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Steroid cell tumor of the ovary associated with endometrial adenocarcinoma – a rare case report

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Summary

Endometrial carcinoma is the most common invasive neoplasm of the female genital tract and is associated to the elevated levels of unopposed estrogen, especially in postmenopause. Ovarian Steroid cell tumors are rare tumors and they are named according to the origin of cell. The most common cancer of the female genital tract is the endometrial adenocarcinoma and it accounts for 7% of all invasive cancers in women. In the present case report, the authors present a 59-year-old multiparous woman with a postmenopausal bleeding complaint and they discuss the case of ovarian steroid cell tumor associated with endometrioid adenocarcinoma of endometrium. Endometrial adenocarcinoma is the most common cancer of female genital tract and its contemporarity with an ovarian steroid cell tumor is extremely rare.

Key words: Steroid cell tumor; Ovary; Endometrium; Adenocarcinoma.

Introduction

Ovarian steroid cell tumors, also known as "lipid cell tumors", are rare neoplasms and account for less than 0.1% of all ovarian tumors [1]. It is a heterogeneous group of tumor arising from gonadal stromal origin and includes; stromal luteoma, Leydig cell tumor, and steroid cell tumor, not otherwise specified (NOS) [2]. Ovarian steroid cell tumor, NOS, is the most common subtype and mostly diagnosed by exclusion [3].

Endometrial carcinoma is the most common neoplasm of the female genital tract and it is strongly associated to the elevated levels of unopposed estrogen, especially in postmenapause [4].

In English-written literature, the present authors have found only a few cases of ovarian steroid cell tumor reported to be associated with endometrial carcinoma [5-7].

Herein the authors present a case of ovarian steroid cell tumor, NOS associated with endometrioid adenocarcinoma of endometrium.

Case Report

A 59-year-old multiparous woman suffering from postmenopausal bleeding was referred to the Department of Obstetrics and Gynecology of Goztepe Training and Research Hospital. Physical examination was normal; there was no virilisation and cliteromegali. Estradiol level was found as 41.36 pg/ml, slightly higher than normal for postmenopausal status (normal < 32 pg/ml), and follicle stimulating hormone (FSH) level was 32.25 IU/L (normal 23.9 - 119.1). Blood analysis showed normal hemogram, creatinine and liver enzyme levels. Beta human chorionic gonadotropin (hCG) level was normal (0.97 mIU/ml) and the tumor markers levels were within the normal range; CA-125: 13 IU/ml (normal 0-35 IU/ml), CA15-3: 7 IU/ml (normal 0 - 31), CA 19-9: 0.8 IU/ml (normal 0 - 35), carcinoembryonic antigen (CEA): 1.9 ng/ ml (normal 0 - 3), and alpha-fetoprotein (AFP): 2.96 ng/ml (normal 0 - 9).

Although ultrasounographic examination was suboptimal due to obesity (body mass index: (BMI) = 48), the sonography showed a highly echogenic ovary, 5,25 x 4.56 cm. and there were no ascites (Figure 1A). Clinical history of patient revealed that she was operated because of right ovarian mass 33 years prior. The pathological examination of that mass was done at another institution, but the authors could not found the pathology report.

Endometrial curettage was performed and the histopathological examination revealed endometrioid adenocarcinoma, FIGO Grade II. Therefore, the patient underwent an exploratory laparotomy; with total abdominal hysterectomy, and left unilateral salpingo-oophorectomy.

In gross examination, a fragile tumor, 1.5 x 1.5 x 1 cm. was seen in the uterine cavity. The tumor was limited to the upper half of the myometrium. A subserosal myoma, 10 x 7 x 6cm, was located on the left side of the uterus. The gross examination of left ovary, 5 x 3 x 1.9 cm, showed a yellow colored, ill-defined solid lesion, two cm in diameter, with focal hemorrhage and cystic spaces (Figure 1B). Left fallopian tube was normal. Lymph nodes and omental sampling were not performed.

Multiple samples of the ovary were examined and it was seen that the lesion consisted of two different groups of cells; the first group resembled adrenal cortical cells while the second group was composed of cells resembling Leydig cells. The adrenal cortical-like cells were round and had large, pale, and vacuolated cytoplasm. Their nuclei were vesicular with marked nucleoli. The Leydig-like cells were also round to polygonal and had abundant eosinophilic cytoplasm with centrally located nuclei (Figure 2A). Reinke crystalloids were not seen. Mitotic figures were too rare and the Ki67 proliferation index was determined as < 1%. No significant atypia and no necrosis were observed. The microscopic examination of the endometrial samples revealed endometrioid adenocarcinoma,

