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Ovarian Fibrothecoma: A Residual Malignant Case

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ABSTRACT

Ovarian fibrothecomas, sex cord-stromal tumors consisting of theca-like elements and fibrous tissue, are solid tumors of the ovary, accounting for 1–4.7% of all ovarian tumors. If the tumors cannot be differentiated between fibroma and thecoma, they are categorized as fibrothecoma. These solid tumors are common, but their malignant type is extraordinarily rare. Here we present a residual malignant ovarian fibrothecoma in a 67-year-old woman. This patient complained of abdominal mass, she previously had laparotomy four times and two series of chemotherapy with paclitaxel and carboplatin within 19 years. Despite these, she currently has a residual disease measuring 13.5 x 11.6 x10.8 cm. In this case report, we will discuss the management of malignant fibrothecoma based on the available literature.

KEYWORDS:

Fibrothecoma, Malignant Neoplasm, Ovarian Tumor

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BACKGROUND

Sex cord-stromal tumors including fibrothecoma, granulosa cell tumors, and Sertoli-Leydig cell tumors represent approximately 5-8% of all ovarian tumors[1]. These gonadal cell types of tumors originate from the coelomic epithelium or the mesenchymal cells of the embryonic gonads. They exhibit a morphological spectrum from stromal components composed of spindle, oval, or round collagen-producing cells that resemble fibroblasts (fibromas) to plumper spindle cells with perifollicular theca-like elements (thecomas)[2]. When a tumor contains a mixture of these cells, they are called ovarian fibrothecomas which accounts for 4% of all ovarian tumors[3]. Fibroma and fibrothecoma have several differences in clinical characteristics and imaging features due to their different origin. Fibromas are usually found in young women and increased hormonal activity is rarely observed. In contrast, fibrothecomas are commonly observed in post-menopausal women with hormonally active tumor [4]. More than 50% of fibrothecomas produce estrogen; thus, vaginal bleeding and menstrual disorder are frequently reported. According to a study, the median size of fibroma is 5 cm, while the size of fibrothecomas is almost double [5]. Complaints of abdominal enlargements are also commonly reported in women with this tumor. The majority of ovarian fibrothecomas show a solid pelvic or adnexal mass with benign behavior. Malignant type of this tumor is extremely uncommon. We are presenting a rare case of residual malignant ovarian fibrothecoma in a 67-year-old woman.

CASE REPORT

She was a nulliparous 67-year-old female who first presented to Dr. Sardjito Hospital with an

abdominal mass in late 2017. She complained of pain in the pelvic area and difficulty in defecation. Initially, in 2003 she complained of a lump in her lower abdomen, and a uterine mass was found. She underwent a hysterectomy due to uterine myoma at another hospital. Fourteen years later, in 2017, she felt another mass in her lower abdomen. The multi-slice computer tomography (MSCT) scan showed a solid right ovarian tumor with central necrosis, sizing approximately 11x7.8 cm. Relaparotomy was performed and intraligamentary ovarian mass was taken. The lobulated tumor was encapsulated, measuring 13 x 9 x 6 cm and light brown. On histopathology, a solid arrangement of mesenchymal tumors was found. The cells were fusiform with round oval polymorphic variations, coarse chromatin, and moderate mitosis. The pathological examination resulted in a diagnosis of fibrosarcoma.

Two months later, the patient had an 8.8 x 7.5 x 6.1 cm pelvic mass. The suspicion of residual mass in the right pelvic area was confirmed by MSCT. The patient was then referred to Dr. Sardjito Hospital for further management. The level of Ca 125 at that time was 5.92 U/mL. Colon in loop showed an indentation of the sigmoid colon to the left lateral direction, and the cecum and terminal ileum to the cranial direction. Blass Nier Overzicht Intravenous Pyelogram (BNO-IVP) examination showed no abnormality in the anatomy and function of the bilateral kidney and ureter. There was no visible picture of indentation or infiltration in the urinary tract system.

