Case Report

Hyperandrogenism in a Postmenopausal Woman Secondary to Testosterone Secreting Ovarian Stromal Tumor with Acoustic Schwannoma

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Androgen-secreting ovarian neoplasms are rare ovarian tumors that present with hirsutism and virilization which may manifest as severe alopecia, deepening of voice, and clitoromegaly. Most often, ovarian tumors are found to be very small or even undetectable. In such cases, bilateral salpingo-oophorectomy should be performed after ruling out other causes of high androgens. We present a 63-year-old postmenopausal woman with clinically and radiologically undetectable testosterone-secreting ovarian tumor, which was later on detected on biopsy.

1. Introduction

Hyperandrogenism refers to the condition in which excessive androgens are found circulating in the female body. Clinical manifestations of hyperandrogenism include hirsutism, alopecia, acne, virilization, and emotional distress [1]. Common causes of hyperandrogenism are polycystic ovary syndrome (PCOS), congenital adrenal hyperplasia (CAH), Cushing’s syndrome, and ovarian tumors [2]. At reproductive age, PCOS is considered the most frequent cause of high androgens in females [2]. Virilization significantly affects the quality of life, posing a management challenge [1]. In postmenopausal woman, the patients with hirsutism and signs of virilization are often associated with ovarian or adrenal tumors [3]. Androgen secreting neoplasms are rare ovarian tumors that account of 5% of all ovarian tumors [4]. Common androgen secreting ovarian tumors include Leydig cell neoplasm, stromal luteoma, Sertoli-Leydig cell tumor, and ovarian hyperthecosis [5]. Most often, these tumours present with virilization, raised testosterone level, and bilateral salpingo-oophorectomy being indicated after ruling out adrenal neoplasm [1]. We present a postmenopausal woman with testosterone secreting ovarian stromal tumor that was clinically and radiologically undetectable and was only confirmed by biopsy after bilateral salpingo-oophorectomy.

2. Case Presentation

A 63-year-old postmenopausal woman presented with deepening of voice, and increased hair growth on her face and lower abdomen over the past few months. She noticed thinning of her hair a few years ago. She was sexually active up until last year. She complained of decreased libido, disturbed sleep, back pain, right ear deafness and urge incontinence for years. She had a 36-year-old son and a 33-year-old daughter. She developed menopause one early 50s. Past history included hypertension, obstructive sleep apnea, tonsillitis, and tubal ligation. She had family history of chronic kidney disease, hypertension, malignant neoplasm of urinary bladder, malignant melanoma of skin, myelodysplastic syndrome, and sudden death. On clinical examination, blood pressure was 132/76 mmHg and heart rate was 64/m. She was anxious and overweight (BMI: 38.06) with enlarged thyroid gland, clitoromegaly, male pattern baldness (significant loss of scalp hair) and hirsutism. Laboratory reports showed normal urea (27 mg/dL) and creatinine (1.45 mg/dL), elevated testosterone...
Androgen-secreting ovarian tumors are a rare cause of elevated testosterone in postmenopausal women, accounting for 5% of all ovarian neoplasms. Most often, these tumors are too small to be detected clinically or imaging radiology as seen in our case. In our case, ultrasound scan, CT scan, and MRI imaging gave no clue to elevated testosterone. Consequently, the source of androgens in postmenopausal women was suspected.

3. Discussion

Androgen-secreting ovarian tumors are a rare cause of elevated testosterone in postmenopausal women, accounting for 5% of all ovarian neoplasms. Most often, these tumors are too small to be detected clinically or imaging radiology as seen in our case. In our case, ultrasound scan, CT scan, and MRI imaging gave no clue to elevated testosterone. It is important to distinguish the source of androgens in order to improve the classification, the understanding of androgen excess disorders, and subsequent management.

Later on, bilateral laparoscopic salpingo-oophorectomy and excisional biopsy revealed left stromal luteoma, bilateral stromal hyperthecosis and right paratubular cysts. Various case studies are available where ultrasound scan, CT scan, MRI imaging failed to detect androgen-producing ovarian tumors.

Therefore, detection, localization and removal of androgen-secreting tumors are of significant importance.

Ovarian hyperthecosis is a rare nonmalignant entity encountered in postmenopausal hyperandrogenism. Other ovarian tumors include steroid cell tumor, ovarian luteoma, and Leydig cell tumor. Hyperthecosis is a condition where ovarian stroma possesses nests of luteinized theca cells that produce large amounts of androgens. The characteristics of hyperthecosis include severe hyperandrogenism, insulin resistance, hirsutism, and virilization. Ovarian hyperthecosis is also associated with hyperestrogenism, hyperinsulinemia, and hyperlipidemia. In our case, elevated testosterone, hirsutism, virilization, prediabetes and hyperlipidemia favor ovarian hyperthecosis, which was confirmed on biopsy.

In conclusion, we describe a postmenopausal woman with an androgen-secreting ovarian tumor, which was not detected on USG, CT scan, and MRI imaging. Failure of imaging techniques led to the trial of leuprolide and bilateral laparoscopic salpingo-oophorectomy. This case study demonstrates the importance of investigation of elevated testosterone in a postmenopausal woman when there is no evidence of adrenal tumor.

4. Conclusion

We describe a postmenopausal woman with an androgen-secreting ovarian tumors with elevated testosterone levels which may be undetectable on clinical and radiological examination. In such cases, the patient should be thoroughly investigated ruling out all other causes of elevated androgens before undergoing bilateral salpingo-oophorectomy.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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