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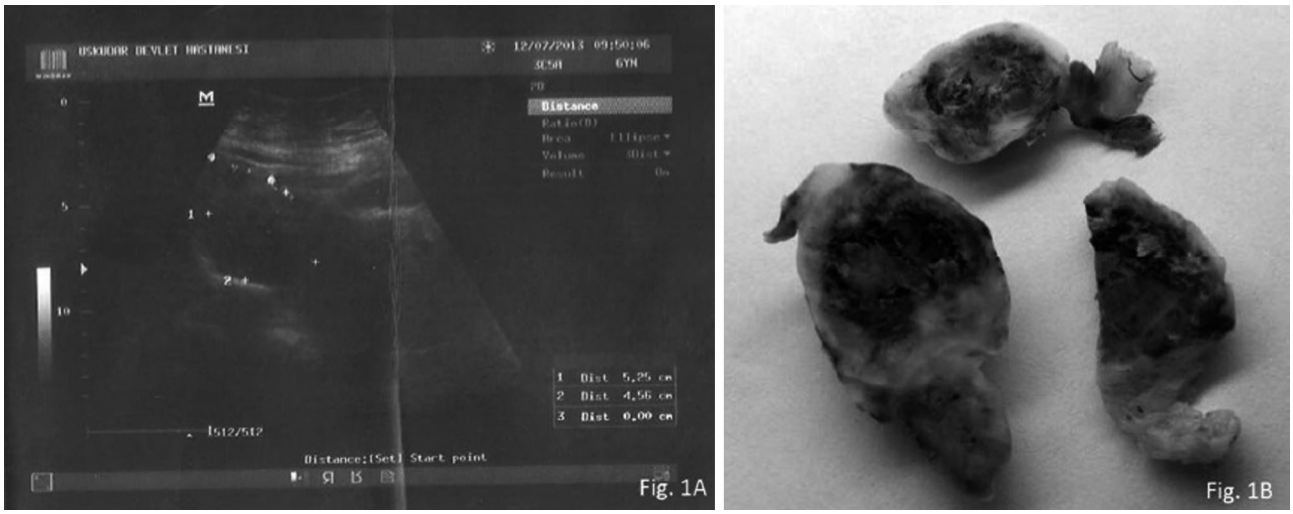

Figure 1. — A: Ultrasonography: highly echogenic ovary, 5.25 x 4.56 cm in diameter. B: The tumoral mass has a yellow-grey cut surface.

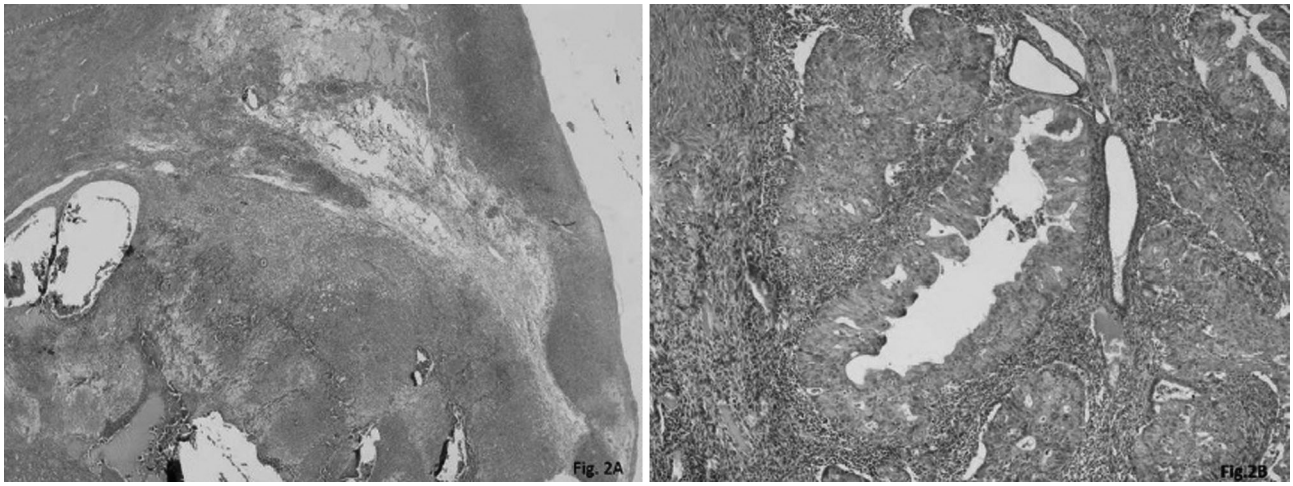

Figure 2. — A: Endometrioid adenocarcinoma in endometrium (H&E x20). B: Steroid cell tumor in ovarian stroma (H&E x20).