Relaparotomy debulking then was performed. During the surgery, severe adhesion was found between the intestine and urinary bladder, covering the residual mass and adhesiolysis was performed. The lumpy solid mass sizing 7.5 x 6 x 7 cm was then removed. The subsequent histopathological study exhibited tissue with tumor cells arranged in bundles, partly storiform, with infiltrative hyalinization into surrounding connective tissue. Polymorphic tumor cells with scanty cytoplasm, vacuolated, oval nucleus, spindle nucleus with pointed ends of relatively rough chromatin, and partially visible daughter nucleus were also found. Mitosis was obtained (+/- 4-5/10 high power fields (HPF)). Dilated blood vessels were also found. The pathological finding suggested a residual malignant fibrothecoma. The patient had 6 cycles of chemotherapy with carboplatin and paclitaxel. After chemotherapy, serial evaluation of Ca 125 levels was performed and the results were within the normal limit (6.90 U/mL, 6.12 U/mL, 7.14 U/mL, 6.93 U/mL, 6.60 U/mL, and 8.47 U/mL)

In 2021, the patient came back to the clinic complaining of a lower abdominal mass. MSCT abdomen in January 2021 showed a residual mass (a dominantly solid mass with the cystic feature) sizing 11.1 x 7.9 x 8.8 cm, with malignant signs in

the bilateral parametrium which extends into the serosal layer of the posterior wall of the bladder and constricts and infiltrates the muscular layer of the distal sigmoid colon. MSCT evaluation in December 2021 revealed an increasing size of the residual mass by 44%, sizing 14.9 x 8.98 x 14.03 cm (progressive disease according to RECIST 1.1). The colon in loop showed rectosigmoid indentation and no visible sign of infiltration and colitis in the visualized colorectal system.

Relaparotomy was performed in January 2022. During the surgery, adhesions grade II-III were found at the rectosigmoid tumor and from the fascia to the ileum. Sharp and blunt adhesiolysis was performed to free the tumor and only the anterior portion of the mass was visible. An indentation of the mass was seen on the superior-anterior part of the bladder. A biopsy of the mass was then performed. One piece of tissue measuring 0.6 x 0.5 x 0.3 was taken, and histological examination revealed a similar finding to the previous report, confirming recurrent malignant fibrothecoma (Figure 1A-1C).

Following the surgery, the patient had another chemotherapy with paclitaxel and carboplatin for 6 cycles. In July 2022, an abdominal MSCT examination showed an isodense 13.5 x 11.6 x 10.8 cm mass lesion with a lobulated shape that was pressing the bladder to the antero-cranial and rectum to the left lateral (Figure 2). Compared with abdominal MSCT in December 2021, the mass size was reduced by 8% (Stable disease according to RECIST 1.1). The patient was then advised to have another surgery to remove the mass and chemotherapy with bleomycin, etoposide and cisplatin. However, the patient refuses to receive further treatment.

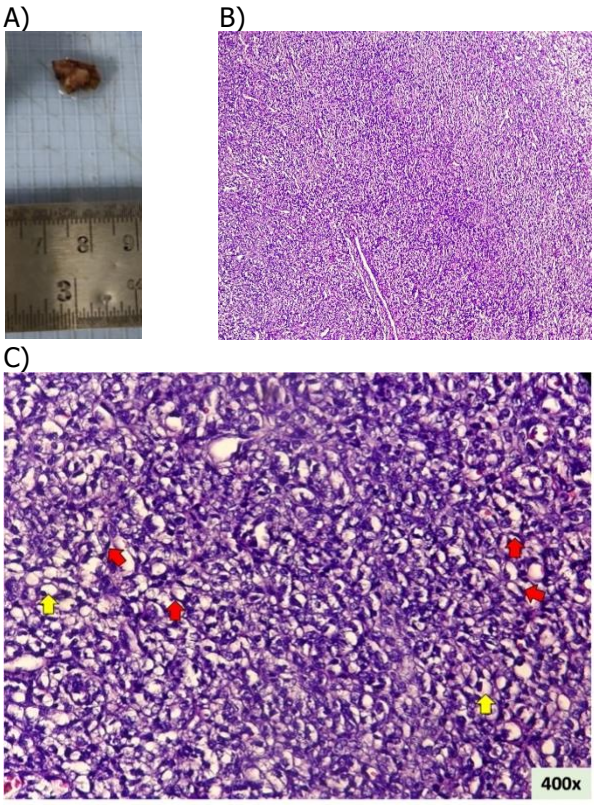

Figure 1. (A) Biopsy image of the mass. (B) Histopathological study showed connective and muscle tissue with tumor cells arranged in bundles which infiltrate the surrounding connective tissue. Magnification ×100. (C) Polymorphic tumor cells, scanty and partially vacuolated cytoplasm (signet ring cells) (yellow markings). Nucleus oval, spindle (red mark) with a pointed tip with relatively coarse chromatin, hyperchromatic, and partially visible nucleus. Mitosis is found in moderate numbers. Magnification ×400.

