Bilateral thecoma presenting as premenopausal hirsutism: Laproscopic removal

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ABSTRACT

Hyperandrogenism is a common disorder among women in the reproductive age group. One of the rare causes for androgen excess is sex cord- stromal tumors of the ovary. These are usually unilateral. Here we report case of a 48 year old woman who presented with hyperandrogenism due to bilateral ovarian thecoma. Androgen levels normalized following resection of the tumor. This, to the best of our knowledge, is the first case of bilateral thecoma presenting as hirsutism in a premenopausal woman.

Key words: Hirsutism, ovarian, testosterone, thecoma, virilizing tumors

INTRODUCTION

Hyperandrogenism is a common disorder among women in the reproductive age group. One of the rare causes for androgen excess is sex cord-stromal tumors of the ovary. These are usually unilateral. Here, we report case of a 48-year-old woman who presented with hyperandrogenism due to bilateral ovarian thecoma. Androgen levels normalized following resection of the tumor. This, to the best of our knowledge, is the first case of bilateral thecoma presenting as hirsutism in a premenopausal woman.

DESCRIPTION OF CASE

A 48-year-old woman presented with slowly progressive increase in terminal hair growth over the face for 8 years. She had regular periods, was married, had two children, last child birth was 30 years back. She did not experience any scalp hair loss, acne, voice change, galactorrhea, abdominal pain, abdominal distension, symptoms of raised intra-cranial tension and change in appetite or weight. There was no history of diabetes or hypothyroidism. Her hypertension was controlled on 5 mg of amlodipine.

Her weight, height and body mass index were respectively 95 kg, 163 cm and 35.15 kg/m². Physical examination revealed terminal coarse hair growth over lips and chin. Her Ferriman- Gallwey score was 8. She had acanthosis nigricans. There was mild temporal recession of hair. There was no clitoromegaly or hoarseness of voice. There was no goiter, galactorrhea or features of Cushing’s syndrome or acromegaly. Systemic examination was normal, no abdominal or pelvic mass was palpable.

Her hemogram, liver functions and renal functions were normal. Fasting and post-prandial blood glucose were 151 mg% and 205 mg% respectively. Her hormonal profile showed: Thyroid-stimulating hormone 4.2 (0.27-4.2 mIU/ml), luteinizing hormone (LH) 8.68 (2.4-12.6 mIU/ml), follicle stimulating hormone (FSH) 7.06 (3.5-12.5 mIU/ml), total testosterone 3.62 (0.029-0.408 ng/ml), Dehydroepiandrosterone (DHEAS)119.4 (60.9-337 µg/dl), prolactin 17.70 (6.0-29.9 ng/ml) and 8 am cortisol 10.39 (6.2-19.4 µg/dl). Over-night dexamethasone suppression and basal 17-OH progesterone was 1.19 µg/dl and 1.9 (0.2-1.72 ng/ml) respectively.
USG showed bilateral ovarian masses. Endometrial thickness was 6.8 mm. Magnetic resonance imaging (MRI) scan of the abdomen and pelvis showed normal adrenals with bilateral ovarian masses [Figure 1].

In the presence of normal DHEAS levels and normal appearing adrenals with bilateral solid mass lesions in both ovaries, virilizing ovarian tumor was considered. She underwent laparoscopic bilateral oophorectomy with hysterectomy. Her post-operative period was uneventful and her testosterone levels were normalized (0.161 ng/ml on 3rd post-operative day and 0.059 ng/ml a week later). LH and FSH levels also started rising post-operatively [Table 1]. Histopathological examination revealed bilateral thecoma with focal luteinization [Figure 2].

**DISCUSSION**

Androgen secreting tumors arise from ovaries or adrenals. Virilizing ovarian tumors constitute < 0.2% of cases of hyperandrogenism\(^1\) and <1% of all ovarian tumors.\(^2\)

Other rare ovarian causes of hyperandrogenism include gynandroblastoma, gonadoblastoma, ovarian carcinoid, surface epithelial tumors (Brenner tumor) and metastatic tumors.\(^3\) These tumors are rare representing only 10% of all ovarian tumors. Tumoral cause of hyperandrogenism is suspected when the serum testosterone levels are significantly elevated (>200 ng/ml), rapidly progressive symptoms of virilization or pelvic mass in examination/imaging. As mentioned earlier, symptoms and signs associated with hilar leydig cell tumor may present as slowly progressive hirsutism.\(^7,8\) When imaging does not identify ovarian or adrenal mass and the results of serum DHEAS are normal, then it is considered an indirect evidence of ovarian tumor if serum testosterone levels exceed 200 ng/dl. These ovarian tumors secrete significant levels of testosterone or its precursor, androstenedione.

