

CASE REPORT

Vanishing Giant Ovarian Cyst in an Adolescent Girl: A Case Report

Dhanya Shanmuga Priya R

Received on: 02 April 2022; Accepted on: 08 May 2022; Published on: 11 May 2023

ABSTRACT

Aim: Ovarian cysts can be due to various etiologies and not all ovarian cysts need surgical removal.

Background: Ovarian cysts can be functional to neoplastic varying from as small as 3 cm to a full-term gravid uterus. They remain asymptomatic but present later as acute abdomen requiring emergency surgical intervention. However, ovarian cysts can also be due to an endocrine disorder requiring prompt diagnosis and treatment avoiding inadvertent surgery.

Case description: This is a case report of a 13-year-old obese adolescent girl who presented with a 30-weeks palpable abdominopelvic mass. Ultrasound abdomen (USG abdomen) and pelvis revealed a large abdominopelvic multiloculated cystic lesion of size 21 cm × 15 cm × 15 cm. Elective laparotomy was planned. The investigations revealed alarmingly high thyroid stimulating hormone (TSH) values. Endocrinologist opinion was sought and juvenile hypothyroidism was diagnosed and treated with T. Levothyroxine. Surgery was withheld as the patient condition improved. Ultrasound pelvis (USG pelvis) (after 3 months) showed significant size regression to 5 cm × 3 cm, bilateral polycystic ovaries requiring nil surgical intervention.

Conclusion: Hypothyroidism should be considered in the differential diagnosis of adolescent females presenting with multicystic ovarian tumors. Adequate thyroid hormone replacement therapy can prevent these patients from undergoing unnecessary and catastrophic ovarian resection. Surgical excision should be considered only when adequate thyroid replacement therapy fails to resolve ovarian enlargement or in emergency cases such as ovarian torsion and rupture.

Keywords: Acute abdomen, Endocrine, Hypothyroidism, Ovarian cyst.

Journal of South Asian Federation of Obstetrics and Gynaecology (2023): 10.5005/jp-journals-10006-2089

INTRODUCTION

Ovarian cysts can be functional to neoplastic varying from few centimeters to a term gravid uterus size. They remain asymptomatic but present later as acute abdomen requiring emergency surgical intervention. However, formation of ovarian cysts can also be due to an endocrine disorder. requiring prompt diagnosis and treatment avoiding inadvertent surgery.

CASE DESCRIPTION

A 13-year-old adolescent girl presented with complaints of severe abdominal pain for 1 day. She also had history of weight gain for 2 months. She attained menarche at 11 years with history of irregular cycles since then. Her last menstrual period (LMP) was 3 months ago.

Examination

She was lethargic; height, 145 cm; weight, 63 kg; body mass index (BMI), 29.96 (overweight); she appeared pale with coarse dry skin; and had acanthosis nigricans; her secondary sexual characters as per Tanner's staging of breast and pubic hair development were B4 P4, BP-100/70 mm Hg, PR-120/min. On abdominal examination, a 30-weeks vague cystic mass was palpable with diffuse lower abdominal tenderness. Pelvic ultrasound (USG pelvis) revealed a large multiple cystic mass of size 19 cm × 10 cm arising from the right ovary with minimal ascites. Computed tomography (CT) abdomen and pelvis showed a well-defined large heterogeneous abdominopelvic multiloculated cystic lesion of size 21 cm × 15 cm × 15 cm with thin septations and mild ascites suggesting the possibility of benign ovarian cyst/mucinous neoplasm (Fig. 1).

Department of Obstetrics and Gynaecology, ESIC Medical College and PGIMSR, Chennai, Tamil Nadu, India

Corresponding Author: Dhanya Shanmuga Priya R, Department of Obstetrics and Gynaecology, ESIC Medical College and PGIMSR, Chennai, Tamil Nadu, India; Phone: +91 9840944608, e-mail: dr.dhanyarajendran@gmail.com

How to cite this article: Dhanya S. Vanishing Giant Ovarian Cyst in an Adolescent Girl: A Case Report. *J South Asian Feder Obst Gynae* 2023;15(2):248–250.

Source of support: Nil

Conflict of interest: None

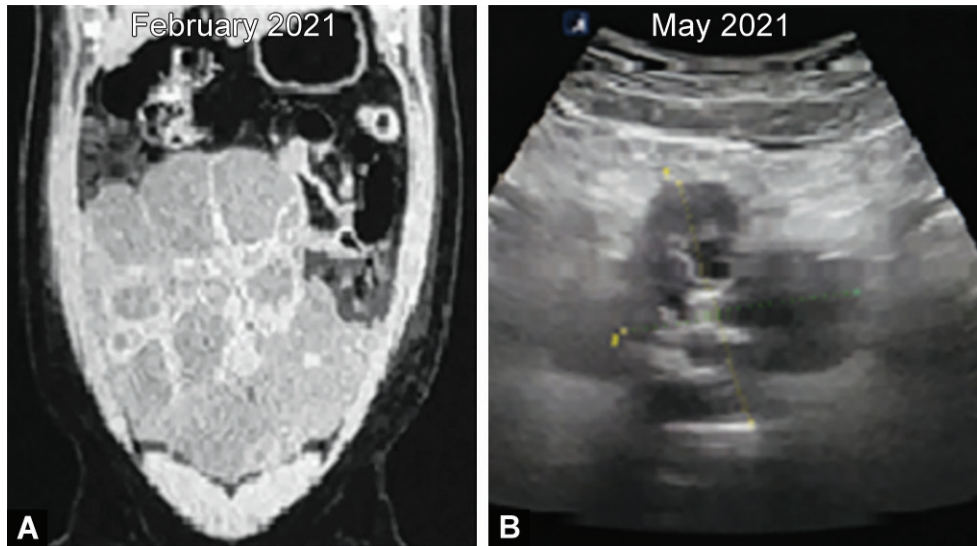
In view of the large ovarian cyst with the suspicion of torsion or rupture of the ovarian cyst, the patient was advised to undergo laparotomy and on pre-anesthetic evaluation, we found grossly elevated thyroid stimulating hormone (TSH) value (Table 1). Other blood investigations:

Serum CA, 125–34; AFP, 2.05; serum beta HCG, 0.15; LDH, 190.

