



Recurring Acute Abdomen, Ovarian Cyst and Hypothyroidism

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Abstract

Spontaneous ovarian hyperstimulation, large ovarian cyst and multicystic ovaries associated with primary hypothyroidism is infrequently reported and not widely recognized in gynaecologic literature. We report a case of a 15 year old girl who had an acute abdomen and emergency laparotomy revealed bilaterally enlarged ovaries, a large ovarian cyst with torsion in the right ovary and ascites. Thus right adnexa was removed. At that time thyroid dysfunction was neither suspected nor investigated. Five years later patient again developed acute abdomen with a large cyst in the remaining left ovary. Thyroid evaluation at this point of time indicated profound hypothyroidism. Treatment with thyroxin resulted in marked clinical improvement and resolution of the ovarian cyst thus highlighting the significance of assessing thyroid function tests in young girls with above clinical profile. Surgery is indicated if there is a complication or failure to medical treatment. We conclude that severe hypothyroidism was probably responsible for various ovarian disorders that might have resulted from the effects of an excess amount of TSH on immature ovaries.

Key words

Hypothyroidism, ovarian cyst, multicystic ovary, ovarian hyperstimulation syndrome.

Introduction

Massive ovarian enlargement, multicystic ovaries, polycystic ovarian syndrome (PCOS), spontaneous ovarian hyperstimulation syndrome have all been linked to hypothyroidism(1-4). Pallotti *et al* observed a close relationship between insulin secretion, and thyroid and ovarian function in patients suffering from polycystic ovary (5). It has recently been shown that TSH could interact directly with the FSH receptors to elicit gonadal stimulation because TSH has a small FSH and LH like effect (6). Rotmensch and Scommegna have suggested that thyroid stimulating hormone (TSH) could serve as a facilitating factor in the development of ovarian follicular cysts(4).

We have not come across a single case of recurring acute abdomen, recurring large ovarian cyst, multicystic ovaries and dysfunctional uterine bleeding associated with hypothyroidism. To create a high index of suspicion and early diagnosis of hypothyroidism in young girls with ovarian masses we report an interesting case of occult

hypothyroidism presenting with the above clinical features.

Case report

A 20-year-old female patient presented with severe abdominal pain off and on for one week and she had an ultrasound report indicating that left ovary was enlarged, multicystic with a cyst of 9X5 cms. Endometrium was thickened (14mm) and right ovary could not be seen. Her gynaec surgeon advised emergency laparoscopy/ laparotomy. Being young and unmarried with one ovary she and her family member came to our center seeking for an alternative management. Her menstrual history revealed that she had menarche at the age of 15 years and she was having irregular and heavy menstrual cycles since then. Her past surgical history revealed that at 15 years of age she had an acute abdominal pain and emergency laparotomy was performed which revealed bilaterally enlarged multicystic ovaries with a large cyst of 12.5X

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10.5 cm with torsion in the right ovary and ascites. Right ovary and fallopian tube were removed. A histopathologic diagnosis of hemorrhagic infarction of the right adenexa was suggested and at this point of time her thyroid tests were neither suggested nor performed.

Physical examination at our center revealed that she was thin built, 152.0 cm high, weighing 48 kg, temp 36.5° C, pulse rate 80/mm and BP 90/60 mmHg. She had puffiness of the eyelids, obvious pallor and skin was dry. Thyroid gland was not palpable and there was no galactorrhea. She did not have non-pitting edema in her lower limbs. Pubic and axillary hair and external genitalia were normal. Breasts were Tanner stage IV. Neurologically, the ankle jerks were normal.

Laboratory workup revealed an unusually high TSH value (397.474 uIU/mL) (Table 1). A diagnosis of profound hypothyroidism with anemia was made. She was started on Levothyroxin 100µgm daily along with hematinics. On follow up after one month, there was remarkable improvement in levels of hemoglobin with a decline in TSH value. Spontaneous regression of the ovarian cyst was observed and abdominal pain got relieved. After 3 months, her TSH levels became close to normal and periods became regular (Table I).

Fig a

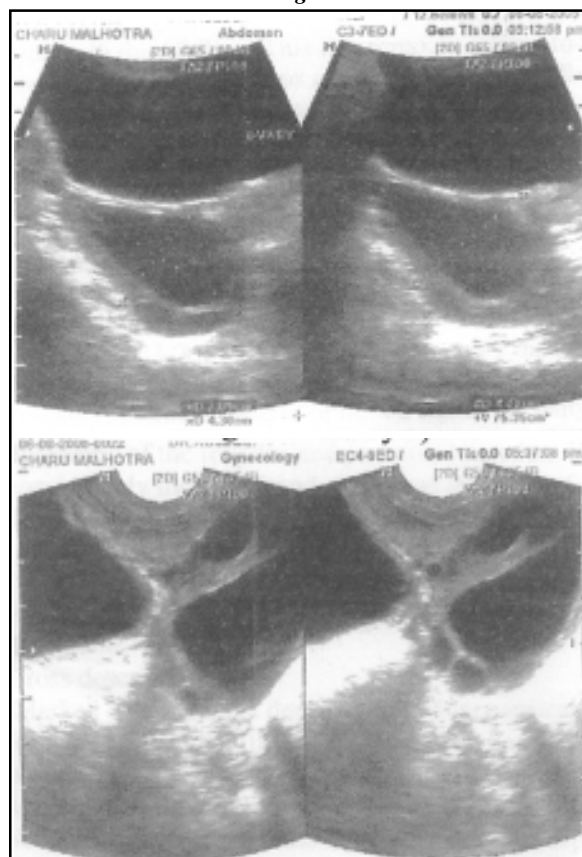


Fig 1 :USG picture showing a large cyst with multiple small follicles at the periphery.

