Giant mucinous ovarian borderline tumor. A good lesson from an asymptomatic case

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1. Introduction

Due to the advancement at imaging technologies and health care services ovarian tumors that reach massive sizes are rarely seen. Early diagnosis usually discovers tumors of small or medium size, in often symptomatic patients [1]. Moreover, cases of giant mucinous ovarian tumors are rarely described in literature, with different clinical manifestations [2,3]. Compressive symptoms or visible abdominal mass are the most frequent observations [1,4]. Many life-threatening complications such as severe hypotension, increased venous return and cardiac failure, respiratory problems and intestinal distension can be encountered during the management of patients with massive ovarian tumors [1]. In addition, most complications arise after surgery, because of rapid changes in the body circulation and pulmonary edema [4].

Specific features of giant ovarian tumors are grade and type of differentiation (gastric or enteric epithelium, or germ-cell origin) rate of mucina production, atypical proliferation, association with dermal cysts or with Brenner tumors [5]. These characters are strictly related with recurrence and prognosis.

We report a case of a 69-year-old female with a giant borderline ovarian mucinous tumor, with peculiarity of absence of clinical manifestation, in front of a mass of over 6,500 g. Incidental diagnosis, borderline pattern and surgical treatment are paradigmatic for approaching and understanding prognosis of this rare neoplasm.

2. Presentation of case

A 69-year-old unmarried woman was referred to our Department because of ultrasound detection, performed for dysuria, of a giant (>50 cm in diameter) cystic mass in the abdomen, presenting with solid elements and endoluminal septations. No significant drug and family history was discovered, during anamnesis. The
A 50-year-old multiparous woman presented with abdominal pain and weight loss. The patient was referred for abdominal computed tomography (CT) scanning which showed a normal liver, pancreas and kidney, and a giant cystic mass with solid lesions, which extended from the posterior wall of the uterus up to the second lumbar vertebra showing invasion of the parametric tissues bilaterally. The woman claimed mild obesity that did not evidenced mass growth. From her personal and familial history no serious diseases or cancer history were reported. No other serious clinical problems were detected. Blood tests and tumor markers (CA-125, CEA, α-fetoprotein and CA 19-9) were at normal levels. Colonoscopy confirmed no findings apart from pressure phenomena of the colon. The clinical and radiological differential diagnosis included ovarian cancer and pseudomyxoma peritonei. A specific preoperative lung preparation was performed, in order to obtain a good postoperative pulmonary function.

The patient underwent exploratory laparotomy where a giant cystic mass with solid lesions measuring more than 50 cm was found. Supine position led to a good exposure of mass. The mass originated from the left ovary and extended up to mesocolon. Minimum ascites was found. Excision of the tumor intact wall, without fluid aspiration, abdominal hysterectomy with bilateral oophorectomy and partial omentectomy was performed. No hemo dynamic and cardiac intraoperative modifications were observed after resection. Operative time was 110 min. There were no significant early or late postoperative complications. No blood transfusion was necessary. Patient was discharged on fifth postoperative day. The patient was well 12 months after surgery.

The pathological examination showed a giant cystic neoplasm measuring 60 × 50 × 40 cm, weighing 6500 g (Fig. 1). The external surface of the tumor was smooth. On dissection, the tumor presented a multicytic surface, with cystic spaces of various measure, separated by thin septa and filled with thick mucus. Foci of solid whitish tissue were observed. The uterus, the right ovary and fallopian tube were normal. The left fallopian tube was grossly attenuated. The giant size of the neoplasm presented additional problems in the pathology examination. Examination was performed with at least one section/cm of the tumor, as well as most of the solid areas. This histological study showed a mucinous neoplasm of borderline malignancy, with epithelial cells mainly of endocervical type with focal development of intestinal epithelium with goblet cells. Areas of luteinized stroma surrounding the cystic spaces were observed. No signs of infiltrative growth of the tumor, intraepithelial carcinoma (according with WHO classification revised by Scully) or stroma microinvasion was observed. The endometrium showed regular proliferative glands. Histological examination of the cervix, fallopian tubes and omentum did not showed any remarkable pathological changes.

The work is conform to SCARE criteria for the setting, definition and for put in writing of case [6].