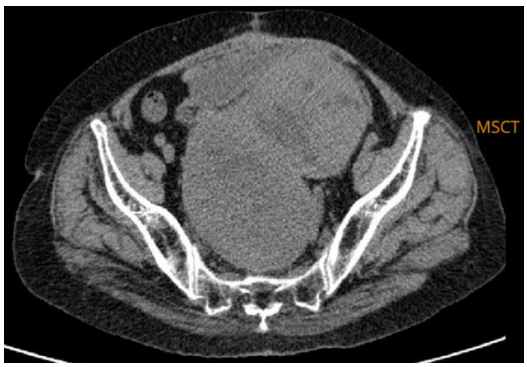

Figure 2. CT scan showed a solid mass in the pelvic area.

DISCUSSION

Ovarian fibrothecomas are tumors with a combination of fibrous and theca components. These tumors are characterized histologically by the presence of spindle, oval, or round cells arranged in fascicles and theca cells which are polygonal cells with a moderate to abundant amount of clear cytoplasm [2]. Fibrothecoma is usually unilateral and occurs mostly in postmenopausal women [4]. In this case, the patient first had the confirmed pathological mass at the age of 48. The signs and symptoms of fibrothecomas include pelvic pain, metrorrhagia, and compression of the mass on the pelvic/abdominal organs [6]. In our case, the patient repeatedly complained about lower abdominal mass with pain and difficulty in defecation. Ovarian fibrothecoma may be accompanied with ascites and pleural effusion, known as Meigs syndrome. However, these symptoms were not found in our case [7]. Serum CA-125 levels are usually found in the normal range in ovarian fibrothecoma which corresponds to our case[8]. Typical modalities used for assessing fibrothecomas are ultrasound, CT, and MRI. According to the literature, the diagnosis of fibrothecoma is likely if the following features are present on CT imaging: solid tumor appearance, unilateral mass, lack of blood supply, lack of lymphadenopathy, or peritoneal involvement [3,4]. Tumor bigger than 6 cm usually has mixed solid and cystic features which correspond to our case [9]. However, despite multiple CT imaging being performed, no conclusion of fibrothecoma was made In our case.

The treatment choice for fibrothecoma is mainly surgery, ranging from tumor removal alone to oophorectomy, total hysterectomy with bilateral salpingo-oophorectomy, and tumor resection in adjacent or infiltrated organs/structures, depending on the patients' age, desire to preserve the reproductive function, clinical condition and the aggressiveness of the tumor [10]. The surgery aims to completely resect the tumor mass. In younger women who wish to maintain their fertility, conservative or fertility sparring surgery by unilateral salpingo-oophorectomy or cystectomy is preferred [11,12]. In our case, a hysterectomy was initially performed due to uterine myoma. Ovarian fibroma/fibrothecoma can also be mistaken as uterine myoma preoperatively [13]. Later, the patient had multiple recurrences for which tumorectomies were performed to remove the residual masses. Our patient is unique due to the clinical malignant course of this tumor. The aggressive behavior of

fibrothecoma is very rare. Based on WHO classification, fibrothecoma is considered as benign if they present <4 mitotic figures per 10 HPF. Whereas classical malignant fibrothecomas tend to show four or more mitotic figures per 10 HPF [10]. The incidence of mitotically active fibromas/ fibrothecomas range from 2%-10% [11]. Factors that contribute to the survival of patients with fibrothechoma are location, tumor size, involvement of adjacent organs, and tumor mitotic index [14]. Considering the difficulty of achieving tumor-free status, especially those with the involvement of other organs, a large residual tumor was found to be a negative prognostic factor of fibrothecoma.

Since the majority of fibrothecoma is benign and has a good prognosis, chemotherapy sessions are often not needed. Adjuvant chemotherapy should be reserved for advanced (stage II to IV) and recurrent Sex cord-stromal tumors (SCSTs) which are not completely resected with surgery. BEP (bleomycin, etoposide, cisplatin) regimen for 3 to 6 cycles (last 2 without bleomycin) or carboplatin/ paclitaxel is recommended for adjuvant postoperative chemotherapy and for patients with advanced stage or with recurrent SCSTs [15]. In our case, the patient had two series of chemotherapy with paclitaxel and carboplatin besides repeated tumor mass evacuation. However, the residual disease measuring more than 10 cm is still present. Our strategy was limited by the coverage of national health insurance which does not cover the use of BEP regiments. If the optimal treatment is not possible, palliative care is recommended to manage the disease.

CONCLUSION

A residual malignant ovarian fibrothecoma is a rare case. The optimal debulking surgery was not possible in our case, due to the severe adhesion of the tumor mass to the adjacent pelvic organs. In addition, the optimal chemotherapy strategy was not yet given to the patient. In this rare and selected case, we recommend close monitoring and palliative care to improve the patient's quality of life.

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