S. Prolactin, 12; Hb, 7.5 g/dL; FBS, 92 mg/dL; PPBS, 120 mg/dL, HbA1c, 5.

Treatment

Endocrinologist opinion was sought for the grossly elevated TSH level, TPO antibody, TG antibody levels, and juvenile primary hypothyroidism due to autoimmune thyroiditis was diagnosed and started on T. Levothyroxine 100 mcg/day and oral iron 250 mg/day. Abdominal pain subsided gradually and her vitals settled after starting on intravenous antibiotics and analgesics. Surgery was withheld.



Figs 1A and B: Changes before and after treatment

Table 1: Investigations

Hormone	Value	Range
S. TSH	1,163 mIU/L	0.3–5.5
FT4	0.3 ng/dL	0.5–1.1
TPO Ab	>905 IU/mL	Up to 9
TG Ab	672 IU/mL	Up to 4
FSH	29.06 mIU/mL	Up to 15
LH	0.30 mIU/mL	2–10
Estradiol	90 pg/mL	97–592

FT4, free thyroxine; TPO Ab, thyroid peroxidase antibody; TG Ab, thyroglobulin antibody; FSH, follicle-stimulating hormone; LH, luteinizing hormone

Follow-up

Her serial monitoring of TSH levels were 1,163, 840, 350, 9, and 1.4 mIU/L during the month of February, March, May, and June 2021, respectively, when on thyroxine therapy.

Outcome

The child became active, lost 10 kg, hemoglobin improved to 10.8 g%, abdominal mass was not palpable, and USG pelvis performed after 3 months revealed a bilateral polycystic ovaries of size 5 cm × 3 cm (Fig. 1). 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 third month follow-up without any need for surgical intervention.

DISCUSSION

Autoimmune thyroiditis (Hashimoto’s thyroiditis) is due to genetic and environmental factors. It occurs more commonly in women. It is seen with increasing age, however occurs in adolescents also. Autoimmune thyroiditis produces cytotoxic auto antibodies against thyroid peroxidase and thyroglobulin that decrease thyroxine levels in the body. Due to negative feedback, decreased thyroxine levels cause an increase in the TSH levels.¹

- Extremely high levels of TSH have a weak follicle-stimulating hormone (FSH) activity that has cross-reacted on FSH receptor a phenomenon called “specificity spillover” due to its structural similarity with FSH,^{2,3} stimulating ovarian follicles causing multicystic ovaries.
- Thyroxine therapy over a period of time has decreased TSH, causing decrease in FSH and ovarian cyst size regression. Decrease in TSH level hence proved a strong clinical association between hypothyroidism and multicystic ovaries.⁴
- The most common cause of primary hypothyroidism in children is Hashimoto’s thyroiditis.¹ Differential diagnoses include Van Wyk and Grumbach syndrome, ovarian hyperstimulation syndrome (OHSS), mutations of the FSH receptor (*FSHR*) gene, Ectopic gonadotropin adenoma secreting FSH.⁴
- The time course of regression of multicystic ovaries after optimal levothyroxine therapy varies between 3 and 6 months in most case studies.²

Our patient was having long-standing hypothyroidism that was undetected until the ovarian cyst grew to a large abdominal mass that caused distension and pain with very high serum TSH levels. It is also very rare to come across untreated patients with such high TSH levels. There was a remarkable reduction in the ovarian size after 4 months of thyroxine therapy. This case also highlights that such patients should be treated as early as possible to avoid complications.

CONCLUSION

- To any adolescent girl presenting with multicystic ovaries, hypothyroidism should be considered as a differential diagnosis.
- If hypothyroidism is diagnosed, thyroxine therapy should be given to look for ovarian cyst regression before planning on a surgical excision.
- Needless surgery can be avoided in a young female.
- Surgical excision should be considered only when adequate thyroxine therapy fails to resolve ovarian enlargement or in emergency cases such as ovarian torsion and rupture.

ORCID

Dhanya Shanmuga Priya R  <https://orcid.org/0000-0003-1512-2644>

REFERENCES

1. Paknys G, Kondrotas AJ, Kevelaitis E. Risk factors and pathogenesis of Hashimoto's thyroiditis. *Medicina (Kaunas)*. 2009;45(7):574–583. Lithuanian. PMID: 19667753.
2. Bhansali A, Shanmugasundar G, Walia R, et al. Acute abdomen and hypothyroidism. *BMJ Case Rep* 2009;2009:bcr12.2008.1356. DOI:10.1136/bcr.12.2008.1356.
3. Yoshimura M, Hershman JM. Thyrotropic action of human chorionic gonadotropin. *Thyroid*. 1995;5(5):425–434. DOI: 10.1089/thy.1995.5.425. PMID: 8563483.
4. Dharmshaktu P, Kutiyal A, Dhanwal D. Vanishing large ovarian cyst with thyroxine therapy. *Endocrinol Diabetes Metab Case Rep* 2013;2013:130050. DOI:10.1530/EDM-13-0050.