3. Discussion

Borderline mucinous tumors usually appear as large cystic multilocular masses containing sticky gelatinous fluid [1,5,7]. Most of them are unilateral, well-differentiated and, when diagnosed in Stage I, present a recurrence rate of 1% [8]. Our report of a giant mucinous borderline tumor confirms rarity and peculiarity of this presentation [3]. In our observation, absence of symptoms was infrequent for giant lesion, but reflects a progressive growth in a capacious abdomen. This is rare because a giant mass generally compresses adjacent organs, with caliciopelid dilatation, colonic compression with constipation, gastric compression with early satiety and bladder dislocation with polyuria. All these symptoms are described at diagnosis of giant ovarian tumors, while hormonal symptoms, related to activation of tumor stroma, are rarely described. Our report confirmed utility of ultrasound screening also in obese patients, in which lesion can be masked by subcutaneous thickness. With limits of vision, imaging was decisive in this case, determining resolution of case.

In addition, weight of lesion is not related with malignancy risk, as demonstrated by histopathological analysis. Dotters confirmed low malignancy rate in 20 cases reviewed, with lesion exceeding also 20 kg [9].

Operative risk is extremely high, with fatal complications described in literature, mostly in older reports: pulmonary and cardiac failure, pulmonary embolism and sepsis are reported [2,7,8] Some authors considered necessary fluid aspiration before or during resection, in order to reduce operative time and risk related to sudden changes of intraabdominal pressure, during surgery and in postoperative phase [10]. In order to oncological risk, we retained incorrect fluid aspiration, if not necessary, because of risk of intraperitoneal dissemination [11]. In addition, controlled fluid aspiration, described to reduce hypotension and low caval reoll related to sudden drop of abdominal pressure, may prolong operative time and increase anesthesiological complications. Drain of mass is an extreme option for selected unresectable case, with high wall tension. An adequate supportive care, monitoring evolution during resection, is the best topic to safe resection of giant lesions. Basilar topic remains postoperative care, with reducing ileus, supporting respiration muscles and abdominal wall tension, and monitoring hemodynamic parameters [12].

A various histopathological pattern and variability of symptoms are typical character of giant ovarian tumors; although majority are mucinous type, heterogeneous grade of malignancy is reported in literature, with different patterns of borderline type that reflect on prognosis [7,13]. A recent revision of borderline ovarian tumors detected about 36% of the cases presented intraepithelial carcinomatous, in various percentage, exhibiting areas of cell proliferation.
of four or more layers, or containing scattered foci of cribriform or stroma-free papillary architecture, or showing evenly moderate or severe atypical nuclei in the lining epithelium [5,13]. Differently from invasive ovarian tumors, borderline tumors are usually unilateral, rarely associated with pseudomyxoma peritonei, even when intraoperative rupture during surgery occurred [14]. Less than 10% of mucinous borderline tumors are bilateral, and this should raise the possibility of metastases [13]. Prognosis of borderline tumors is good, including cases with stroma microinvasion, according with FIGO classification [15]. The results of this and other recent studies strongly suggest that in the sequence of malignant transformation from benign and borderline mucinous tumors to infiltrative carcinomas, intraepithelial (noninvasive) carcinomas and carcinomas with purely expansive invasion represent transitional stages of mucinous carcinogenesis. This hypothesis is also supported by recent molecular studies of genetic alterations in mucinous tumors. For example, mucinous borderline tumors have a higher frequency of K-ras mutations than that of mucinous cystadenomas but a lower rate than that of mucinous carcinomas [16].

4. Conclusion

Giant ovarian tumors are rare neoplasms that need a careful treatment, preventing high-risk operative complications. Symptoms at diagnosis related with prognosis, while asymptomatic cases are not often related with better results. Our case report is paradigmatic for absence of symptoms at diagnosis, although dimension of lesion, for histotype, borderline mucinous, that is associated with a good prognosis, and for safe operative treatment.

Conflict of interest

No conflict of interest for all authors.

Sources of funding

We are waiting for funding from University of Salerno but, at the moment, no payment was authorized by any source.

Ethical approval

No specific ethic approval was necessary, because case report is related to an operative procedure necessary for health of patient. Moreover, a specific informed consent and authorization for publication of anonymous data was obtained from patient.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

Each author contributed to diagnosis, treatment and postoperative follow-up of patient. Specific recording of pathologic data and an adequate review of literature was performed by each author.

Registration of research studies

At this point, we declare that no registration is required for our case report, confirming that an internal database, with data related to the patient, is accessible, with specific approval of General Direction of Hospital.

Guarantor

Dr. Salvatore Tramontano.

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