

Krukenberg Tumor from Gastric Adenocarcinoma: CT findings

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Abstract

Krukenberg tumors are metastatic ovarian neoplasms from primary lesions in the gastrointestinal tract. We discuss the CT appearance of a metastatic ovarian tumor from an advanced gastric cancer with a review of the literature.

CASE REPORT

A 65 years old female affected by gastric mucinous adenocarcinoma detected at endoscopy was referred for total-body CT staging to our radiology department. Contrast enhanced CT showed diffuse pathologic gastric wall thickening from spread of the primary tumor (Fig. 1a). Regional lymph nodes enlargement (Fig. 1b) and ascites secondary to peritoneal carcinosis were also present. Moreover a 3.5 cm enhancing solid mass was visualized in the left adnexa representing an ovarian metastasis, also known as Krukenberg tumor (Fig. 1c). The right ovary was not present because of previous surgery. The patient was sent to an oncologist and started chemotherapy and palliative care.

DISCUSSION

The term Krukenberg tumor, from its eponymic description [1], refers to ovarian lesions with sarcomatous stroma and mucin-containing signet-ring cells. Initially thought to be unusual primary malignancies by Krukenberg himself, were later recognized as metastatic lesions usually arising from primary cancers of the gastrointestinal tract, especially the stomach and colon. Although the peculiar histological features originally described in 1896, many authors now tend to indiscriminately include any kind of ovarian metastatic malignancy under this definition.

The primary lesion of Krukenberg tumor is an advanced gastric cancer in most cases like the one we reported here. Rare cases of Krukenberg tumor from early gastric cancers have however been reported in the literature [2] and sometimes these tumors have been detected even before the diagnosis of the primary neoplasm. [3]

The CT appearance of Krukenberg tumors typically consists of oval or kidney-shaped masses, which tend to preserve the ovary contour. Lesions are more often bilateral though unilateral involvement may be encountered even in the presence of a normal contralateral ovary. [2] The unilateral involvement in our patient has to deal with previous surgical resection of the other ovary.

They are usually solid or predominantly solid with central necrosis or cysts and may attain a large size. Strong enhancement of solid components or septations is usually seen after contrast media administration. [4] Large, lobulated, multicystic masses with soft-tissue components have also been described. [5]

Confident distinction between primary and metastatic ovarian cancers is not possible in many cases because of overlapping imaging findings, however bilateral, sharply delineated, purely solid or predominantly solid lesions with necrosis favors the diagnosis of a metastatic ovarian tumor. [6]

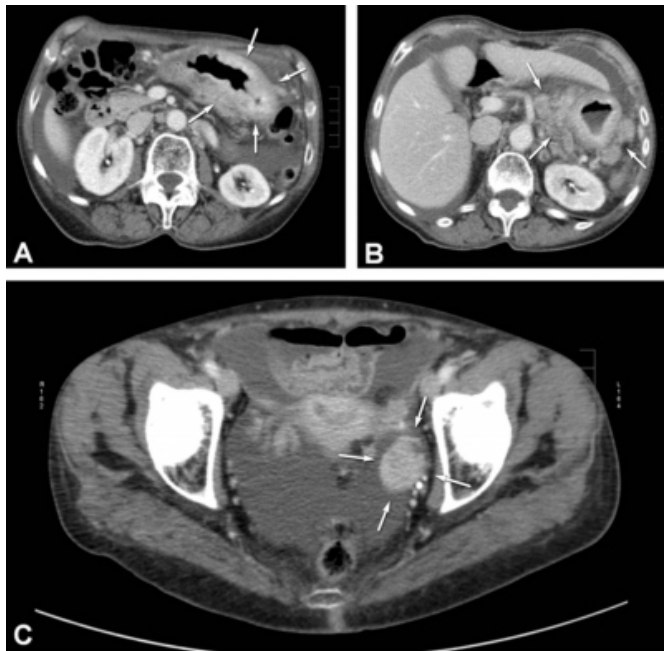
Sometimes enlarged pelvic lymph nodes may simulate ovarian masses; differential diagnosis can be achieved analyzing the relationships between the lesion and the pelvic ureter and the course of the ovarian vein.

The ovaries are usually located anterior or anteromedial to the pelvic ureters, whereas iliac lymph nodes are lateral or posterolateral to the ureters. Therefore posterior displacement of the ureters indicates an ovarian mass whereas enlarged lymph nodes may cause anterior displacement of the ureter.

Another method is to track the course of the ovarian veins from near the level of the renal vessels caudally to the pelvis; this leads to the suspensory ligament region and is often helpful in identifying the ovary. [7]

Figure 1

Figure 1: Contrast enhanced CT of the abdomen showing pathologic thickening of gastric wall (a), multiple enlarged lymphnodes (b), ascites and an enhancing solid mass in the left ovary (c).



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References

1. Krukenberg F. Ueber das Fibrosarcoma ovarii mucocellulare (Carcinomatodes). Arch Gynecol 1896;50:287-321.
2. Kakushima N, Kamoshida T, Hirai S, Hotta S, Hirayama T, Yamada J, Ueda K, Sato M, Okumura M, Shimokama T, Oka Y. Early gastric cancer with Krukenberg tumor and review of cases of intramucosal gastric cancers with Krukenberg tumor. J Gastroenterol 2003;38:1176-1180.
3. Ohara N, Murao S. Development of a Krukenberg tumour before detection of the primary gastric cancer. J Obstet Gynaecol 2002;22:98.
4. Hamm B, Forstner R. (Eds.) MRI and CT of the Female Pelvis. Springer-Verlag Berlin Heidelberg 2007.
5. Cho KC, Gold BM. Computed Tomography of Krukenberg Tumors. AJR 1985;145:285-288.
6. Kim SH, Kim WH, Park KJ, Lee JK, Kim JS. CT and MR findings of Krukenberg tumors: comparison with primary ovarian tumors. J Comput Assist Tomogr 1996;20:393-398.
7. Saksouk FA, Johnson SC. Recognition of the Ovaries and Ovarian Origin of Pelvic Masses with CT. RadioGraphics 2004;24:S133-S146.

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