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Thyrotoxicosis with Struma Ovarii and Peritoneal Strumosis - A Rare Case Report

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Abstract

Struma ovarii is a variant of dermoid tumors of the ovary in which thyroid tissue is the major constituent [1] Thyroid tissue is observed not uncommonly in 5-15% of dermoid tumors. Only when the amount of thyroid tissue present is more than 50% of the content , can it be called as struma ovarii. We report a case of 34 year old nulliparous ,who presented with hair loss, weight loss in spite of good appetite and anxiety. She was investigated and was found to be a case of secondary thyrotoxicosis due to struma ovarii. She underwent laparotomy, right salpingoovariotomy along with infracolic omentectomy in view of multiple solid nodules seen on omentum. Histopathology report came as peritoneal strumosis. As per WHO classification of tumors of female genital tract 2019,the presence of peritoneal implants of well differentiated thyroid tissue in a patient with histologically benign struma ovary is now thought to represent metastasis from a highly differentiated follicular carcinoma arising in struma ovary. We here aim to update the knowledge on struma ovarii with peritoneal and systemic dissemination.

Keywords: Struma ovarii, Peritoneal strumosis, WHO.

Keymessage: Struma ovarii can be accompanied by peritoneal or systemic dissemination. Early identification of the extra ovarian tumor and resection of the same plays a major role in treatment

Introduction

Struma ovarii has elicited considerable interest because of its many unique features; however, at present a number of aspects remain enigmatic. Although the typical presentation is that of a pelvic mass, unusual

clinical manifestations such as hyperthyroidism, ascites, and Meigs' syndrome have been recognised. Uncommon macroscopic and especially histological patterns in struma can cause difficulties in diagnosis. Struma ovarii is a rare ovarian mono dermal teratoma composed predominantly of thyroid tissue. In rare cases, benign thyroid tissue may spread to the peritoneal cavity in a condition termed peritoneal strumosis

Struma ovarii, originally described by Von Kalden in 1895, is a highly specialized ovarian teratoma composed of mature thyroid tissue. In rare cases, benign thyroid tissue may spread to the peritoneal cavity. Pathologic examination of the peritoneal implants shows multiple nodules of mature thyroid tissue of various sizes, displaying features similar to those of struma ovarii. This condition is termed ‘‘peritoneal strumosis’’

Case Report

34 year old nulliparous presented with hair loss, anxiety and weight loss in spite of good appetite .Blood investigations showed serum T3 -142nmol/L,T4 9.19nmol/l, TSH<0.005mIU/L. She was started on Neomercazole10 MG 1-0-1 by the endocrinologist.

Technicium uptake scan showed increased uptake in right pelvic region likely to be struma ovarii causing secondary thyrotoxicosis

Abdominal ultrasonography showed right ovary 50 cc bulky containing multiple follicles central and peripherally few of which show internal echoes Dominant Follicle 2.5x 1.5 cm .Left ovary 3.5 cc Uterus of size 6.5x3.4x4.2 cm .No focal myometrial lesion ET 12

CA125 levels were within normal range.

She was refered to the gynaec department for right ovariotomy.

On examination patient conscious, oriented. Breast – normal. Thyroid- normal .Nopallour icterus cyanosis, clubbing,lymphadenopathy or pitting pedal edema .In systemic ,per speculum and vaginal examination no abnormality was detected .She was posted for Laparotomy for right ovariotomy .

Per Operative Findings

Uterus normal size left tube and ovary –normal. Right tube normal. Right ovary 6x6 cm solid cystic mass adherent to posterior surface of uterus .Right in fundibulo pelvic and tub ovarian ligament clamped and cut and right ovary removed with the tube. Multiple solid nodules seen on Omentum. Surgeon called. Infracolic omentectomy done .Omentum removed along with the nodules, same sent for histopathology examination. Hemostasis attained. Warm saline wash given.

Figure 1: Right struma ovarii with multiple nodules on omentum .

As she was desirous of future fertility thyroidectomy and radioactive iodine ablation was deferred.

Post op period was uneventful. She was discharged on post op day 3 .Thyroid function tests repeated post operatively showed values within normal range.

