Is Hypothyroidism a Cause of Ovarian Cysts?- This Unusual Case Depicts So

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Abstract

Presented in this report is apparently the first case of its kind in the medical literature where an 11 year old prepubescent girl who had co-existent presence of hypothyroidism and multiple large ovarian cysts not only had remarkable improvement in her physical appearance with conservative management with L-Thyroxine alone but also had disappearance of her large ovarian cysts without the need of any surgical intervention, whatsoever.

Introduction

Hardly any data is available as to the association of hypothyroidism and ovarian cysts. Till date, the mechanism of cyst formation in ovaries in patients of primary hypothyroidism remains unclear.

Case Report

Written consent was taken from the patient (along with her guardians) and the Departmental Ethical Committee approved this report. A case is presented of a female child aged 11 years, who reported with complaints of increasing obesity and lack of proper growth, lethargy, fatigue, lack of concentration in studies, with no history of menarche or precocious puberty. She had had pain in the pelvic area for last one week. Significant findings on General Physical examination were of stunted growth for her age with weak reflexes and marked obesity (weight 44.5 Kilograms). Her per abdomen examination was normal and on per rectal examination, uterus was apparently of pre-pubertal size with bilateral cystic masses of the size of a tennis ball. Routine laboratory investigations were normal and Thyroid profile status revealed decreased T3 value of 0.25ng/ml and T4 value of 1ng/dl with markedly raised TSH value of 791.42IU/ml. Radiographs of the skull and chest were normal On ultrasonography of thyroid and upper abdomen no abnormality was detected while that of pelvis showed bilateral ovarian enlargement with multi loculated cysts measuring 8cm x 7cm x 7cm in right ovary and 7cm x 7cm x 7cm on the left side with uterus being of average prepubertal dimensions (Figure-1). The patient was put on oral L-Thyroxine, 50 mcg. On follow up, the patient started showing signs of improvement within a month as her weight started reducing while pelvic ultrasonography revealed regression in the size of the ovarian cysts. After five months of treatment, her weight was 28.0 kg, thyroid function tests within normal values and marked reduction in the size of the ovarian cysts (Figure-2) and near normal size of the ovaries at one year. This patient is presently on regular treatment and follow-up.

Discussion

Although pathophysiology remains unclear, association of multicystic ovarian disease with hypothyroidism has been described in literature. Various mechanisms were postulated which included altered oestrogen metabolism, hypothalamo-pituitary dysfunction and deranged prolactin metabolism. According to Anasti et al ovarian enlargement in severe hypothyroidism was probably due to stimulation of FSH receptors by unusually high TSH levels proved to have a weak FSH like activity. Evers and Rolland confirmed that cross reaction of high TSH could produce FSH- and LH-like activity which might be responsible for the cyst formation in the ovaries. Likely mechanism of ovarian hyperstimulation with hypothyroidism in the present case appears to be mutation in FSH receptors that may further increase the sensitivity of FSH receptors to the TSH as proposed by Vasseur et al and Smith et al. Merchline et al reported that in some cases there might be hyper secretion of one or the other trophic hormones by the pituitary in response to deficiency of one of the endocrine glands (as of thyroid hormone), thereby, stimulating gonadotrophin release and hence FSH and LH leading to symptoms of precocious puberty with or without enlargement of the pituitary gland in response to an end organ deficiency. Both precocious puberty and pituitary enlargement were not to be seen in the case being discussed. With treatment of hypothyroidism alone, there was not only remarkable symptomatic improvement but also normalization of thyroid function tests and resolution of ovarian cysts as in the studies of Hansen et al and Yamashita et al and consequently no surgical intervention was
warranted as reported by Bassam and Ajlouni¹ and Merchline et al⁴.

Conclusion

In a prepubescent female whenever large ovarian cysts are detected, possibility of hypothyroidism should be kept as the diagnosis of this entity is a guide for the conservative management by thyroid hormone replacement therapy as the ovarian cysts regress in size along with improvement in the symptoms of the patient, thereby, avoiding unwarranted surgical intervention.

Conflicts of interest: authors declare that there are no conflicts of interest.

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References


Figure-1. legend: ovarian cysts at the time of presentation
Figure-2. Legend: marked reduction in the size of ovarian cysts with treatment
Illustrations

Illustration 1

Figure-1. Legend: ovarian cysts at the time of presentation
Illustration 2

Marked reduction in the size of ovarian cysts with treatment
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