HYPOTHYROIDISM FOLLOWING STRUMA OVARI TUMOR RESECTION: A CASE REPORT

Jesus Paula Carvalho, Filomena Marino Carvalho, Flávia Fairbanks Lima de Oliveira and Rosalinda Yossie Asato de Camargo

Struma ovarii is an infrequent ovarian tumor, and there are only few reports with detailed data of thyroid function. In several cases, malignant struma ovarii have been shown to produce hyperthyroidism, but there is no reported case of hypothyroidism following struma ovarii tumor resection.

A 62-year-old white woman underwent right ovary resection that had a pathologic diagnosis of struma ovarii. After 6 days, she developed weakness, myalgia, somnolence, nausea, and arterial hypotension. Laboratory tests showed a high level of thyroid-stimulating hormone (TSH) and a decreased level thyroxin. Thyroxin replacement therapy was initiated, and the patient became completely asymptomatic.

This is the first reported case of a previously asymptomatic woman who developed a definite clinical hypothyroidism after resection of a struma ovarii tumor.

CASE REPORT

A 62-year-old white woman was admitted on August 8, 2000 because of an asymptomatic pelvic mass detected on routine pelvic examination. Ultrasound revealed a normal uterus and a complex ovarian tumor. The computed tomographic scan revealed a right ovarian mass measuring 6 cm in its largest diameter (Fig. 1).

Two weeks later, the patient underwent laparotomy and right ovary resection. The ovary was a multilocular cyst measuring 6.5 cm and containing brown gelatinous fluid. The frozen section examination revealed mature thyroid tis-
Thyroid tissue with follicles of various sizes, lined by flat-to-cuboidal cells (hematoxilin-eosin – 100x).

Figure 2 – Thyroid tissue with follicles of thyroiditis.

Various sizes, lined by flat-to-cuboidal cells

Volume, suggestive of Hashimoto's

Primary hypothyroidism.

Mal: 0.6–1.54 ng/dL), characteristics of a

12.0 ng/dL), free T4 of 0.5 ng/dL (normal: 0.5–

4.2 mUI/mL), T3 of 45 ng/dL (normal: 60–

4.6 ng/dL (normal: 4.5–

12.0 ng/dL), free T4 of 0.5 ng/dL (normal: 0.6–1.54 ng/dL), characteristics of a primary hypothyroidism.

The ultrasound examination revealed a hypoechoic and heterogeneous thyroid gland with very reduced volume, suggestive of Hashimoto's thyroiditis.

Thyroxin replacement therapy was initiated at 50 milligrams per day. All symptoms except somnolence disappeared within a week. Then thyroxine was delivered at a higher dosage (75 mg/day), and the patient became completely asymptomatic.

**DISCUSSION**

Ovarian tumors may cause ascite, pain, abnormal bleeding, torsion, intestinal obstruction, virilization, and death, but there is no report of a vital function maintained by an ovarian neoplasm. _Struma ovarii_ is a monodermal teratoma of the ovaries that contains a large amount of thyroid tissue. It is a very uncommon neoplasm, and its diagnosis is almost always done incidentally after an ovarian mass has been removed.

The ultrasound features of _struma ovarii_ are also nonspecific, but a heterogeneous, predominantly solid mass may be seen. Other ovarian teratomas that include mature cystic teratomas (dermoid cysts), immature teratomas, and monodermal teratomas (eg, _struma ovarii_, carcinoïd tumors, and neural tumors) may show the same features.

_Struma ovarii_ occurs more frequently in premenopausal women, and the mean lesion diameter rarely exceeds 6 cm diameter.

_Struma ovarii_ tumors are typically filled with clear to green-brown fluid. Microscopic examination shows follicles and cysts of various sizes separated by fibrous septa. The cysts are usually lined by nonspecific-appearing, flat-to-cuboidal epithelial cells. Scalloping of the colloid suggests hormonal activity of the neoplastic cells. The paucity of thyroid follicles in many areas and the nonspecific appearance of the epithelial cells lining the cysts often cause the diagnosis of _struma ovarii_ to be overlooked.

_Struma ovarii_ may cause hyperthyroidism, and differential diagnoses should include consideration of ectopic causes of hyperthyroidism, such as factitious thyroid hormone ingestion, and rarely, large deposits of functioning thyroid cancer metastases.

Several other authors have reported hyperthyroidism caused by _struma ovarii_. Lazarus et al. described a patient with _struma ovarii_ and hyperthyroidism whose diagnosis was made by radiiodine profile scanning, and an ovarian tumor was removed. The patient was treated for Graves' hyperthyroidism at age 22, and 20 years later she became thyrotoxic. Grandet & Remi reported a case of hyperthyroidism after total thyroidectomy. A whole body scan with iodine-131 confirmed a _struma ovarii_ that was bilateral, which occurs in 5% to 10% of patients with this condition.

Malignant transformation of _struma ovarii_ is a very rare condition, with clinically evident metastatic disease reported in approximately 20 cases in the literature. Takeuchi et al. described 2 cases of malignant _struma ovarii_ that demonstrated widespread peritoneal metastases. One of them recurred 2 years later in the contralateral ovary and omentum, while the primary tumor previously was pure _struma ovarii_ with no evidence of metastasis. Patients with malignant _struma ovarii_ who had elevated thyroglobulin levels at the time of surgery can be observed for recurrence on the basis of progressive thyroglobulin level elevation.

We have reported the first case of a previously asymptomatic woman developing a definite clinical hypothyroidism after resection of a _struma ovarii_ tumor. In spite of the fact that she developed a chronic autoimmune thyroiditis that was confirmed by laboratory tests and ultrasonographic characteristics, she was asymptomatic; the ovarian tumor probably maintained normal thyroid function. Chronic autoimmune thyroiditis is a common finding in women after the fourth decade of life. Although the _struma ovarii_ is a very rare tumor, the association with hypothyroidism can occur and requires an adequate replacement of thyroid hormone after surgery.

Struma ovarii é um tumor infrequente com poucos relatos de casos abordando detalhadamente a função tireoidiana. Na maioria dos casos têm sido demonstrado que o struma ovarii produz hipertireoidismo, entretanto não existe relatos de desenvolvimento de hipotireoidismo após a retirada deste tumor.

Uma mulher branca de 62 anos foi submetida a oforectomia direita com diagnóstico anatomopatológico de struma ovarii. Após seis dias da cirurgia, a paciente desenvolveu fraqueza, mialgia, sonolência, náusea e hipotensão arterial. Exames laboratoriais demonstraram níveis elevados de hormônio tireo-estimulante (TSH) e baixos de T3 e T4. Foi iniciado terapia de reposição de tiroxina e a paciente recuperou seus parâmetros clínicos e laboratoriais.

Não existe, até o momento, relato de hipotireoidismo seguindo a exerese de struma ovarii. Este é o primeiro caso de uma mulher com função tireoidiana prévia normal que desenvolveu hipotireoidismo clínico após a ressecção de um tumor ovariano struma ovarii.


REFERENCES


Received for publication on August 13, 2002.