



Chyle Leakage Site Identification is Required for its Treatment in Breast Cancer

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Abstract

Chyle leakage is very rare in breast cancer. Knowledge of this complication and the management methods when it happens are quite restricted. Consensus has yet to be formed for its treatment. Three chyle leakage patients are reported in this paper. The first patient underwent two times surgical explorations without locating the chyle leakage site ahead of time, a typical example of treatment failure. The second patient received simple suture of skin and subcutaneous tissue. We saw a remarkable effect. For the third patient, we fixed the chyle leakage site with the help of lymphoscintigraphy. She recovered quickly when we gave a firm compression to the leakage site. We realized that accurate localization of chyle leakage is necessary for various local procedures, including surgical exploration. We summarized the treatment process and hoped that other doctors will give proper treatment to the complication.

Introduction

Chyle leakage or fistula is a very rare complication after breast cancer, with a reported incidence of <0.5% [1,2]. Injury to an aberrant branch of the thoracic duct during breast surgery and retrograde lymphatic stream are the reasons. Inappropriate treatment will lead to impair nutrition and immunity; compromise and delay wound healing, prolong hospitalization, and delay adjuvant therapy [3]. Although many methods have been reported, such as low fat diet, compression bandage, negative drainage and exploratory operation. The treatment experience was limited, especially the failure experience. Reasonable comprehensive treatment process has not yet formed. We report three chyle leakage cases (Table 1) in this paper and find leakage site identification is necessary for many local treatment methods, including reoperation. We summarized the treatment process of chyle leakage, and hoped it will be useful for other doctors.

Table 1: Patients characteristics, one was right breast cancer, the other were left. They all received modified radical mastectomy.

	Patient 1	Patient 2	Patient 3
Age	46	49	67
Tumor size(cm)	2.4 × 2.2	4.5 × 2.6	3.5 × 1.6
Axillary lymph node (cm)	Neg	0.8 × 0.5	3.6 × 1.8
Operation	left modified radical mastectomy	right modified radical mastectomy	left modified radical mastectomy
Metastatic lymph node	0/17	0/17	16/20
ER	-	-	+
PR	-	-	+
Her2 (IHC)	-	3+	+
Ki67 (%)	60	70	30
P53	+	3+	2+
	axilla	parasternal	axilla
Maximum drainage (ml)	600	100	400
Continued time (Week)	30	10	4
Management	conservative, two times ligation operation	conservative, simple suture	conservative, SPECT Lymphoscintigraphy

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greater than 500 ml) or continuation of leakage for more than 2 weeks, surgical repair should be considered [9,11-13]. Chyle leakage usually last for several weeks (6-8 weeks), but in case 1, lasted for 30 weeks. And this patient was the only person, who received two times surgical explorations. At the first time, latissimus dorsi rotation flap was applied, but it did not work. To our knowledge, this phenomenon has never been described in literature before. After injury, the thoracic duct and its branches collapse quickly and it could not be determined in the operation room. We did not find the major injured lymph duct contribute to chyle leakage was the reason of failure.

Several methods can be used for chyle leakage site identification. X-ray lymphography with contrast agent is the main method used for confirming and localizing thoracic duct injuries [14]. Lin has reported ultrasound-guided bilateral groin lymph node puncture for lymphangiography with lipiodol delivery [15]. However, X-ray lymphography is an invasive procedure, with the drawbacks of contrast agent administration, radiation exposure, patient discomfort, and long examination time. Lymphoscintigraphy has been found to be useful for the detection of such chyle leakage [3,13]. SPECT imaging improves localization, as compared with planar scintigraphy, by allowing a three-dimensional view of the lesion of interest [13]. We located chyle leakage site with lymphoscintigraphy in case 3 (Figure 1). It is easy to use. Leakage site identification according local effusion emergence is our innovative method, and first reported here in case 2. Patients should be chosen carefully. Case 2 have tissue channel already. When we sutured the full layer of skin and subcutaneous tissue, chyle can discharge from the channel. So, we have the chance to observe the result, and the result is very well.

Surgery with re-exploration of the axilla and oversewing of the chyle duct can be used as the last reserve for persistent chyle leaks. If we could not find the major injured lymph in surgery, the risk of surgical failure is still very high, even using muscle flap rotation. Case 1 is a typical example of treatment failure in first exploration surgery. Long time chyle leakage will result in hypoproteinemia, emotional anxiety, and even delay adjuvant therapy. Locating chyle leakage site is necessary for many kinds of local treatment, including exploratory surgery. When conservative therapy failure, we can timely take approaches, such as local compression bandage, local Bleomycin injection or exploratory surgery. The localization of chylous leakage greatly reduces the duration of the complication, and case 3 is a typical case. According to our experience and literature review, we summarized the clinical processing flow of chyle leakage in Figure 2. We hope other doctors will give proper treatment to the complication in the future, and alleviate the pain of the patient.

Additional Contributions

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