Abstract  We report a 34-year-old woman with an ovarian thecoma and ascites who exhibited high serum levels of CA125. Measuring serum tumor markers and imaging are two important diagnostic tools for malignant ovarian tumors. In the present case, a preoperative diagnosis of benign ovarian tumor could not be made due to the elevation of CA125 (895 U/ml) and nonspecific MRI findings.

Key words  Thecoma · Ascites · CA125 · MRI

Introduction

Ovarian thecoma is a rare benign tumor of gonadal stromal cell origin, and represents less than 1% of all ovarian tumors. It occurs most often in perimenopausal and postmenopausal women [1, 6]. We report here, a 34-year-old woman with a left ovarian thecoma with ascites and high serum levels of CA125.

Case report

The patient was a 34-year-old woman (gravida 1, para 1). She had complained of lower abdominal distension for about 3 weeks, and visited our hospital for gynecological evaluation on October 8, 1998. She had 30-day regular menstrual periods without hypermenorrhea. Physical examination revealed a large, smooth-surfaced, firm nontender abdominal tumor. The upper margin of the tumor extended to the navel. On T1-weighted images of MRI using a 1.5-T superconductive imaging unit, the tumor showed homogeneous low signal intensities and could not be distinguished from the uterus. However, on T2-weighted images, the tumor was demonstrated with predominantly high signal intensities and was clearly distinguished from the normal-sized uterus. Based on MRI findings, the tumor was considered to be a solid ovarian tumor containing a small degree of cystic degeneration, and small amounts of ascites were retained in the pelvic cavity (Fig. 1). Ascites were also demonstrated around the liver by CT. However, chest X-ray demonstrated no pleural effusions and examinations of the gastrointestinal tract demonstrated no abnormal findings. Tumor marker levels in the serum were 895 U/mL CA125, 8.0 U/mL CA19-9, 0.5 ng/mL CEA, 0.6 ng/mL SCC and 1.0 ng/mL AFP. Based on these clinical findings, a malignant ovarian tumor was suspected, and exploratory laparotomy was performed on October 19, 1998.

At laparotomy, ascites of about 300 ml were found in the abdominal cavity. A smooth-surfaced, yellowish, sperical, firm, solid tumor was found to originate in the left ovary, and measured 13 × 12 × 10 cm. Adhesion to peripheral organs was minimal, and the uterus and right ovary were macroscopically normal. No clear findings of dissemination from the malignant ovarian tumor were observed in the abdominal cavity. The histological diagnosis of an intraoperative frozen section of the left ovary was thecoma, and cytologic examination of the ascites demonstrated no malignant cells. Left salpingo-oophorectomy and biopsy of the right ovary were performed. The left adnexal mass weighed 935 g. Postoperative histological examinations revealed typical thecoma in the left ovary (Fig. 2). The patient’s postoperative course was uneventful, and her serum level of CA125 decreased to 15 U/mL 4 weeks after surgery.

Discussion

The association among an ovarian tumor with ascites and hydrothorax or ascites alone that resolve after removal of the ovarian tumor is known as Meigs’ syndrome. The ovarian tumor in this syndrome was originally considered to be fibroma only. However, other ovarian tumors such as thcomas, granulosa cell tumor and Brenner tumor have been reported to be associated with this syndrome [8]. These ovarian tumors are relatively rare. Fibroma which is the most common among these tumors represents about 4% of all ovarian tumors, and less than 1% of fibromas are associated with this syndrome [6].

Currently, measuring serum tumor markers and imaging are two important tools in the diagnosis of malignant ovarian tumors. In this case, a malignant ovarian tumor was suspected by both of these diagnostic techniques. CA125 is a useful tumor marker to predict the benign or malignant nature of ovarian tumors, and serum CA125...
levels are elevated in 80–85% of patients with epithelial ovarian cancer. Since the first study by Jones and Surwit in 1989, high serum levels of CA125 in a few patients with benign ovarian tumors and ascites with or without hydrothorax have been reported [5, 7, 11, 13]. Among these patients, only 4 patients with thecoma have been reported [4, 11, 13]. The etiology of ascites remains unclear and the elevated levels of CA125 may be caused by the peritoneal reaction rather than by the ovarian tumor [7, 11]. In such patients, the correct preoperative diagnosis of benign ovarian tumor is very difficult due to the rarity of such conditions.

Differentiation of thecoma from other ovarian tumors by ultrasonography and CT is not possible in many cases [2, 3]. MRI was found to be highly accurate for characterizing ovarian tumors and differentiating them from uterine masses. The specific MRI findings of thecoma have not yet been reported. However, MRI may be more useful than ultrasonography and CT to diagnose ovarian fibroma, because fibroma shows relatively specific characteristic with predominantly low signal intensities on T2-weighted images of MRI [12]. In our case, the tumor demonstrated homogeneous low signal intensities on T1-weighted images and predominantly high signal intensities on T2-weighted images. These MRI findings mimicked those of Krukenberg tumor [10], and Krukenberg tumor from gastric cancer rather than thecoma was indicated, especially due to the age of this case. Contrast-enhanced MRI with gadopentetate dimeglumine may be useful in the differentiation of these tumors [9].

References