At discharge her blood investigation values were

TSH- 0.29mIU/L

T4-10.57nmol/L

T3-136 n mol/L

Anti TG -288

Histopathology report came as

A) Right salpingo ovariotomy –struma ovary 7x5x3 cm .No definite evidence of malignancy seen Fallopian tube is histologically unremarkable

B) infracolic omentectomy –omentum shows features of peritoneal strumosis

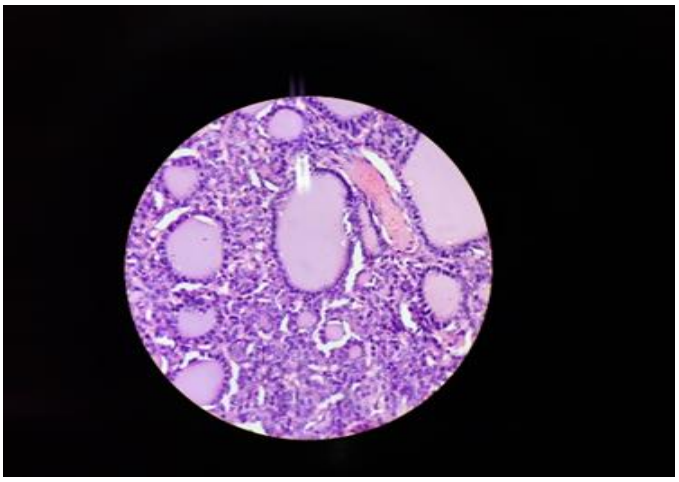

Figure 2: Histopathology slide (H and E staining) thyroid follicles with colloid in right ovary

Discussion

A differentiated monodermal germ cell tumor characterized by the inclusion of at least 50% thyroid tissue is called a struma ovarii [1]Germ cell tumors of the ovary are subdivided into Dysgerminoma, Endodermal sinus tumor (yolk sac tumor) ,Embryonal carcinoma, Polyembryoma, Choriocarcinoma ,Teratomas and mixed forms. Teratomas of the ovary are divided into immature, mature and monodermal or highly specialized.

Incidence of germ cell tumors is higher in Asia and Africa compared to Europe and North America. Germ cell tumors are encountered at all ages from early infancy to very old age. However they tend to be most common from the first to the sixth decade. 60% of ovarian neoplasms in children and adolescents are of germ cell origin and one-third of these are malignant [1]

Struma ovarii is more similar in appearance to follicular adenoma rather than thyroid parenchyma.[2] Approximately 2%–3% of all ovarian teratomas are struma ovarii[3] Most of struma ovarii are benign, only 5% of them are malignant [4]

Most common histologic subtypes of malignant Struma Ovarii (MSO) are papillary thyroid carcinoma (PTC, 70%) and follicular thyroid carcinoma (30%),just like thyroid cancers [5]

Peritoneal strumosis refers to those Struma ovarii accompanied by peritoneal or systemic dissemination but without malignant histological manifestations. This is controversial and problematic. Pathologic examination shows multiple nodules of mature thyroid tissue with features similar to those of struma ovarii. [6] Growth of these peritoneal implants are usually slow and only rarely cause side effects such as formation of adhesions and intestinal occlusion .even though there is predominance of thyroid tissue .Only 5% of cases of struma ovarii present with signs and symptoms of thyrotoxicosis Most of cases of struma ovarii are silent .They may present with nonspecific symptoms similar to other benign ovarian tumors [7]Struma ovarii varies in size but usually presents as asymptomatic mature mass of up to 10 cm in diameter .

15-20%of cases report ascites .However presence of ascites does not necessarily indicate malignancy .It may be due to torsion from the twisting pedicle ,tumor pressure on abdominal vessels and inflammatory reaction to tumor .[8]Most cases of struma ovarii are benign tumors and must be treated surgically. Surgical excision of the ovarian tumor induces the immediate

resolution of the ascites and normalization of serum CA125

When there is evidence of extra ovarian dissemination in struma ovarii, it is a highly differentiated follicular carcinoma (HDFCO) arising from benign struma ovariiThis is a proof of malignancy. Treatment for patients with HDFCO is local resection of the extra ovarian tumor with subsequent thyroidectomy followed by radioactive iodine ablation [6] In a study where they reviewed cases of benign struma ovarii treated at KK Women's and Children's Hospital, Singapore, between January 2000 and May 2011 concluded that conservative surgery is recommended for patients who have benign struma ovarii, especially if they have potential for fertility and desire fertility [9]

The presence of an intact thyroid gland may limit the effectiveness of ablating metastatic thyroid tissue .Hence a total thyroidectomy is generally warranted prior to RIA. Thyroglobulin is a glycoprotein molecule synthesized exclusively by thyroid follicular cells and is traditionally measured to detect thyroid cancer recurrence after thyroidectomy.[10] In a recent case series out of Sloan-Kettering Cancer Center, Garg et al. recommended following serum thyroglobulin serially with cross-sectional imaging of the abdomen yearly for several years. In the presence of increasing thyroglobulin or structural evidence of metastatic disease more aggressive treatment with total thyroidectomy followed by RIA and further surgical resection if warranted should be considered (Garg et al., 2009)

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