Brief Communication

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.

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Quick Response Code:	Website: www.ijem.in
	DOI: 10.4103/2230-8210.123561

Her weight, height and body mass index were respectively 95 kg, 163 cm and 35.15 kg/m^2. 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.

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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]

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

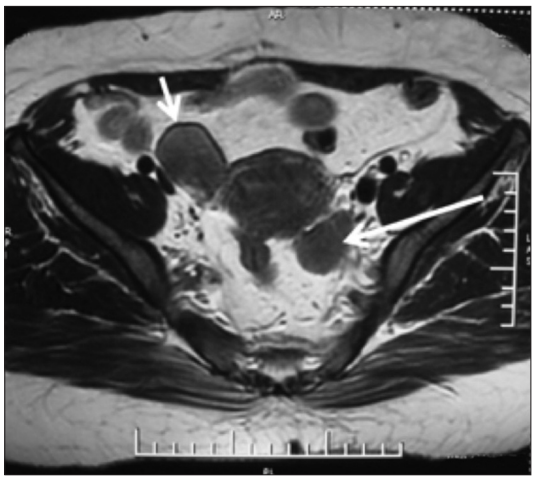

Figure 1: T2 Weighted magnetic resonance imaging of pelvis showing bilateral ovarian masses, which are homogeneous and mildly hyperintense (arrows). There are no follicles seen in bilateral ovaries

Androgen secreting tumors often present with rapidly progressive symptoms of hirsutism and virilization. There are some rare benign ovarian tumors where there is a slow progression and long duration of symptoms before the diagnosis is established. The histological classification of ovarian tumors by the World Health Organization is based on histogenetic principles with regard to their derivation from coelomic surface epithelial cells, germ cells, and mesenchyme (the stroma and the sex cord).[3] The sex cord-stromal and steroid cell tumors of the ovary are classified as sex cord-stromal cell tumor (granulosa and thecoma-fibroma), sertoli-stromal cell tumors, mixed or unclassified and steroid cell tumors.[4]

Ovarian tumors that present with hyperandrogenism include Leydig cell tumors, Sertoli cell tumors, steroid cell tumors-not otherwise specified and ovarian thecomas.[5] Other rare ovarian causes of hyperandrogenism include gynandroblastoma, gonadoblastoma, ovarian carcinoid, surface epithelial tumors (Brenner tumor) and metastatic tumors.[6] 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.

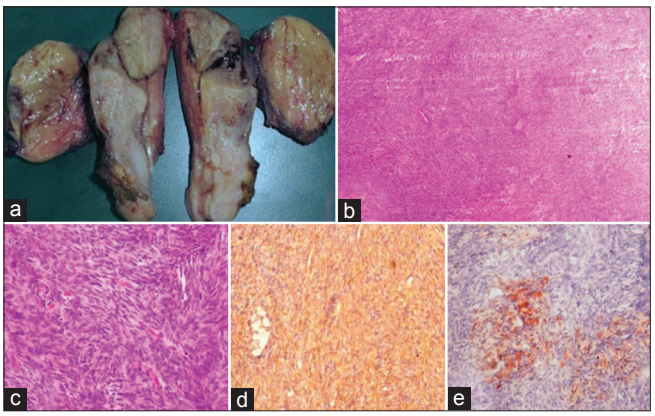

Figure 2: Gross and microscopic picture: bilateral thecoma of ovary. Gross photograph shows uterus with cervix and bilateral ovaries. Cut surface of both the ovaries show greyish white area. (a) Photomicrograph shows plump spindle to ovoid stromal cells. (b) (H and E, ×40) and (c) (H and E, ×200). (d) Immunohistochemistry shows positivity for vimentin (H and E, ×100). (e) Special stains show the presence of intra-cellular lipids (oil red O positive) (H and E, ×200)

Both fibroma and thecoma of the ovary are classified under stromal tumors of the ovary. Thecoma 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.

References

1. Carmina E, Rosato F, Jannì A, Rizzo M, Longo RA. Extensive clinical experience: Relative prevalence of different androgen excess disorders in 950 women referred because of clinical hyperandrogenism. J Clin Endocrinol Metab 2006;91:2-6.
2. Koonings PP, Campbell K, Mishell DR Jr, Grimes DA. Relative frequency of primary ovarian neoplasms: A 10-year review. Obstet Gynecol 1989;74:921-6.
3. Scully R, Sobin L. Histological typing of ovarian tumours. Vol. 9. New York: Springer Berlin; 1999.
4. Roth LM. Recent advances in the pathology and classification of ovarian sex cord-stromal tumors. Int J Gynecol Pathol 2006;25:199-215.
5. Morgan LS. Hormonally active gynecologic tumors. Semin Surg Oncol 1990;6:83-90.
6. Taylor NJ, Moore NR. In: Hay ID, Wass JA, editors. Clinical Endocrine Oncology. Malden: Wiley-Blackwell; 2008. p. 396-403.
7. Baramki TA, Leddy AL, Woodruff JD. Bilateral hilus cell tumors of the ovary. Obstet Gynecol 1983;62:128-31.
8. Baiocchi G, Manci N, Angeletti G, Celleno R, Fratini D, Gilardi G. Pure leydig cell tumour (hilus cell) of the ovary: A rare cause of virilization after menopause. Gynecol Obstet Invest 1997;44:141-4.
9. Chechia A, Attia L, Temime RB, Makhlouf T, Koubaa A. Incidence, clinical analysis, and management of ovarian fibromas and fibrothecomas. Am J Obstet Gynecol 2008;199:473e1-4.
10. Zhang J, Young RH, Arseneau J, Scully RE. Ovarian stromal tumors containing lutein or leydig cells (luteinized thecomas and stromal leydig cell tumors): A clinicopathological analysis of fifty cases. Int J Gynecol Pathol 1982;1:270-85.

Cite this article as: Ramkumar S, Jyotsna VP, Mallick S, Kachhawa G, Kandasamy D, Kriplani A, *et al*. Bilateral thecoma presenting as premenopausal hirsutism: Laproscopic removal. Indian J Endocr Metab 2013;17:S662-4.

Source of Support: Nil, **Conflict of Interest:** None declared.