

CASE REPORT

Percutaneous Lipiodol Lymphangiogram in Chylous Leakage Successful Embolisation Post Mastectomy: A Case Report

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ABSTRACT

Complication of chyle leakage is rare post mastectomy, ranging from 0.36 – 0.84%. This case report discusses a rare case of chylous leakage post mastectomy in a 79-year-old female. The complication was suspected when the draining colour of axillary drainage change from serous fluid to milky colour, diagnosis then confirmed clinically and biochemically as chyle. The patient was initially managed conservatively, but this was not successful and was referred to an interventional radiology for lymphangiogram and embolization. Percutaneous lipiodol embolization was performed with immediate success.

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INTRODUCTION

Lymphatic leakage of chyle post mastectomy is a well-recognized rare complication among surgeons (1). It is ranging around 0.36 – 0.84% (2,3) it is mostly encountered by surgeons following intrathoracic procedures or radical neck dissections. Surgeons are usually conversant with the risk of chyle leakage that exist in setting of breast reconstruction or cancer (4). Chyle leakage can be due to thoracic or axillary duct injury, leakage of chyle can be recognized based on clinical appearance of milky, a non-purulent fluid, thus, a sample test serves as supporting evidence in doubtful cases.

Management post mastectomy chyle leakage include conservative treatment consisting of adequate drainage, pressure dressings and dietary modifications and secondary surgical management⁵. In a situation where patient refused second surgical intervention, lymphangiogram with Lipiodol is an option for diagnostic and therapeutic purpose with efficacy up to 50% (5).

We presented a case of high output chylous leakage post right mastectomy and axillary clearance failed conservative management, underwent lymphangiogram

using Lipiodol and successfully embolized.

CASE REPORT

A 79-year-old, female who was diagnosed with invasive right breast cancer underwent right mastectomy and axillary clearance. A standard modified radical mastectomy performed with 2 drains placed at the axillary and breast bed immediately during surgery before skin closure. Approximately after 4 hours of the patient's oral intake, the drainage in the drain has changed from serous fluid to milky appearance. Clinically and biochemically, the milky discharge was confirmed as chyle (Table I).

The surgical team initially decided to adopt conservative management, unfortunately the chyle leakage continuously yielded a high output amounting to about 700 ml to 900 ml of chyle per day. The patient refused to undergo any secondary surgery for repair. The case was referred to an interventional radiology for lymphangiogram and embolization.

Table 1: Body Fluid Biochemistry of the Patient

Body Fluid Biochemistry	Parameters	Units
PROTEIN	27	g/L
LDH	130	U/L
GLUCOSE	8.09	mmol/L
TOTAL CHOLESTEROL	1.46	mmol/L
TRIGLYCERIDE	25.41	mmol/L

During the procedure, the patient was placed on supine position on a table. The procedure was performed under local anesthesia. An ultrasound guided assessment was performed purposely to assess the surgical site as well as the bilateral inguinal regions to identify accessible lymph nodes for Lipiodol injection. At the right axillary pouch (surgical drain placed in situ), there was small anechoic area seen measuring approximately 2.4 cm x 3.0 cm likely to represent chylous collection.

The desired area was cleaned and draped. A total of 5 mls of Lipiodol was injected under ultrasound guidance into the lymph nodes at the bilateral inguinal regions (Figure 1), (2.5 mls on each side) at the rate of 1 ml/minute. Dissemination of lipiodol was monitor under intermittent fluoroscopic screening.



Figure 1: (A) Showed Lipiodol injection into the right inguinal lymph nodes while Figure 1(B) Showed injection of Lipiodol into the left inguinal nodes. Note that contrast opacify lymphatic network at the left inguinal region.

The remaining 5 mls Lipiodol was injected into the right axillary collection and monitored under intermittent fluoroscopy (Figure 2). From the fluoroscopy monitoring, the injected Lipiodol was seen propagated into the lymphatic channel. Post procedure, we put compressing bandage at the surgical site to give tamponade effect onto the right axillary collection.

In terms of the chylous leakage, the output started to reduce 48 hours post procedure. The output was reduced to 500 mls/day however, it was mainly hemoserous



Figure 3: Day 2 post injection Lipiodol, patient developed skin erythema (black arrow) at the lateral aspect of the right mastectomy site. She was also having fever hence, surgical team treated as cellulitis. It resolved after 4 days of antibiotics.

rather than pure chyle. The drain finally reached 30 mls/24hours at day 7 post procedure. Repeated ultrasound at the surgical site showed small complex of peritubal collection which was managed conservatively. The drain was taken out and the patient discharge well.

