Intralesional hemorrhage in Krukenberg tumor: a case report and review of the literature

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Abstract Acute abdomen due to female genital apparatus disease is very rare. Most are due to intralesional effusion of benign tumors. The authors present a 40-year-old woman with acute abdomen pain due to haemorrhagic ovarian metastasis of colorectal cancer, focusing on the role of imaging to get the management of the patient.

Keywords Acute abdomen · Metastatic ovarian tumors · Diagnostic imaging

Riassunto Il dolore addominale acuto dovuto a patologie di pertinenza ginecologica è una condizione rara. La maggior parte dei casi sono dovuti ad emorragie endolezionali di formazioni benigne. Presentiamo il caso di una Donna di 40 anni con dolore addominale acuto dovuto a sanguinamento di metastasi ovariche originate da un tumore del colon-retto, concentrando l'attenzione sul ruolo dell'imaging nella gestione del paziente.

Introduction

Acute abdominal and pelvic pain in female may be the manifestation of various conditions regarding genital and non genital apparatus [1, 2]. Gynecological acute abdomen might have either oncologic [1, 3, 4] or non oncologic

causes [2]; the latter being the most frequent. According to authors [3], the differential diagnosis of adnexal mass in acute abdomen includes ectopic pregnancy, adnexal torsion, haemorrhagic cyst rupture, tube-ovarian abscess, degenerating leiomyoma, acute appendicitis, and sigmoid diverticulitis.

Very few cases of acute abdomen due to gynecological tumors are reported in literature. Most of them are benign ovarian mass (germ cell or stromal tumors, mature teratoma) (rupture or torsion) [4, 5]. Rupture of malignant ovarian tumor is rare [3] and particularly, Krukenberg tumor in young patients is infrequent. We describe this case and the role of diagnostic imaging in the evaluation of the patient.

Case report

A 40-year-old woman, with a negative personal and family history for malignancy, was admitted to surgery department because of abdominal pain and suspicion of intestinal occlusion. On clinical abdominal examination, right lower quadrant tenderness with guarding and rigidity was observed; blood tests did not reveal leukocytosis or abnormal inflammatory markers. For this reason, abdomen and pelvis CT scan was performed (multislices CT, before and after iv administration of iodinate non-ionic contrast medium, Visipaque GE 320, 100 ml). CT revealed a complex, solid, right adnexal mass, located behind the uterus measuring 90 × 75 mm. The mass showed firm and regular contour, inhomogeneous texture (haemorrhagic and solid) with low contrast enhancement (Figs. 1, 2, 3). Uterine, left ovary, abdominal, and pelvic lymph nodes were normal. A fluid effusion, with haematic density, was found in right ovarian fossa. No peritoneal carcinomatosis

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Fig. 1 Multislice CT of pelvis, an unenhancement phase. The adnexal right mass is inhomogeneously hyperdense as intraslesional effusion

Fig. 2 Multislice CT of pelvis after iodine contrast medium administration. Above the uterus, solid adnexal mass shows inhomogeneous contrast enhancement with hemorrhagic content (*circlet*)

was found. A very short (about 4 cm) thickening of descending sigmoid colon wall was found and interpreted as stenosis due to inflammatory process. No fluid or haematic effusion was reported in right iliac fossa, around the vermiform appendix. Solid organs of upper abdomen were normal.

Transvaginal ultrasonography examination confirmed a solid mass of $7.5 \times 9 \times 7.7$ cm in pelvis, probably originated from right ovary. The mass exhibited haemorrhagic and pathologic solid texture (Fig. 4); it was difficult to distinguish the mass between the ovary. The mass had a very low vascularization, quite normal. Fluid haemorrhagic effusion was reported in Douglas (recto uterine pouch).

Serum level of CA 125 was normal (13.6 U/ml), and CEA level was slightly increased (7 ng/ml). The patient was admitted in Gynecologic Department and underwent laparoscopic salpingo-oophorectomy in a suspicion of haemorrhagic luteal cyst. Histology revealed metastatic G2 adenocarcinoma in right ovary.