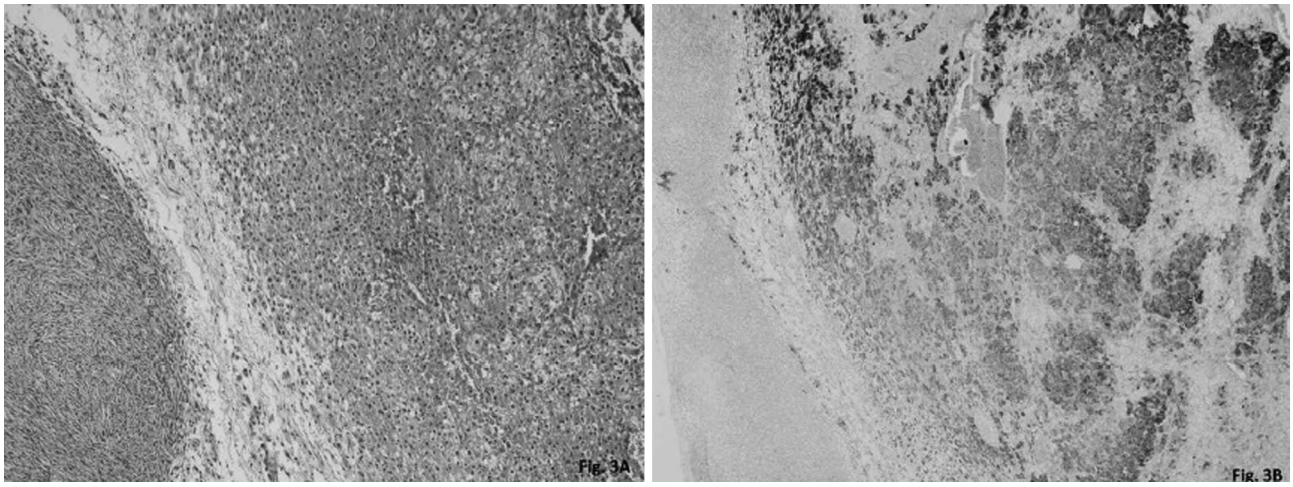

Figure 3. — A: Steroid cell tumor consisted of two different groups of cells: Leydig-like cells and adrenal cortical-like cells (H&E x10). B: Diffuse membranous positivity with inhibin immunostaining (x10).

FIGO Stage II, consisting of focal solid areas and glands with confluent pattern (Figure 2B). Immunohistochemically, the tumor cells reacted positive for inhibin (Figure 3), CD56, and calretinin, while they were negative for WT1 and estrogen. This lesion was diagnosed as a steroid cell tumor, NOS, because the absence of stromal hyperthecosis in surrounding stroma and Reinke crystalloids in tumor cells. The microscopic examination of endometrial samples revealed endometrioid adenocarcinoma, FIGO II, consisting focal solid areas and glands with confluent pattern (Figure 2). The tumor was limited to the upper half of the myometrium. Tubal metaplasia was observed in non-tumoral endometrium.

Discussion

Ovarian steroid cell tumors are rare tumors and classified as stromal luteoma, Leydig cell tumor, and steroid cell tumor, NOS [2, 8] and they are named according to the origin of cell: stromal luteoma, when originating from ovarian stroma, Leydig cell tumor, when originating from Leydig cell, steroid cell tumor, NOS, when the original lineage is unknown and when the tumor cannot be categorized as either Leydig cell tumor or stromal luteoma [3, 9]. Steroid cell tumor, NOS may cause virilization in one half of the cases, while estrogenic manifestation were seen in approximately 10% [8] The tumor cells are round to polygonal with eosinophilic or vacuolated cytoplasm and have a centrally located nucleus that may contain a prominent nucleolus. Lipofuscin pigment is present in 40% of cases. Crystals of Reinke are not identified. The stroma is typically sparse and consisted of delicate connective tissue containing a rich vascular network. [8]. Indicators of malignancy are size (> seven cm in diameter), hemorrhagic areas or necrosis, moderate-to-marked nuclear atypia, and at least two MFs /10 HPFs [10, 11].

The most common cancer of the female genital tract is the endometrial adenocarcinoma and it accounts for 7% of all invasive cancers in women, excluding skin cancer. The endometrial carcinoma is basically divided in two subtypes in terms of potential pathogenesis, endometrioid type, and non-endometrioid type. The endometrioid type typically occurs because of excess estrogenic stimulation, the process synthesizing estrogens from adrenal and ovarian precursors in body fats for postmenopausal women, ovarian dysfunction, and estrogen secreting tumors, and develops against a background of endometrial hyperplasia. Postmenopausal bleeding is the most common presentation of this disease. Obesity, diabetes, and hypertension are commonly seen in patients with endometrioid adenocarcinoma. The non-endometrioid type can occur as de novo [12]. The steroid cell tumors may exhibit occasional estrogenic effects and Huang and Holaday have described one case of steroid cell tumor associated with endometrial adenocarcinoma in 1970 [5].

In the present case, estradiol level was measured as 41.36 pg/ml, slightly higher than upper limit for postmenopause (normal < 32 pg/ml). She had no signs and symptoms except uterine bleeding and was diagnosed as endometrioid adenocarcinoma. It is known that the postmenopausal obesity is a risk of the endometrioid carcinoma in itself. Even though it is difficult to conclude a relationship between steroid cell tumor of ovary and endometrioid adenocarcinoma of endometrium, in the present case, the authors suggest that the increased production of hormones (androgen or estrogen) from steroid cell tumor, NOS, and from the adrenal and ovarian precursors may induce the uncontrolled endometrial cell proliferation and may result in endometrioid adenocarcinoma of endometrium.

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