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Ultrasound-guided intranodal lymphangiography with lipiodol as a diagnostic and therapeutic approach for chyle leak after neck dissection

KEYWORDS
Chyle leak;
Intranodal lymphangiography;
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A chyle leak is caused by damage to the thoracic duct or right lymphatic duct during neck dissection.[1] Prolonged leaks will lead to protein loss, systematic metabolic imbalance, wound infection, longer hospital stays, and increasing cost of the treatment. The treatments comprise local pressure dressings, oral dietary modifications, administrations of somatostatin or its synthetic analog octreotide, interventional radiology, and surgery.[1] Conservative treatments commonly result in prolonged hospitalization, and the optimal timing of surgical intervention remains controversial.[2] Therefore, we reported ultrasound-guided intranodal lymphangiography with lipiodol as a diagnostic and therapeutic approach for chyle leak after neck dissection.

A 73-year-old man underwent radical neck dissection for left cervical lymph node metastasis after the glossectomy. On the third postoperative day, a significant clear fluid wound leak showed a high amylase. Because conservative treatment for salivary leak from the parotid gland was not effective, surgery was performed under general anesthesia 2 weeks after the neck dissection. As a significant fluid wound leak 1 week after reoperation showed a high triglyceride, conservative treatments such as total parenteral nutrition, local pressure dressing, and administration of octreotide, were performed for the chyle leak. However, the chyle leak was not improved. Because the patient refused further reoperation, ultrasound-guided lipiodol injection was performed from the inguinal lymph node under local anesthesia, and the movement of lipiodol was observed under fluoroscopy (Fig. 1A). A leak site (arrow) over the left supracervical region with contrast extravasation was identified (Fig. 1B). Computed tomography also showed the left cervical leak site (arrow) after lipiodol lymphangiography (Fig. 1C). The chyle leak was improved 1 week after intranodal lipiodol injection.

Although there are no official guidelines for the treatment of postoperative chyle leak,[3] minimally invasive treatments without surgery are required when conservative treatments are not effective. Percutaneous lymphangiography-guided cannulation with embolization of the thoracic duct, which is performed by an interventional radiologist, involves identifying the site of the leak using lymphangiography, followed by percutaneous cannulation of the thoracic duct and embolization using either coils or tissue glue (such as cyanoacrylate).[1] However, percutaneous cannulation of the thoracic duct has technical difficulties and is not always successful. In contrast, intranodal lymphangiography with lipiodol may be used as a diagnostic and potential therapeutic approach for chyle leak.[4,5] Chen et al.[4] proposed that ultrasound-guided intranodal

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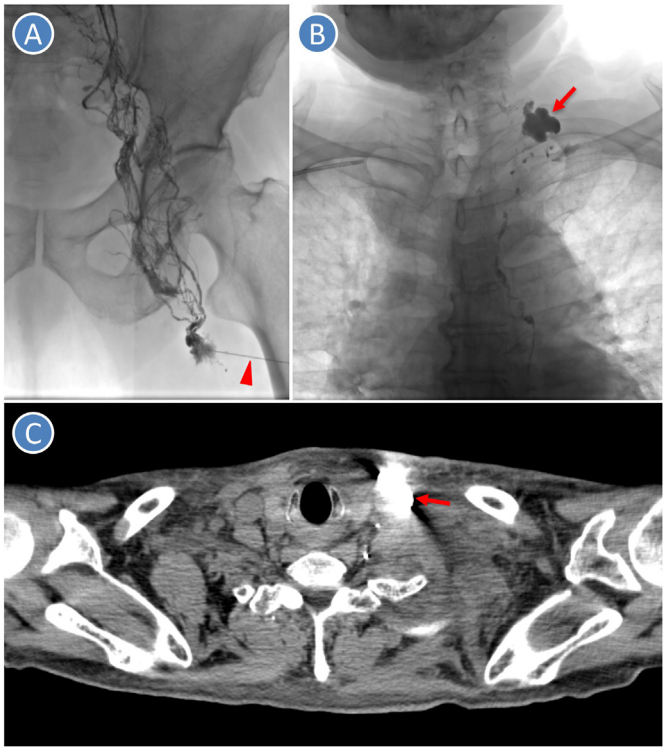

Figure 1 Ultrasound-guided intranodal lymphangiography with lipiodol and computed tomography images for our patient with chyle leak after neck dissection. (A) Ultrasound-guided lipiodol injection was performed from a left inguinal lymph node. (B) A leak site (arrow) over the left supracervical region with contrast extravasation was identified. (C) Computed tomography showed the left cervical leak site (arrow) after lipiodol lymphangiography.

lymphangiography with lipiodol could be considered first for its therapeutic effect as well as a diagnostic function before invasive interventions, such as thoracic duct embolization and video-assisted thoracoscopic thoracic duct ligation. Lipiodol accumulating at the point of leakage results in a regional inflammatory reaction occurring in the soft tissues adjacent to the lipiodol retention yielding embolization. The viscosity of lipiodol is also thought to contribute to embolization.

For patients with chyle leakages who are unlikely to be cured by conservative treatment only, early ultrasound-guided intranodal lymphangiography with lipiodol as a diagnostic and therapeutic approach may be recommended before surgical intervention.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

Acknowledgments

None.

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