Bilateral chylothorax following left sided modified radical neck dissection

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Introduction

Chylous fistula in the neck occurs in 1-2% of cases undergoing neck dissection with higher incidence on the left side due to damage of a high riding thoracic duct [1]. Chylothorax is a rare complication; approximately 20 cases of bilateral chylothorax have been reported in the past 100 years [2]. We report a case of bilateral chylothorax following neck dissection done for metastatic malignant melanoma.

Case report

A 65-year old woman with a nodular malignant melanoma excised a month ago, developed multiple left sided cervical lymph nodes. FNAC showed metastatic deposits of a malignant melanoma. Left sided modified radical neck dissection was performed through a Schobinger's incision. The thoracic duct was unintentionally damaged while operating in the lower neck. Initial identification of the leaking thoracic duct was difficult, but after several attempts it was successfully sutured by transfixation using 3/0 silk. On the first morning post-operatively, the patient developed a dry cough and mild dyspnoea. Next day the dyspnoea worsened and on auscultation there was reduced breath sounds bilaterally over the lung bases. The patient was afebrile and both neck drains were draining serous fluid.

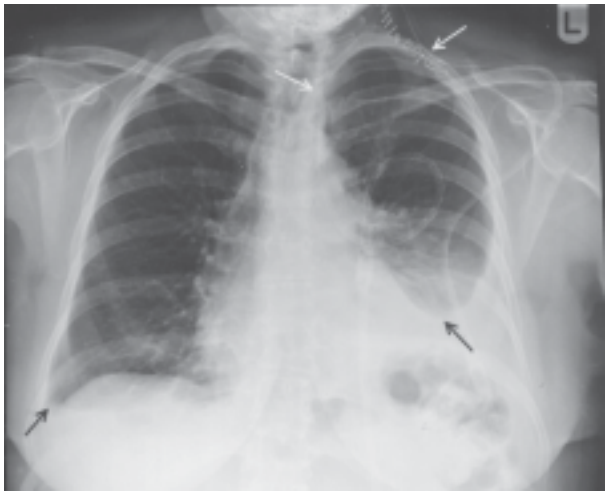

Figure 1. **Bilateral chylothorax, left more than right (black arrows). Two neck drains (white arrows).**

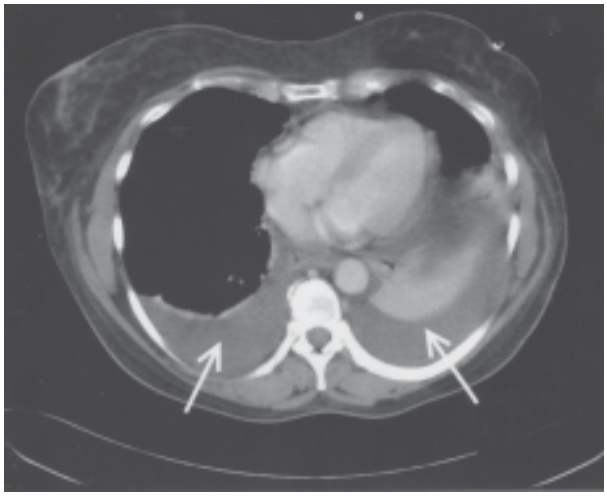

Figure 2. **Axial CT Chest showing bilateral chylothorax (white arrows).**

Figure 3. **Resolution of the chylothorax.**

The initial chest x-ray (Figure 1) showed bilateral pleural effusions more marked on the left. The thoracic CT scan (Figure 2) showed bilateral pleural effusions

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measuring -5 to 4 Hounsfield units suggesting a bilateral chylothorax. The creamy fluid that was aspirated contained a high triglyceride level confirming the presence of chyle.

A CT guided pig-tail catheter was inserted into the left chest and drained 1450 ml of chyle over 12 hours. A diet consisting of medium chain fatty acids, and intravenous antibiotics was given. The neck drains were removed on day 4 and day 7 respectively, while the chest drain was removed on day 10. A repeat chest x-ray showed resolution of the chylothorax (Figure 3).

Discussion

Chylothorax is an uncommon and dangerous complication of left sided neck dissection. It can lead to cardiopulmonary compromise via compression of the lungs and mediastinal shift with distortion of great vessels. In addition chylothorax can cause metabolic, nutritional, haemodynamic and immunological derange-ment [3]. The exact mechanism of formation is unknown but two theories have been postulated. Chyle from the base of the neck can tract directly down the fascial planes into the mediastinum. The extravasated chyle is released into the pleural cavities due to rupture of the mediastinal pleura caused by tissue maceration and the inflammatory reaction stimulated by chyle [4]. Another hypothesis is increased intraluminal pressure following ligation of the thoracic duct in the neck leading to extravasion coupled with negative intrathoracic pressure during inspiration causing chyle to leak through one or both mediastinal pleura into the pleural cavities [5].

CT is diagnostic, as chylous fluid has a density less than zero Housefields units [6]. The appearance of milky fluid in the aspirate and its biochemical analysis confirms the diagnosis. A triglyceride level above 110 mg/dl is diagnostic; a level below 50 mg/dl rules out a chylothorax in a patient on normal diet [7].

Management includes measures to drain the chyle, reduce its formation, prophylactic antibiotics and correction of fluid and electrolyte imbalances. The amount of chyle formation can be reduced in two ways; by the use of total parental nutrition to rest the bowel or use of low-fat diet enriched in medium chain fatty acids. Medium chain fatty acids are selectively absorbed via the portal venous system bypassing the intestinal lymphatic channels [3]. Somatostatin and octreotide may help by reducing lymph flow [8]. Surgical intervention is indicated when conservative management fails, and includes ligation of the thoracic duct which gives a success rate of 90% [6].

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