

CASE REPORT



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“A MASSIVE OVARIAN CYST MASQUERADING AS MALIGNANCY IN UNRECOGNISED PRIMARY HYPOTHYROIDISM”

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Abstract

We report here probably a huge ovarian cyst of size 7.9x16.4x23 cms which regressed on thyroxine therapy with severe autoimmune primary hypothyroidism in a young woman. It is necessary to consider hypothyroidism and other endocrine disorders in the differential diagnosis of adult patients with ovarian multiple cyst formation in order to prevent inadvertent ovarian surgery.

Key Words: Ovarian cysts. Juvenile primary hypothyroidism, Oligomenorrhea

Introduction

Ovarian cysts are a common cause for gynaecological surgery. However, some ovarian cysts arise due to endocrine disorders and hence studies have shown that they do not require any surgical intervention. Primary hypothyroidism is a common endocrine abnormality resulting from thyroid hormone deficiency that in turn may lead to multiple-system impairment. Occasionally, concomitant ovarian cyst formation is reported as Van Wyk and Grumbach syndrome (VWGS) in juvenile primary hypothyroidism¹.

Case Report

A 17 year old female presented with history of vomiting with pain abdomen. Her age of menarche was 15 years and had irregular menstrual period since then. She gave history of poor scholastic per-

formance. On examination her height was 137 cm (< 3rd percentile), weight 42 kg, BMI 32.4 kg/m². She had puffiness of face, looked pale and lethargic. Sexual maturity score was B4P2 and absence of axillary hair. There was no goitre. Abdomen was distended with large supra pubic palpable mass up to umbilicus.

The laboratory investigation showed microcytic hypochromic anaemia with normal liver and renal function test. Her thyroid profile showed markedly low T3 (41 ng/dl) (70-210 ng/dL), low T4 3.5 mcg/dl (4.2-12mcg/dL) and free T4 0.42 ng/dl (0.8-1.8 ng/dL) and with very high TSH >100 IU/ml (0.55-4.2 IU/ml). Her TPO antibody was positive and was suggestive of severe autoimmune primary hypothyroidism. LH (0.1 IU/ml) was low with normal FSH. Prolactin was high (100.4 ng/ml).

MRI pelvis was performed to characterise the mass which revealed large cystic lesion of size 7.9x16.4x23 cms with numerous septae arising from right ovary extending to abdominal cavity as shown in Figure 1

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Figure 1: MRI pelvis showing the large ovarian cyst

. Uterus size was normal with thickened endometrium of 16.8 mm. The serum level of CA 125 was normal. Thyroid ultrasound mildly enlarged thyroid lobes with coarse echo texture. X ray hand revealed bone age of 13 years. In view of severe primary hypothyroidism conservative management was planned instead of undergoing for surgical resection and she was initiated on thyroxine replacement therapy. The patient responded well to conservative management, and a significant regression in the size of the cystic lesion was observed at the end of the 6-month follow-up, and complete resolution was observed after 12 months without any need for surgical intervention as shown in Ultrasound abdomen in Figure 2.



Figure 2: Ultrasound abdomen showing complete resolution of ovarian cyst

Discussion

Ovarian function, i.e. production of steroid hormones and ova, is subject to regulation by endocrine factors derived from the brain. This brain–gonadal axis is the core unit for the maintenance of endocrine balance and fertility. Hypothyroidism may cause reproductive disorders as well. Occasionally, concomitant ovarian cyst formation is reported as the Van Wyk and Grumbach syndrome¹ in juvenile primary hypothyroidism. It is less commonly seen in adults. Failure to recognize hypothyroidism as aetiology of ovarian cysts could lead to inadvertent oophorectomy.

Hypothyroidism is another endocrine disorder associated with ovarian hyperstimulation, yet it is often ignored during its evaluation. Spontaneous OHSS cases have been reported in pregnant women with hypothyroidism². Van Wyk & Grumbach were first to describe the combination of multicystic ovaries, juvenile hypothyroidism and precocious puberty in 1960, sporadic cases of this syndrome have been reported in prepubertal and adolescent girls³.

