Thyroid Cancer of the Ovary

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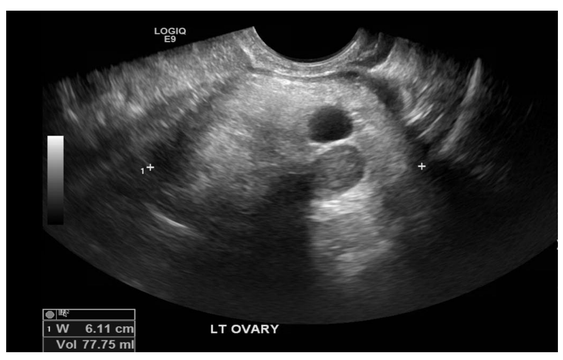
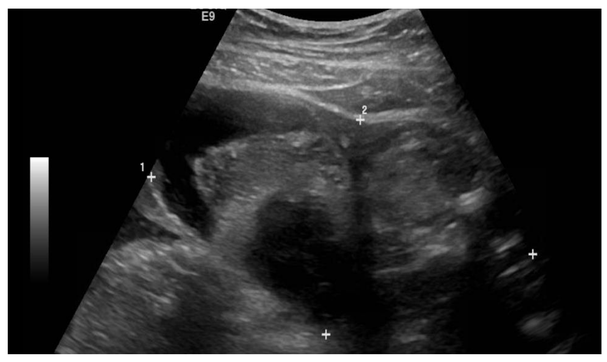
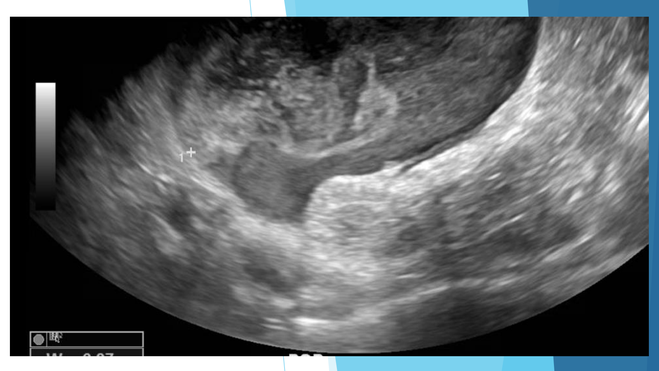
Background

Malignant transformation of dermoid cysts are uncommon, occurring in 1.5-2% of mature cystic teratomas. They usually occur in postmenopausal women and are usually squamous cell carcinoma. However, papillary thyroid cancer is rare (0.1-0.3%) particularly in the absence of struma ovarii. Follicular variant of a papillary carcinoma accounts for 26% of malignant degeneration to thyroid cancer with only four cases reported in the literature. This variant is unique because it shares similar nuclear cytological features of a papillary carcinoma, however it has follicular architecture.





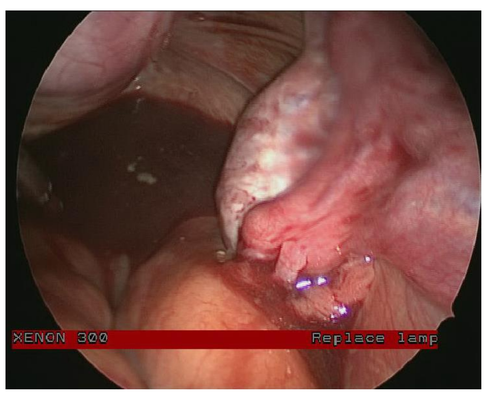


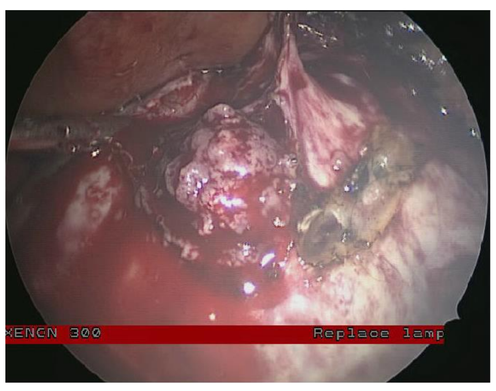
Case Study

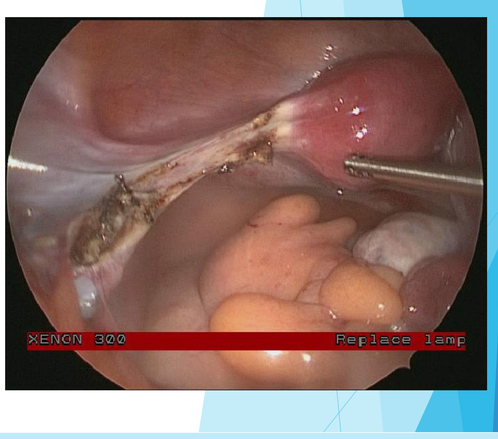
23 year old female with a known dermoid cyst measuring 6.1cm since 2016 presented with acute onset abdominal pain. In theatre the dermoid cyst was found to have ruptured, requiring a salpingo-oophorectomy for bleeding from cyst bed. Histopathology confirmed a follicular variant of papillary carcinoma of thyroid lineage with no evidence of struma ovarii. She was referred to Gynaeoncology. She had a normal CT chest abdomen and pelvis and normal TFTs, her Thyroglobulin level was 31.7, BRAF negative. Laparoscopic biopsies of omental nodules were positive for metastatic papillary cancer. She was therefore staged at FIGO 3A papillary thyroid cancer of the ovary. She was subsequently referred to Head and Neck Surgeons and has had a total thyroidectomy and is scheduled to have radioactive iodine therapy. She will have ovarian cortical biopsies for fertility preservation prior to the therapy.

Discussion

Appropriate diagnosis in such rare cases is difficult. While the paradigm of ovarian cancer management is cytoreductive surgery to decrease the bulk and density of malignancy and optimise the effects of chemotherapy, the management of these cases involves combining approaches for typical ovarian cancer and thyroid cancer. Therefore beyond tumour debulking, cytoreductive surgical management and radioiodine with or without total thyroidectomy is the mainstay of treatment.







Fertility

Thyroid cancers arising in teratomas generally have an indolent course and therefore fertility-sparing surgery can be considered in patients with minimal disease burden. Radioactive iodine has been associated with ovarian failure and early menopause. To protect ovarian function prior to RAI, can pre-treat with GnRH agonists to induce a more quiescent state however can be associated with an undesirable flare in ovarian stimulation before protective down regulation occurs. GnRH antagonists have not been rigorously tested in clinical trials.

Radioactive iodine treatment for thyroid cancer arising in the ovary can have a significant impact on fertility as compared to that arising from the thyroid gland. Unilateral salpingo-oophorectomy is thought to hasten diminishing ovarian reserve due to ovulatory demand consistently from one ovary instead of two. RAI will concentrate much closer to the remaining gonad and therefore reproductive damage will be far greater.

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