Fig. 3 Multislice CT after iv administration of iodine contrast medium; MIP reconstruction during portal phase. The stenosis of descending colon represents the placement of primitive cancer (*arrow*) and right adnexal metastatic mass (*circlet*)

Fig. 4 Transvaginal US: complex right adnexal mass (90 mm of diameter) with firm and regular contour and solid-liquid content

In order to find out the primary site of this tumor, and considering CT findings, colon endoscopy was performed after primary surgery; it revealed a stenotic cancer of proximal sigma. Sigma resection with term-to-terminal anastomosis was performed and microscopic examination confirmed the diagnosis of colorectal adenocarcinoma G2 with nodes involvement. The final stage D of Dukes, set IV Jas, was pT3 pN1 pM1.

Six cycles of chemotherapy followed, in accordance with the scheme XELOX (capecitabine, oxaliplatin).

One year later, the woman was admitted to surgery department again; a new ovarian mass was found during the follow-up. CT scan revealed a solid parenchymatous mass ($9 \times 7 \times 5$ cm) in left ovary. The patient underwent

laparotomic surgery consisting in salpingo-oophorectomy and hysterectomy. Macroscopically, the mass exhibited a brown-chocolate-like fluid content, with vegetations inside, suggesting a metastatic localization. Histological diagnosis showed adenocarcinoma largely necrotic. Considering clinical background, it supported the diagnosis of metastatic localization of colorectal cancer. An haemorrhagic corpus luteus was already found in the sample. Serum level of CEA was normal (3.7 ng/ml). Patient is still alive at 16 months after relapse diagnosis.

Discussion

Gynecological acute abdomen is more frequently due to non oncologic causes [2], however, some cases of primitive ovarian cancer resembling an intra-abdominal hemorrhage are described [3].

Many metastatic adenocarcinomas involving the ovary show morphological and clinical patterns similar to primitive ovarian cancer. Multidisciplinary approaches including radiological, serological, and pathological methods are required for diagnosis [6].

Colorectal carcinoma is one of the most common tumors that involve ovaries [7]. There may be a known history of colorectal adenocarcinoma, but an ovarian mass could be the first presentation of the disease. Colorectal carcinoma in women under 40 years of age has been reported to metastasize to the ovaries more frequently (18–27 %) than in older women. Patients with metastatic colorectal carcinomas often show symptoms related to ovarian tumors. Macroscopically, ovarian colorectal carcinomas metastases are often bilateral and predominantly, like cystic masses.

Metastatic ovarian masses could originate from different sources. We only reported a case of ovarian metastases aroused by colorectal cancer.

Imaging plays an important role in identification of ovarian Krukenberg tumors. Ovarian metastases aroused from colorectal cancer are large, with solid or cystic feature and very similar in size and shape to primitive ovarian cancer [6, 8, 9].

In the case reported, both US and CT had correctly identified a right adnexal mass despite its mixed texture (mainly solid with some haemorrhagic-liquid areas). Intralesional haemorrhagic effusion, in a young woman with negative personal history of malignancy, expressed as

acute abdomen, usually brings to the diagnosis of haemorrhagic corpus luteus. This event could complicate the interpretation of imaging. In our case, both CT and US had correctly identified the intralesional bleeding, but did not recognize the mass as neoplastic. CT scan revealed an irregular thickening of the sigmoid colon wall, not ascribed to a malignant process.

However all these considerations have correctly led to the execution of emergency laparoscopy to treat ovarian bleeding; colon endoscopy was performed for detection of colon cancer.

In conclusion, we described a rare case of metastatic bleeding ovarian cancer in a childbearing patient. Both US and CT had correctly identified but not characterized the mass, because of its haemorrhagic component; only CT identified the neoplastic colon stenosis and both US and CT were useful to plan the following clinical exams and suitable therapies.

Conflict of interest None.

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