CASE REPORT

Hypothyroidism masquerading as Ovarian Malignancy: A Case Report

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Abstract

Background: Ovarian cysts are the most common indication for surgery. Some cysts are due to endocrine dysfunction and mostly do not require surgery.

Case description: We report a case of a 32-year-old female who presented with large ovarian masses and pituitary enlargement seen in association with hypothyroid. Initially, her radiological imaging and risk of malignancy index (RMI) were in favor of malignancy. On further workup of the patient, high thyroid stimulating hormone (TSH) and prolactin levels were found and she was planned for surgery after optimization. There was a dramatic symptomatic relief as well as a decrease in the size of the ovarian mass after four months of thyroxin supplementation.

Conclusion: In young patients presenting with bilateral multicystic ovarian masses, a thyroid function test is mandatory and if thyroid dysfunction is detected, it should be addressed before any surgical intervention.

Clinical significance: Hypothyroidism should be considered in differential diagnosis of female with multicystic ovarian mass.

Keywords: Galactorrhea, Hypothyroidism, Ovarian cyst, Pituitary hyperplasia, Risk of malignancy index 1.

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Introduction

Ovarian cysts are a common indication for gynecological surgeries. However, in the reproductive age group, ovarian cysts are mostly due to endocrine dysfunction and they resolve after the correction of the endocrine dysfunction without any surgical intervention. Hypothyroidism is the most common endocrine abnormality which may lead to multiorgan impairment.[1] The resulting hyperprolactinemia and increased gonadotropin levels may be attributed to the secondary pituitary enlargement caused by an overproduction of thyrotropin-releasing hormone (TRH) due to loss of thyroxin feedback inhibition in primary hypothyroidism. The structural similarities due to the common alpha chain among the anterior pituitary hormones are considered to be the reason for hormonal overlap in the pituitary feedback mechanism.[2] Only a handful of cases of ovarian cysts with hypothyroidism are reported. Failure to recognize hypothyroidism as an etiological factor of ovarian cyst may lead to unnecessary surgical intervention. Here, we report a case of hypothyroidism with large ovarian mass and pituitary hyperplasia which resolved on treatment with thyroid hormone replacement.

Case Description

A 32-year-old female was referred to us by the endocrinology department for the management of ovarian mass. The patient presented with secondary amenorrhea and galactorrhea for which she was evaluated and was found to have elevated TSH and prolactin. Her clinical examination revealed bilateral expressive multiductal galactorrhea and 15 cm × 10 cm cystic abdominopelvic mass. The thyroid gland examination showed no abnormality. Her mammogram revealed fibroadenoma in the right supero–lateral quadrant breast imaging reporting and data system-2 (BIRADS-2). Abdominal ultrasound detected bilateral multiloculated solid cystic mass measuring 9.2 cm × 4.6 cm and 10.3 cm × 6.8 cm in right and left adnexa, respectively, with the solid septal component showing low resistance flow suggestive of borderline ovarian tumor (Fig. 1). Similar findings were noted on the contrast-enhanced computed tomography (CECT) abdomen and pelvis with no extra-pelvic evidence of any tumor deposit (Fig. 2). Her biochemical investigation detected high TSH (TSH = 200 IU/mL), prolactin (330 ng/mL), follicle stimulating hormone (FSH) (34 IU/mL), and normal luteinizing hormone (LH) (6 IU/mL). Her tumor markers including CA-125 (95 IU/mL) and CEA (1.2 ng/mL) were normal with an RMI of 285. Magnetic resonance imaging (MRI) brain revealed 12 mm × 17 mm × 9 mm enlarged pituitary gland with non-visualization of posterior pituitary bright spot with normal infundibulum (Fig. 3).

Initially, she was planned for staging laparotomy after optimization of hypothyroidism and hyperprolactinemia. She was started on an oral tablet of thyroxin at a dose of 100 µg/day and cabergolin 0.25-mg twice weekly. She was on regular follow-up and there was a dramatic relief of her symptoms with decrease in the TSH and prolactin level. After four months, a significant reduction in the size of the ovarian cyst was seen in the ultrasonogram (USG) (4.2 cm in the left ovary and no cyst in the right ovary). All her symptoms resolved including galactorrhea and normalization of