Table I Laboratory Data before and after Thyroid & Iron therapy

Test	Patient's Range	After 1 month	After 3 months	Reference Range
FT3	1.49 pg/mL			2.30-4.20 pg/mL
FT4	0.34 ng/dL			0.89 -1.80 ng/dL
TSH	397.474 uIU/mL	30.717 uIU /mL	6.381uIU/mL	0.350-5.500 uIU/mL
Hb	6.70 g/dL	8.70 g/dL	13.00 g/dL	11.50-15.30 g/dL
PCV	26.90 %	33.70%	40.50%	36.00-45.00 %
Platelet Count	325.00 thou/mm3	351.00 thou/mm3	272.00thou/mm3	150.00-450.00 thou/mm3
Ovarian Tumour Markers				
CEA, CA 125, CA 19.9	-ve			
LFT,KFT, Prolactin	Normal			
FSH, LH, E2	Normal			



Fig 2

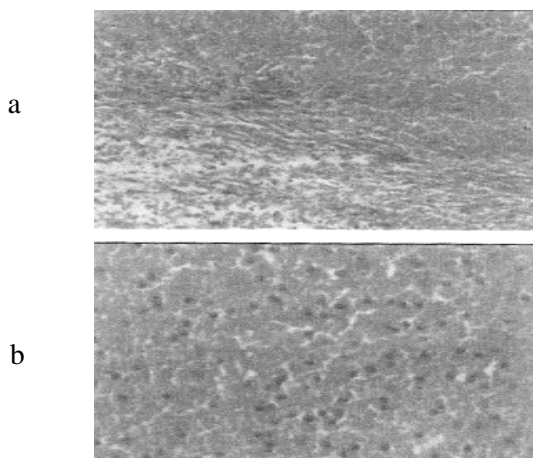


Fig 2 : Histopathological photomicrograph {10X(a) & 40X(b)} showing haemorrhagic infarction of right adenexa.

Discussion

Hypothyroidism and PCOS have genetic component and majority of the patients are obese. However our patient had no genetic basis and she was thin. The interesting aspect of our case is the recurring nature of acute abdomen, multicystic ovaries, recurring large ovarian cyst, dysfunctional uterine bleeding and anemia associated with profound occult hypothyroidism.

Lindsay *et al* observed that in two of their patients with palpable multicystic ovaries hypothyroidism was not suspected (2). Similarly in our case hypothyroidism was not considered during the first attack of acute abdomen. A case of bilateral enlarged multicystic ovaries with torsion in the right ovary associated with profound hypothyroidism presenting as acute abdomen was reported by Van Voorhis *et al* (7). Our patient also had similar features during her first attack of acute abdomen. We presume that she probably had hypothyroidism at that stage, which deteriorated over the years ultimately resulting in profound hypothyroidism. The thickened endometrium in our patient was probably due to excess TSH with amplification of FSH action and release by low LH and thus leading to dysfunctional uterine bleeding and anemia. Marked clinical improvement (periods became regular, anemia got corrected and abdominal pain got relieved) and regression of ovarian cyst was observed following administration of thyroid hormone. Yamashita *et al* reported regression of both

pituitary and ovarian cyst after administration of thyroid hormone in a case of primary hypothyroidism (8). Spontaneous ovarian hyperstimulation syndrome associated with hypothyroidism was reported by Rotmensch and Scommegna (4). A hypothesis is being presented that our patient also probably had recurring spontaneous ovarian hyperstimulation syndrome, enlarged multicystic ovaries, recurring large ovarian cyst presenting as recurring acute abdomen thus suggesting the role of hypothyroidism in the genesis of spontaneous ovarian hyperstimulation syndrome. It is further suggested that a causal link exists between hypothyroidism and development of various ovarian disorders (enlargement, multicystic ovary, polycystic ovary, cyst and spontaneous ovarian hyperstimulation syndrome). Therefore health care providers should have a high suspicion index of hypothyroidism in subjects with above clinical profile because these symptoms can be completely reversed with the initiation of thyroid replacement and unnecessary surgery and anesthesia can be avoided.

References

1. Hansen K A, Tho Sandra PT, Hanly M, Moretuzzo R W. Massive ovarian enlargement in primary hypothyroidism. *Fertility and Sterility* 1997;67: 169-71.
2. Lindsay AN, Voorhess ML, Macgillivray MH.: Multicystic ovaries in primary hypothyroidism. *Obstetrics & Gynaecology* 1983; 61(4): 433-37
3. Ghosh S, Kabir S N, Pakrashi A, Siddhartha C, *et al*. Subclinical hypothyroidism: A determinant of polycystic ovary syndrome. *Horm Res* 1993; 39:61-66
4. Rotmensch S, Scommegna A: Spontaneous ovarian hyperstimulation syndrome associated with hypothyroidism. *Am J Obstet Gynecol* 1989; 160:1220-2
5. Pallotti S, Gasbarrone A, Franzese IT. Relationship between insulin secretion, and thyroid and ovary function in patients suffering from polycystic ovary. *Minerva Endocrinol* 2005; 30(3) 193-97
6. Anasti JN, Flack MP, Froehlich J, Nelson LM, Nisula BC. A potential novel mechanism for precocious puberty in juvenile hypothyroidism. *J Clin Endocrinol metab* 1995;80: 276-79
7. Van Voorhis BJ, Neff TW, Syrop CH, Chapler FK. Primary Hypothyroidism associated with multicystic ovaries and ovarian torsion in an adult. *Obst & Gynecol* 1994, 83, 857-7
8. Yamashita Y, Kawamura T, Fujikawa R, Mochizuki H, Okubo M, Arita K: Regression of both pituitary and ovarian cysts after administration of thyroid hormone in a case of primary hypothyroidism. *Internal Medicine* 2001;40, 751-55.