Noteworthy, we also noted that 48 hours of post procedure, the patient developed a skin erythema at the surgical site with fever (Figure 3). Patient was covered with antibiotic for infection. It was resolved after 7 days with antibiotic treatment. The patient visited the surgical clinic 1 week after discharge. She was well with no new collection over the right axillary region.

DISCUSSION

Lymphatic leakage post mastectomy is a rare occurrence, and the mechanism is poorly understood, hence, chyle leakage is generally attributed to thoracic duct injury.

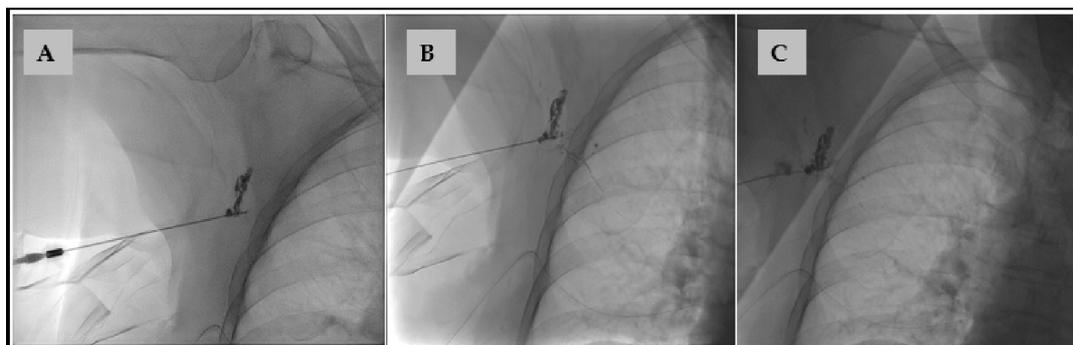


Figure 2: (A) showed initial injection of Lipiodol into the collection at the right axillary pouch. (B) Showed propagation into the lymphatic network at the right axillary region and over the right mastectomy site. (C) Showed final fluoroscopic image after 5mls of Lipiodol injection.

The thoracic duct are seen along the thoracic cage and at abdomen paraspinial region crossing to midline at the aortic arch which terminates at left neck base, joining into venous system.

Further, the diagnosis of chyle leakage is clinically according to the evident of milky discharge in the lymphatic drainage. Previous studies revealed that the presence of chyle in the lymphatic drainage become more with high fat intake and reduce with fasting. Importantly, laboratory investigation plays important roles in the examination of protein, lipid electrophoresis, cholesterol, triglycerides, cell counts and PH in fluid of the patient. Lymphangiography is also useful in getting diagnoses as well as for treatment.

Most of the cases usually occurred in left mastectomy and axillary clearance compared to the right and were managed successfully with conservative measure which may include negative pressure drainage, low-fat diet and pressure dressing. However, in our case, it involves the right axillary region. This is an important factor to be considered as it will affect the flow of lymphangiogram and the following embolization.

Lymphatic drainage has predilection toward the left side as it will emptied into the thoracic duct at the left subclavian vein. However, performing conventional lymphangiogram from the inguinal nodes has its own disadvantages that it may not drained into the right axillary lymph node. Although, lymphangiogram from the right upper limb through in between digits could serves an alternative, as it will also drain to the axilla, however it's going to take longer time. We decided to do direct percutaneous injection into the collection seen at the right axillary pouch, aiming to map the lymphatic channel at the collection and embolized them. Upon injection, the lipiodol was absorbed by the adjacent lymphatic channel and map them. Further putting pressure at the right axillary help to give longer contact duration between the filled-in lipiodol collection and the involved lymphatic channel.

To our knowledge, direct percutaneous embolization of lymphatic leakage was only done once as published by Sanampudi et al., 2019. They embolized the lymphatic leak percutaneous cannulation through intra-abdominal collection and directly embolized the leakage site. The difference is, the leakage in that case came from lymphatic trunk making cannulation possible. In our

case, the leakage might come from small channel making cannulation for direct embolization extremely difficult. Hence, we decided for percutaneous embolization into the axillary collection.

Another aspect to be considered is possible side effect of direct lipiodol injection into the collection. Our patient developed skin erythema after 48 hours post lipiodol injection. Although, it was treated as skin infection by primary team, one must bear in mind that the risk of allergic or adverse reaction is possible with lipiodol injection.

CONCLUSION

Although, chyle leakage post mastectomy is very rare especially on the right side, but it is associated and acknowledged as one of the complication post axillary surgery for breast cancer. Finally, lymphangiogram and embolization are one recognized effective treatment should conservative management failed, and surgical intervention is not suitable, which in this case showed successful embolization.

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