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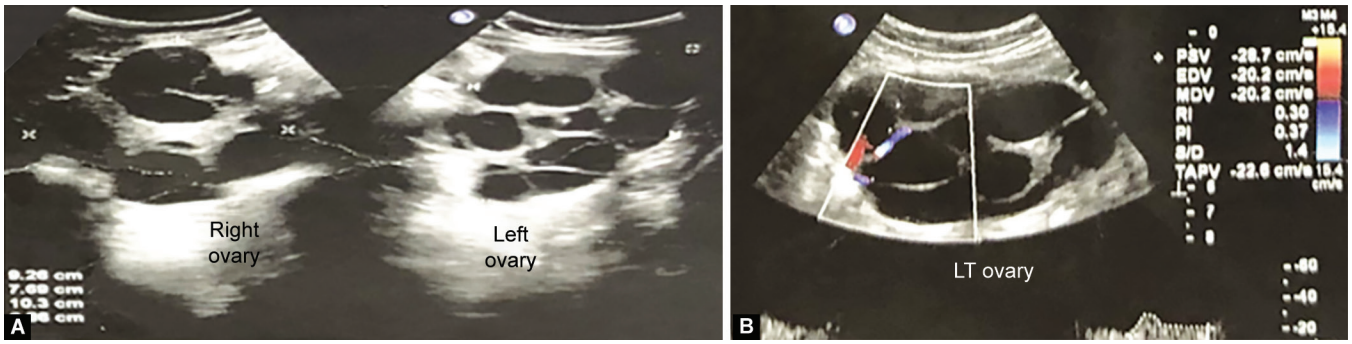

Figs 1A and B: (A) An USG image showing multiloculated ovarian cyst of 9.2 cm × 4.6 cm and 10.3 cm × 6.8 cm in right and left ovary, respectively, with septal thickness of 10 mm; (B) Doppler USG showing low resistance flow in the septa

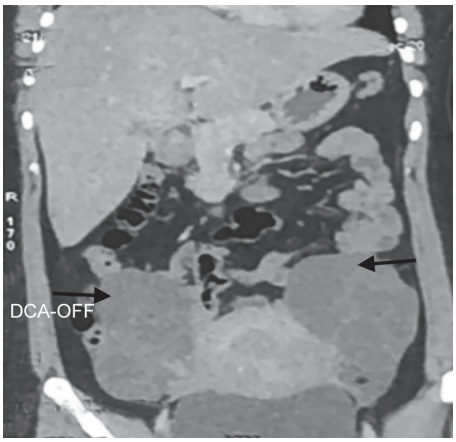

Fig. 2: Computed tomography image showing bilateral multiloculated ovarian cysts with no ascites (bilateral ovarian cysts shown by black arrows)

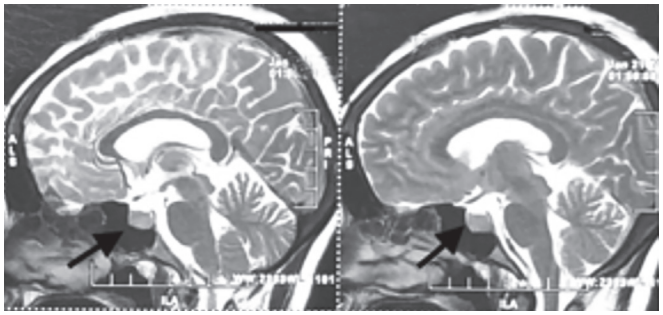

Fig. 3: Image of the T2 sagittal section showing increase in pituitary height (black arrows)

TSH (3.11 µIU/mL) and prolactin level (0.5 ng/mL). She also resumed a normal menstrual cycle.

Discussion

Ovarian masses are the most common indication for gynecological surgeries. It is the risk of malignancy that propels us to early diagnosis and aggressive treatment to decrease the risk of metastasis. At the same time, over-treatment of benign ovarian masses should be avoided.

In the reproductive age group, ovarian cysts are commonly due to hormonal imbalance and resolve with the correction of the endocrine dysfunction. Few case reports have highlighted the association of ovarian cyst with hypothyroidism.[1,3] Although the mechanism is uncertain, there are few convincing hypotheses reported in the literature. Due to the common alpha-chain of TSH, FSH, and LH, high-TSH level leads to luteinization of the ovarian cyst.[3] On review of the literature, we found one case report of a patient with subclinical hypothyroid associated with hyperprolactinemia that normalized with levothyroxine therapy. Hyperprolactinemia is due to the compensatory increase in TRH resulting from low thyroxin level.[4] Our patient had bilateral ovarian masses with galactorrhea and pituitary hyperplasia which got resolved after the treatment for hypothyroidism with thyroxin substitution.

Initial radiological imaging and RMI were in favor of malignant ovarian mass. Hypothyroidism and other endocrine disorders should be considered in the differential diagnosis of reproductive age group patients presenting with a multiloculated ovarian mass. In such cases, surgery is required only when there is ovarian torsion, hemorrhage or rupture.

Conclusion

Our case was reported to create awareness that not all ovarian cysts need surgical intervention. Systematic preoperative evaluation can avoid unnecessary surgical intervention. Hypothyroidism should be considered in the differential diagnosis of multicystic ovarian mass to avoid unnecessary surgery.

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