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Case Report

A rare case of postmenopausal severe virilization: Ovarian steroid cell tumor, not otherwise specified

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Abstract

The very small fraction (0.1%) of ovarian sex cord-stromal tumors are known as ovarian steroid cell tumors, not otherwise specified (OSCT-NOS). Such tumors have also classified in ovarian malign tumors. The known famous features of these rare tumors are the small size and hormone secretion. High levels of androgen secretion may cause hirsutism, hyperandrogenism symptoms and even virilization in woman. A 51-years-old postmenopozal multiparous woman was referred to our hospital with the complaint of severe virilisation and for further evaluation of high serum testosterone levels. Transvaginal sonography and MRI revealed slightly enlarged right ovary. Surgical removal of uterus and ovary was carried out. Histopathology showed a 1.5 cm occult OSCT-NOSin the stroma of the right ovary.The clinicians should keep in mind the possible diagnosis occult OSCTin case of high serum androgen levels and in the presence of severe virilization symptoms.

Key words:

Sex-cord stromal tumor, virilization, ovarian cancer, androgen.

Introduction

The very small fraction (0.1%) of ovarian sex cord-stromal tumors are known as ovarian steroid cell tumors, not otherwise specified (OSCT-NOS). Such tumors have also classified in ovarian malign tumors. The known famous features of these rare tumors are the small size and hormone secretion (progesterone, estrogen, androgen, adrenal cortical hormones, or adrenocorticotropic hormone). High levels of androgen secretion may cause hirsutism, hyperandrogenism symptoms and even virilization in woman. The small tumor size may make difficult to visualize the tumor preoperatively with imaging modalities[1]. The aim of this case report is to report a case of occult OSCT-NOSpresenting with the complaint of severe virilization in a postmenopozal woman.

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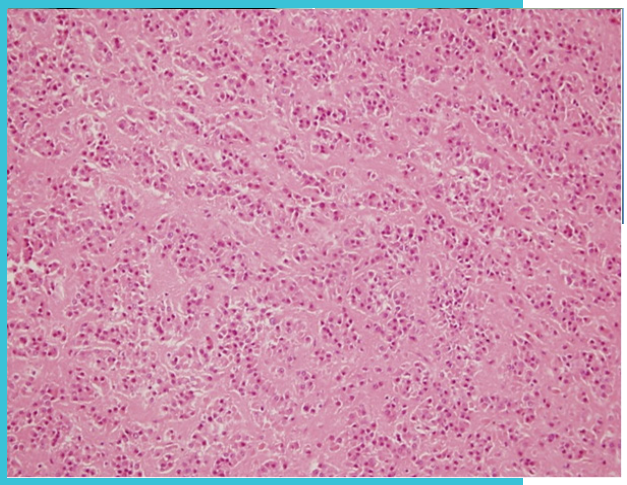
Case presentation

A 51-years-old postmenoposalmultiparous lady was referred to our hospital with the complain of severe virilisation and further evaluation of high serum testosterone levels. She had the history of progressive hirsutism for 8 years. Her medical history was unremarkable except hypertension for four years. She has been in menopause since 40 years of age. Physical and pelvic examination revealed virilization signs (high modified Ferriman Gallwey score (34 point), high clitorial index value, male pattern of the voice). Pelvic examination did not reveal any other ovarian and uterine pathology. Initial hormonal evaluation results are given in Table 1. Normal serum levels of ovarian tumor markers were reported. Sonographic scan of uterus, adrenal gland and other abdominal organs has not revealed significant findings. The ovary volumes were 4cc for the right ovary and 3.5 cc for left ovary. Magnetic resonance imaging (MRI) and computed tomography (CT) has also confirmed a slightly large right ovary and normal intraabdominal organs. These findings gave the idea

of possible ovary derived high androgen production. An exploratory laparotomy revealed normal uterus and ovaries. The only significant operative finding was slightly larger right ovary than that in left one. Other abdominal organs were normal in appearance. No ascites or peritoneal tumoral implant was observed. Total abdominal hysterectomy and bilateral salphingoopherectomy with surgical staging procedure was done. During operation, athrough frozen section evaluation was done and reported as no evidence of malignancy in ovary. Histopathology showed a 1.5 cm occult OSCT-NOS in the stroma of the right ovary(Figure 1). The light microscopic examination of ovary showed ovarian tumor cells having eosinophilic cytoplasm with fibrotic and hyalinized stroma. Strict evaluation of ovary has failed to revealrodshaped reinke crystals.All blood vessels in the stroma has also exhibited fibrinoid change. The other ovary was reported as microscopically normal. The pre-operative elevated serum total testosterone (0.37 ng/mL) and free testosterone (1.471 pg/mL) has significantly decreased following surgery. Postoperative six months following the surgery, the virilisation signs and symptoms has significantly got better.

Figure 1.



