Resolution of pericardial effusion after removal of ovarian fibroma—a Meigs'-like syndrome

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Meigs' syndrome consists of benign ovarian tumour with ascites and pleural effusion that resolve after resection of the tumour.¹ A variant with pericardial effusion has not to our knowledge been reported.

CASE HISTORY

A woman of 58 was admitted after two weeks of increasing breathlessness and pleuritic chest pain. On examination she was tachycardic and tachypnoeic, with raised venous pressure and signs of bilateral pleural effusions. She was in sinus rhythm. Breast and abdominal examinations were unremarkable and she had no lymphadenopathy. On the electrocardiogram there was non-specific T-wave inversion in the inferior leads, and arterial blood gas analysis (on air) pointed to type 1 respiratory failure. Cardiomegaly and bilateral pleural effusions were seen on chest radiography, and an echocardiogram showed pericardial thickening with a 2 cm global pericardial effusion but no evidence of cardiac tamponade. CT of the thorax and abdomen confirmed the pericardial and pleural effusions (Figure 1) and also revealed ascites and a 9 cm right ovarian mass (Figure 2); the chest, abdomen and pelvis were otherwise disease-free. CT pulmonary angiography excluded significant pulmonary embolism, and on cardiac catheterization pulmonary artery and capillary wedge pressures were normal. There was no evidence of a constrictive process. The coronary arteries were normal as was left ventricular function; a pericardial biopsy, obtained by thoracoscopy, showed no histological abnormality.

The patient underwent total abdominal hysterectomy and bilateral salphingo-oophorectomy and the pelvic mass proved to be an ovarian fibroma. Thereafter the pleural and pericardial effusions as well as the ascites resolved completely—as confirmed by repeat echocardiography and CT of chest and abdomen.

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Figure 1 CT of chest showing pericardial and pleural effusions before removal of ovarian tumour

Figure 2 CT of pelvis showing ovarian tumour

COMMENT

The association of pleural effusion with benign pelvic tumours was reported by Salmon in 1934,² and 3 years later Meigs and Cass followed with their report on seven patients with ovarian fibroma, pleural effusion and ascites.³ In 1954 Meigs, by now chief of gynaecology at the Massachusetts General Hospital, proposed that his syndrome should be confined to benign solid ovarian tumours in association with ascites and pleural effusion and that resolved without recurrence when the tumour was removed.¹ This syndrome occurs with only 1–2% of ovarian 'fibromas'; histologically, the tumour may be a fibroma, thecoma, cystadenoma or granulosa cell tumour. Since the original description by Meigs, ascites and hydrothorax have been reported in other gynaecological conditions including fibroids, degenerative ovarian changes, mature cystic teratomas, and ovarian hyperstimulation syndrome; such variants have been termed pseudo-Meigs' syndrome.⁴ The reason for the fluid accumulations is unknown. Since fibromas are commonly oedematous, Meigs suggested they might be due to leakage from or pressure on the surface lymphatic vessels.¹ He

showed that the hydrothorax generally results from movement of the ascitic fluid into the pleural space through congenital defects in the diaphragm.¹ Newer work indicates the involvement of inflammatory cytokines in the formation of hydrothorax and ascites.⁵

The development of a pericardial effusion in our patient seems a novel finding. Such effusions do not seem to have been looked for in patients with true Meigs' syndrome. The possibility of an ovarian lesion needs to be explored in any woman with unexplained pericardial effusion.

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Chylothorax after coronary artery bypass surgery

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Certain anatomical anomalies predispose to chylothorax when the left internal mammary artery is harvested for coronary artery bypass grafting (CABG).

CASE HISTORY

A woman of 68 was admitted for elective CABG and closure of a secundum atrial septal defect.

At surgery, the left internal mammary artery was harvested in the standard manner with use of electrocautery

and ligature to create a pedicled graft. It was short but had a good calibre and flow. Cardiopulmonary bypass was established, the right atrium was opened and the atrial septal defect was repaired with an autologous pericardial patch. After anastomosis to the mid-left anterior descending coronary artery, the pedicled graft was found to be under tension. It was further mobilized as high as possible but remained 'tight'; therefore it was divided proximally and anastomosed end to side into the right coronary artery vein-graft. Bypass was discontinued and the chest was closed in routine fashion.

Her initial postoperative course was uneventful but on the third day a creamy chylous discharge emerged from her left pleural drain. A triglyceride concentration of 4.83 mmol/L in this fluid, compared with 1.19 mmol/L in plasma, confirmed chylothorax. She was placed on a low fat diet with medium chain triglycerides and the chest drain output was monitored daily; but when the drain was clamped, lymph reaccumulated in the left pleural space. At video-assisted thoracoscopy five weeks postoperatively, pleurodesis was performed with 8 g of talc and a single drain was placed in the left pleural space without suction. This drain was removed three days after the procedure. On review three weeks after discharge there was no clinical or radiographic evidence of chylothorax recurrence.

COMMENT

Chylothorax, the result of leakage from the thoracic duct or one of its main tributaries,¹ is a rare complication of CABG.^{2,3} In an anatomical study, Riquet *et al.*⁴ reported that the left anterior mediastinal lymph node chain normally connects with the left jugulosubclavian venous junction. In its course it crosses the left internal mammary artery near its origin at the apex of the thorax. They also found that the left anterior mediastinal lymph node chain sometimes connects with the arch of the thoracic duct near its termination (Figure 1). Normally, lymph vessels are valved and lymph back-flow is impossible.⁵ Chyle valve insufficiency, if present, may allow back-flow from the thoracic duct,⁵ but injury to a back-flowing left anterior mediastinal lymph node chain that is connected to the thoracic duct (and not the left jugulosubclavian) is a more likely explanation for chylothorax complicating left internal mammary artery harvesting, in view of their close anatomical relation. It does not happen often because the valves within the chain are usually competent and the chain is not usually connected to the thoracic duct.⁵ Brancaccio *et al.*² have therefore suggested that lymphatic injury in patients undergoing left internal mammary artery harvesting occurs at the time of dissection performed to maximize the conduit's length near the proximal end of the pedicle.

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