Struma ovarii with deranged thyroid function tests

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Background

Struma ovarii is a rare variant of cystic monodermal teratoma, with a predominant mature thyroid tissue component. This tumour accounts for 1% of all ovarian tumours, and 2-5% of ovarian teratomas, and commonly presents between age 40-60 years.

Case

A 32 year old female, with a past history of node positive breast cancer, presented with an incidental finding of a pelvic mass on ultrasound scan. Subsequent MRI demonstrated bilateral cystic lesions, left 38 x 52 x 35 mm and right 56 x 85 x 78 mm, both with typical features of mature teratomas (figure 1). All tumour markers were normal, other than mildly elevated CA19-9.

The patient underwent laparotomy and bilateral ovarian cystectomies. Histopathology confirmed struma ovarii, with no evidence of malignancy.

Postoperative thyroid function tests (TFTs) demonstrated suppression of thyroid stimulating hormone and low free thyroxine (T4) and triiodothyronine (T3).

The patient did not have clinical features of thyroid disease, however was commenced on low dose thyroxine postoperatively and referred for endocrinology outpatient follow up. MRI pituitary was normal, with no central structural cause for her hypothyroidism identified. Her TFTs normalised and her thyroxine was ceased 4 months postoperatively.

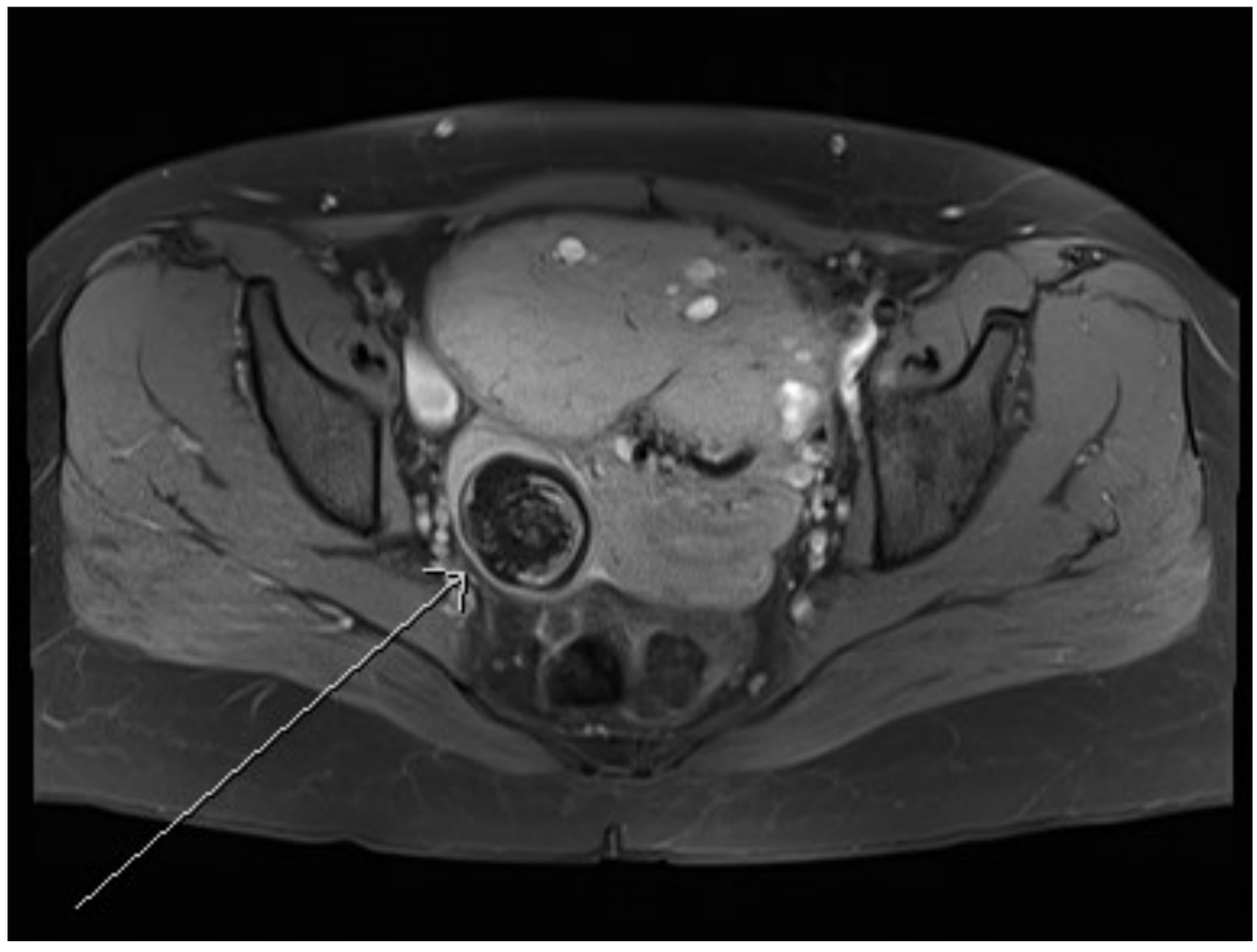

Figure 1: MRI image demonstrating pelvic mass and right sided cystic lesion

Discussion

Struma ovarii typically presents with pain and/or symptomatic pelvic mass. Clinical and biochemical features of hyperthyroidism are uncommon in women with struma ovarii, however approximately 5% may present with symptoms of hyperthyroidism (1) and rarely goiter may occur. In cases of functional struma ovarii, there is a risk of thyroid storm perioperatively (2). Complete treatment in benign disease consists of surgical removal of the struma ovarii, and no additional monitoring is required.

In this case, the most likely cause for her secondary hyperthyroidism is the surgical removal of the large volume of functioning, autonomous thyroid tissue within the teratoma, which had been suppressing TSH production and providing the major source of thyroid hormone. Following this prolonged period of suppression, the thyroid gland and pituitary thyrotrophs can take some time to recover and regain normal function.

References

1. *Roth LM, Talerman A. The enigma of struma ovarii. Department of Pathology, Anatomy, and Cell Biology Faculty Papers. 2007 Feb; 19.*
2. *Nagai K, Yoshida H, Katayama K, Ishidera Y, Oi Y, Ando N, et al. Hyperthyroidism due to struma ovarii: Diagnostic pitfalls and preventing thyroid storm. 2017 Feb;6(1):28-30.*

Conclusion

This case highlights the importance of recognising functioning stuma ovarii as a cause of deranged TFTs, and the need to check TFTs in patients with struma ovarii confirmed histopathologically.