Table 1: Serum testosterone, LH and FSH levels pre and post-surgery

|                   | Serum testosterone (0.029-0.408 ng/ml) | LH (2.4-12.6 mIU/ml) | FSH (3.5-12.5 mIU/ml) |
|-------------------|--------------------------------------|----------------------|----------------------|
| Pre-surgery       |                                        |                      |                      |
| Sample 1          | 3.62                                  | 8.68                 | 7.06                 |
| Sample 2          | 3.09                                  |                      |                      |
| Post-surgery      |                                        |                      |                      |
| Day 3 post-surgery| 0.103                                 | 4.79                 | 7.68                 |
| Day 10 post-surgery| 0.142                               | 16.29               | 32.22                |
| 3 months post-surgery | 0.272                             | 24.81               | 36.05                |

LH: Luteinizing hormone, FSH: Follicle stimulating hormone

**Figure 1:** T2 Weighted magnetic resonance imaging of pelvis showing bilateral ovarian masses, which are homogeneous and mildly hyperintense (arrows). There are no follicles seen in bilateral ovaries

**Figure 2:** Gross and microscopic picture: bilateral thecoma of ovary. Gross photograph shows uterus with cervix and bilateral ovaries. Cut surface of both the ovaries show greyish white area. (a) Photomicrograph shows plump spindle to ovoid stromal cells. (b) (H and E, x40) and (c) (H and E, x200). (d) Immunohistochemistry shows positivity for vimentin (H and E, x100). (e) Special stains show the presence of intra-cellular lipids (oil red O positive) (H and E, x200).
Both fibroma and thecoma of the ovary are classified under stromal tumors of the ovary. Thecomas are histologically composed of lipid containing cells that resemble theca interna cells. Fibromas are composed entirely of spindle, oval or round cells forming variable amounts of collagen. The differentiation between thecoma and fibroma is occasionally imprecise and the term fibrothecoma has often been used. These tumors generally occur in post-menopausal age group. However, some authors have reported another peak between 20 and 40 years of age. These tumors are unilateral in 95% of cases. The typical histological features consist of whorls of collagen, fibroblasts and theca cells. Rarely fibrothecomas present with endocrine manifestations related to hormonally active tumors. In a series of 24 cases of ovarian fibroma and fibrothecoma, no endocrine manifestations were reported.[9] Approximately, one half of the cases are estrogenic and 11% of cases are virilizing.[3,10] Thecomas are described in adolescents, young adults and older women and not in children. These tumors had presented as primary amenorrhea, secondary amenorrhea, hirsutism, menstrual irregularity or pressure effects. Ovarian thecoma with virilizing manifestations were reported in both post-menopausal and premenopausal age groups. Ovarian thecoma with concomitant post-menopausal bleeding, endometrial hyperplasia and endometrial carcinoma were reported in a post-menopausal woman. Hysterectomy may be performed with oophorectomy especially in premenopausal woman who don’t want to keep their uterus because patients with thecoma may have endometrial hyperplasia or endometrial carcinoma.

The treatment of choice for virilizing tumors of ovary and adrenals remains complete surgical excision. Further decision regarding chemotherapy should be individualized based on biopsy, metastatic spread and complete excision. Testosterone levels can be used as a marker of complete excision and for monitoring the subsequent course. Our patient had complete normalization of serum testosterone levels and this correlated with the rise in serum LH and FSH levels to a post-menopausal range. After complete removal and normalization of androgen levels, the clinical manifestations due to hyperandrogenism will take months to resolve. However, clitoral enlargement may last for 20 years. On follow-up, our patient did not have a recurrence of hyperandrogenic features.

**CONCLUSION**

To the best of our knowledge, this is the first case report of premenopausal hirsutism due to bilateral thecoma of ovaries. Transvaginal ultrasound and MRI aided in the pre-operative localization of tumor in both ovaries. Serum testosterone level normalized after bilateral oophorectomy. In contrast to other virilizing ovarian tumors, which present as rapidly progressive hirsutism, ovarian thecoma (like hilus cell tumors of ovary) can present as slowly progressive hirsutism.

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