description, we report a middle-aged female patient presenting as an ovarian mass which on histopathological and IHC examination was reported as adenocarcinoma gall bladder metastasis to the ovary. Aggressive histopathological diagnosis along with IHC for exact characterization and confirmation is the key to the diagnosis of malignancy whether primary or metastatic.

Case report

Middle-aged female patient, housewife by occupation, educated up to 10th standard presented in the outpatient department with chief complaints of pain abdomen, diffuse in nature, non-colicky not associated with vomiting, obstipation & constipation. The patient gives no history of fever, loose stools and dysentery. The patient gives a history of adenocarcinoma gall bladder (pancreaticobiliary type) five months back for which she underwent radical surgery. The patient was apparently alright since then and no symptomatology was suggestive of tumour recurrence. Now the patient presented with these complaints about the last few days. General physical examination and vitals (PR, BP & RR) were within normal limits. Per abdomen, examination showed a scar mark at right hypochondrium but no obvious tenderness & organomegaly was present. Another systemic examination was within the normal limit. The patient's routine laboratory examination was within normal limit abdomen & pelvis suggestive of right ovarian mass? Malignant, but no other obvious abnormality was noted. Tumour marker CA-125 was elevated. CECT Abdomen& pelvis was S/O right ovarian malignant mass with peritoneal metastasis (Image1). A total abdominal hysterectomy with bilateral salpingo-oophorectomy and omentectomy was performed. Gross hysterectomy specimen showed a right ovarian cystic mass, left ovary & part of omentum s/o ovarian malignancy (Image2). Microscopic examination of the right ovarian cystic

mass revealed back to back arranged glands lined by tumour epithelial cells with features of adenocarcinoma. Focal mucinous lining epithelium and intraluminal mucin were also found (Image3). Omental tissue was also adherent. The left ovary revealed infiltration by malignant glands. Diagnosis of bilateral ovarian adenocarcinoma involving greater omentum was given. On IHC, the tumour cells were positive for CK7, CK19, CK20 & CDX-2, while negative for PAX-8, TTF-1, CA 19-9, ER & WT-1, with overall features of metastatic adenocarcinoma with the possible primary of pancreaticobiliary origin in a known case of the carcinoma gall bladder. Hence patient had primary Gall bladder malignancy with late metastasis to distant B/L ovaries which is very rarely reported in the medical literature.