The association of multicystic ovarian disease with hypothyroidism has been described in the literature⁴⁻⁶. Various mechanisms have been postulated, which include altered oestrogen metabolism, hypothalamic–pituitary dysfunction and deranged prolactin metabolism. According to Anastiet al⁽⁷⁾, ovarian enlargement in severe hypothyroidism is probably due to the stimulation of FSHRs by unusually high TSH levels proven to have a weak FSH-like activity. It has been shown that TSH could interact directly with the FSHRs to elicit gonadal stimulation, because TSH has a small FSH- and luteinizing hormone (LH)-like effect.

We report here probably a huge ovarian cyst of size 7.9x16.4x23 cms which regressed on thyroxine therapy. Moreover the thickened endometrium in our patient was probably due to excessive amounts of TSH with amplification of FSH action and release by low LH thus leading to dysfunctional uterine bleeding and anaemia. The FSHR is expressed during the luteal phase in the secretory endometrium of the uterus. Marked clinical improvement was observed in the patient as menstrual cycles became regular, anaemia got corrected and abdominal pain

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got relieved. The regression of the ovarian cyst was observed following administration of thyroid hormone.

List of Abbreviations:

VWGS: Van Wyk and Grumbach syndrome

BMI: Body Mass Index

LH: Luteinizing Hormone

FSH: follicle stimulating hormone

TSH: Thyroid stimulating hormone

TPO: Thyroid peroxidase

Ethics approval and consent to participate

The study was conducted after the ethical approval from Institutional Review Committee, Sarji Research Centre, Sarji Hospital, Shivamogga, Karnataka, India. Participants were explained about the research detail, its significance, the benefit and harm in local language before obtaining the consent, their queries were answered. A statement indicating that the participants has understood all the information in the consent form and is willing to participate voluntarily was obtained. Participants were able to withdraw from the study at any time without giving any reason during the study period. The confidentiality of participants was assured and code number was used in each interview schedule and name of the participants was not mentioned anywhere.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

SSS conceptualized, collected data, analyzed and wrote the manuscript. PKD, DSR and SG supervised and guided throughout the study from the beginning of the study and critically reviewed the manuscript. All authors read and approved the final manuscript.

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References

1. Van Wyk JJ & Grumbach MM 1960 Syndrome of precocious menstruation and galactorrhea in juvenile hypothyroidism: an example of hormonal overlap in pituitary feedback. *Journal of Pediatrics* 57 20.
2. Cardoso CG, Graca LM, Dias T, Clode N, Soares L: Spontaneous ovarian hyperstimulation and primary hypothyroidism with a naturally conceived pregnancy. *ObstetGynecol* 1999, 93(5 Pt 2):809-811.
3. Panico A, Lupoli GA, Fonderico F, Colarusso S, Marciello F, Poggiano MR, Del Prete M, Magliulo R, Iervolino P, Lupoli G: Multiple ovarian cysts in a young girl with severe hypothyroidism. *Thyroid* 2007, 17(12):1289-1293.
4. Hansen KA, Tho SP, Hanly M, Moretuzzo RW & McDonough PG 1997 Massive ovarian enlargement in primary hypothyroidism. *Fertility and Sterility* 67 169-171.
5. Evers JL & Rolland R 1981 Primary hypothyroidism and ovarian activity: evidence for overlap in the synthesis of pituitary glycoproteins – a case report. *BJOG: an International Journal of Obstetrics and Gynaecology* 88 195-202.
6. Merchline M, Riddlesberger MM, Jerald PK & Richard WM 1981 The association of juvenile hypothyroidism and cystic ovaries. *Radiology* 139 77-80.
7. Anasti JN, Flack MR, Froehlich J, Nelson LM & Nisula BC 1995 A potential novel mechanism for precocious puberty in juvenile hypothyroidism. *Journal of Clinical Endocrinology and Metabolism* 80 276-279.