The light microscopic examination of ovary showed ovarian tumor cells having eosinophilic cytoplasm with fibrotic and hyalinized stroma. Strict evaluation of ovary were failed to reveal a rod shaped reinke crystals. All blood vessels in the stoma had also fibrinoid change.

Discussion

In this report, a case of severe virilization with high serum levels of free and total testosterone was reported. The clinical and laboratory evaluations has not revealed the exact cause of hyperandrogenism preoperatively. Postoperative pathologic examination of ovary found out the occult ovarian hilus cell tumor. Evaluation of women with severe virilization and high levels of serum androgen levels needs special attention. The most important goal of the evaluation is to identify the most serious causes of hyperandrogenism, including androgen-secreting tumors (ovarian or adrenal). Features that suggest a possible androgen-secreting tumor include; recent onset, short duration, signs and symptoms of severe hirsutism or virilisation [2]. Our case had the history of progressive hirsutism in 8 years, early menopausal age, signs of virilization and high serum androgen levels. These all findings may suggest the possible origin of tumor-derived hyperandrogenemia. Ovarian tumors that present with hyperandrogenism include leydig cell tumors, OSCT, OSCT-NOS and ovarian thecomas. These tumors are rare (accounting only 10% of all ovarian tumors). The very small fraction (0.1%) of ovarian sex cord-stromal tumors are OSCTs. These tumours may secretehigh amount of androgens (especially testosterone with or without estrogens)[2-4]. OSCT-NOSis usually diagnosed at older ages. In one study the mean age of diagnosis was reported as 47. All common presenting signs and symptoms were related to severe hirsutism and virilization. The patients present progressive virilization in a short time period. The only significant laboratory findings may be elevated testosterone, estradiol, and pro-renin. Imaging studies frequently may not reveal any tumor site in adrenal or ovary. Sometimes magnetic resonance imaging studies may show the small solid ovarian mass. Mostly steroid cell tumors are <4 cm in size[5].If the ovarian tumor focus can not be palpated in pelvic examination or cannot be visualized in imaging studies, the correct diagnosis of such tumors may not be carried out without surgery. Sometimes the diagnosis was only reached via microscopic examination of surgical specimen[5]. Our case report findings were also well correlated with literature findings. OSCT-NOS are also a rare type of ovarian stromal tumors. The management principles were also the same with other types of ovarian stromal tumors. The first step of treatment should include surgical exploration. In women with childbearing ages and apparently stage 1 tumor, surgical

removal of only affected ovary should be the treatment of choice. However, in women with older ages surgical removal uterus and the ovary with surgical staging should be carried out. Since the patients have high levels of preoperative androgen of hormone levels, follow-up should also include serum screening and measurement of hormone and androgens in all control visits.Advanced surgical stage and some microscopic features of ovarian tumor may necessitate post operative chemotherapy [5, 6]. Most tumors are benign and unilateral. Only malignancy was reported in 28.6-43% of cases. There are reported five macroscopic (high tumor size, ≥7 cm), and microscopic (high mitotic index, presence of necrosis, presence of hemorrhage, high nuclear atypia grade) [7]. In our case, the microscopic and macroscopic evaluation has failed to reveal any of these reported five features. In conclusion; the preoperative diagnosis of suchrare condition is not easy. In the presence of following clinical and laboratory findings; progressive hirsutism or virilization, postmenopozal age, short time history of symptomatology, negative imaging and laboratory findings for adrenal origin and very high level testosterone; ovarian steroid cell tumor should be kept in mind. Postmenopausal patients who exhibit suspicious ovarian tumor with only imaging findings of slightly enlarged ovary besides increased androgen hormone levels should be operated to discover the nature of the ovarian mass.

Table 1.

Hormone	Serum levels	Normal serum postmenopausal values
FSH	2.0 mIU/mL	(20-120)
LH	0.87 mIU/mL	(20-120)
Estradiol	30 pg/mL	(<20)
Prolactine	17 ng/mL	(2.74-19.64)
Testosterone	8.67 ng/mL	(0.1-0.75)
DHEA-SO_4	280 µg/dL	(35-430)
Cortisol	16.25 µg/dL	(10-80)
Progesterone	0.17 ng/mL	(<2)
Androstenedion	3.2 nmol/L	(2-10)
17-OH progesterone	0.847 ng/mL	(0.19-0.71)
TSH	0.72 µIU/mL	(0.34-5.6)
Free T4	0.77 ng/dL	(0.61-1.12)
Growth hormone	0.07 ng/mL	(<10)
Intact PTH	42.2 pg/mL	(12-69)
IGF-1	93.1 ng/mL	(<110)
Free testosterone	26.28 pg/mL	(0.29 – 1.73)

Initial serum hormone levels of the patient

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Conflicts of interest statement
The authors have no any other substantial contribution and financial disclosures to reports.

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