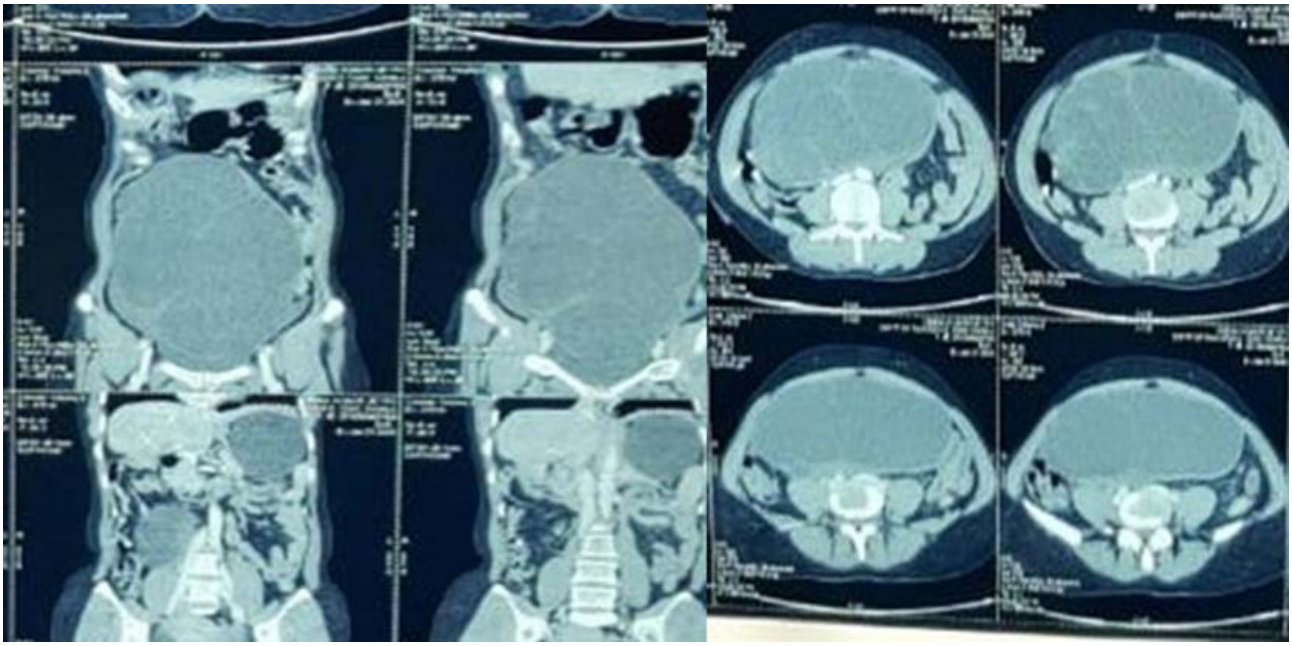
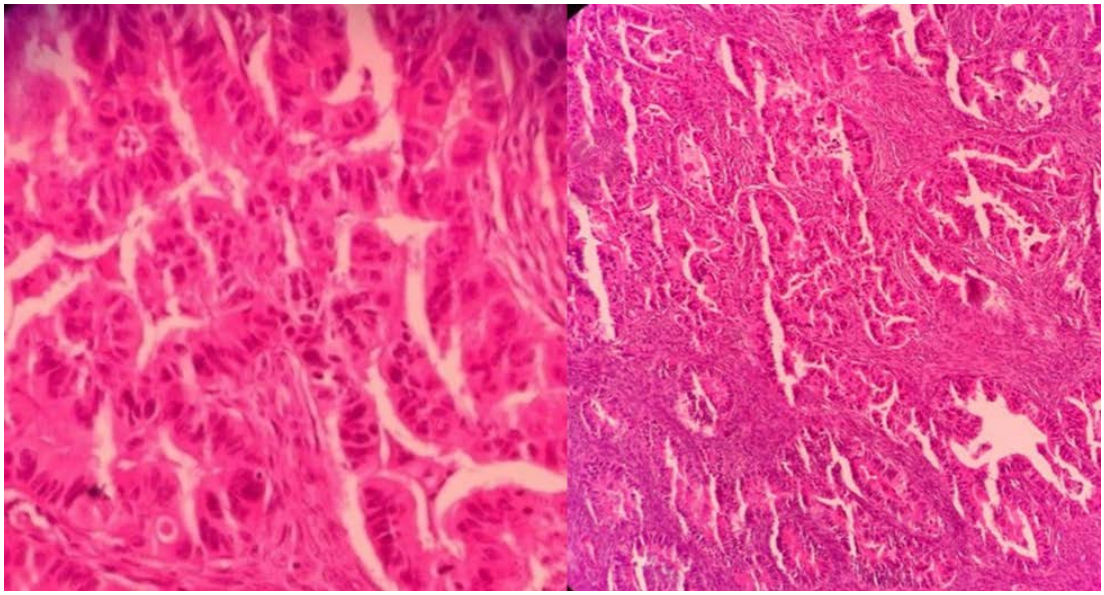


Fig 1: CT Pelvis showing a huge ovarian mass in cross-sectional & sagittal view.

Fig 2: Gross Hysterectomy specimen showing right ovarian cystic mass, left ovary & part of omentum.



A. High resolution (H &E, X40) B. Low resolution (H&E, X10)

Fig 3: (A&B) High- & low-resolution images showing back to back arranged glands lined by tumour epithelial cells with focal intraluminal mucin.

Discussion

Most gallbladder cancers are adenocarcinomas (incidence was 70–90%) [8]. Metastasis from the gall bladder to ovaries, though known, is rare with only a few reports available in English literature. Most metastatic ovarian neoplasms are predominantly solid or a mixture of solid and cystic areas. They also tend to be bilateral secondary ovarian neoplasms more often than unilateral primary neoplasm. Kim *et al*. also suggested that secondary ovarian neoplasm should be considered when solid ovarian tumours contain well-demarcated intraluminal cystic lesions [9].

It is difficult to distinguish the primary neoplasm because the metastatic mucinous tumours can be very similar to primary ovarian mucinous tumours grossly and occasionally pose major diagnostic problems in microscopic appearance [10]. The definite method to evaluate the primary lesions metastatic to ovary depends on permanent pathology. Ovarian metastases from pancreaticobiliary and gallbladder carcinomas can have histological resemblance with a primary ovarian epithelial tumour and differentiating metastasis from primary ovarian neoplasm is important in situations where the primary tumour is very small, without producing significant symptoms, and hence can escape detection.

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