Introduction

Chylous leakage is a rare complication after axillary lymph node dissection. Although this case has been treated conservatively, treatment of this lesion is not always that simple: both operative and non-operative techniques are discussed.

Case Report

A 53-year-old female patient was admitted to the department with a bilateral cT1 cNO MO invasive ductal carcinoma. A bilateral lumpectomy after needle localization was performed, associated with a level I and II axillary dissection. Surgical procedure was uneventful. After breakfast, the first postoperative day, 210 ml milky fluid appeared in the left axillary drain. Analysis of the fluid revealed a cholesterol of 60 mg/dl, triglycerides of 353 mg/dl and an interpretation of the chylomicrons as being most likely chylous (Table I). Cultures remained sterile. A tentative diagnosis of partial laceration of the thoracic duct or one of its branches was made. No further investigations were performed.

Treatment consisted of a medium chain triglyceride diet and prolonged drainage of the axilla. Median output in the first postoperative week was 235 ml (range: 210-260 ml), in the second 125 ml (range: 90-225 ml), 23 ml (range: 15-60 ml) in the third and 6.5 ml (range: 0-15 ml) in the fourth postoperative week. The drain was removed the 27th postoperative day. No wound problems occurred. The shoulder function was normal.

Pathology of the right breast showed a pT1 pN0/I1 M0 well differentiated invasive ductal adenocarcinoma with an in situ component (DCIS); on the left side to a pT1 pN0/I1 M0 moderately differentiated invasive ductal carcinoma with DCIS. On the right side, both oestrogen and progestogen receptors were positive, on the left side, the oestrogen receptors were positive, the progesto-

Discussion

Several branching patterns and pathways of the thoracic duct have been described (1, 2): those terminating at the venous angle, at the end of the internal jugular vein, at the end of the external jugular vein or in a complex with various branches (1). A study of Langford R. J. et al. performed on 24 cadavers showed the termination of the thoracic duct as a single vessel in 21, a bifid termination in 2 and three terminal branches in one cadaver (2). Moreover, the precise site of termination was variable. Five thoracic ducts showed branching and re-anastomosing patterns prior to their termination, irrespectively of the number of terminal branches. Subsidiary cervical lymph trunks were identified in four dissections.

Traumatic lesions of the thoracic duct termination are most common after vertebral surgery of the distal cervical segment (3) or after a dissection in the neck region (4, 5).
Table II
Complication of an axillary dissection

- Haemorrhage due to inadvertent laceration of arteries and veins,
- Axillary vein phlebitis (more common when the vein is stripped of its adventitia),
- Lymph fistula,
- Lymphoedema,
- Frozen shoulder (prolonged immobility),
- Numbness of the posterior aspect of the axilla and the upper arm due to injury of the intercostobrachial nerve
- Winged scapula due to palsy of the serratus anterior muscle secondary to injury of the long thoracic nerve,
- Infection.

Hayashi S. et al. examined the thoracic duct with magnetic resonance lymphography without contrast agent. The images clearly depicted the drainage into the left subclavian region in four of the six volunteers (6).

In most cancers, the goal of an axillary dissection is staging for prognostic purposes, in some instances curation and prevention of axillary recurrence. During the procedure of a level I-II-III dissection, the axillary and subclavian vein are identified. The axillary fat is swept inferiorly from the v. axillaris and subclavia, thus preventing a possible injury of the thoracic duct termination.

A literature study did not reveal other reports of chylous leaks after axillary dissections (Table II).

Although morbidity of chylous leakage can be minimized by its early recognition, treatment remains controversial. Little is known about the mechanisms of action regarding chyle production and intraluminal pressure in the lymphatic system.

Treatment may consist of conservative measures such as prolonged drainage and a medium chain triglyceride diet. Before attempting a surgical re-intervention, octreotide could be attempted. As described in the literature, it seems to be an intriguing alternative method for drying up lymphatic leaks like postsurgical chylous ascites or mediastinal thoracic duct injuries (7, 8, 9). Leakage after neck dissection has been reported to be successfully treated with a local injection of tetracycline hydrochloride (10).

The termination of the thoracic duct should be ligated in case of failure of conservative treatment. In the treatment of a chronic thoracic duct fistula Wechselfberger G. et al. used a sternocleidomastoid flap to cover the area, after duct ligation (11).

Conclusion

Chylous leakage after a left axillary lymph node dissection is a rare complication. Initial treatment is conservative and consists in an adequate drainage and a medium chain triglyceride diet. In case of inadequate response, treatment with systemic octreotide or a local injection with tetracycline hydrochloride can be considered. Ligature of the thoracic duct termination or in case of a chronic fistula, ligature and coverage of the fistula with a muscle flap, should be proposed when conservative treatment fails. Lymphography has been replaced by magnetic resonance lymphography to visualize the thoracic duct.

References