

CASE REPORT

Chylous leakage post mastectomy and axillary clearance: clinical aspect, causes and review of literature

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SUMMARY

Chylous leakage after mastectomy & axillary clearance is a rare complication. The incidence is less than 0.5%. Anatomical variations in the termination of thoracic duct can occur, rendering it susceptible to injury during axillary dissection. Most chyle leaks in the axilla are managed through conservative measures. Surgical intervention is required in high output chylous leaks. We encountered a case of chylous leak post mastectomy with axillary clearance, which was successfully treated conservatively.

KEY WORDS:

Chyle; Chylous leakage; mastectomy; axillary clearance

INTRODUCTION

Chylous fistula, a complication related to thoracic duct injury or its branches, may develop following neck or thoracic-abdominal surgery. However, chyle leak after mastectomy with axillary clearance is an unusual phenomenon. Seroma formation and chronic lymphoedema of the upper limb are far more common. The reported incidence of chylous fistula after breast cancer surgery is less than 0.5%. Although rare, it is important that all breast surgeons should be aware that a chylous fistula can develop after axillary dissection and the available treatment options.

CASE REPORT

A 53 year old lady presented with a hard, ill-defined breast lump over her left breast. She gave history of hysterectomy 10 years ago, following which she was put on estrogen based hormonal therapy for 2 years. Mammogram revealed a BIRADS 5 spiculated mass at 4 o'clock position of her left breast, measuring 1.4x1.2x0.8cm. Nipple retraction was observed with large group of microcalcification seen. Tru-cut biopsy confirmed that the above lesion was an invasive ductal carcinoma of the breast.

Left mastectomy with level II axillary clearance was performed after treatment options were discussed with the patient. The surgery was uneventful. Two drains were inserted, one to the breast bed and the other to the axilla. The tumour measured 2.5 x 2.5 x 1.5 cm, total of 19 lymph nodes were removed. 6 were positive for tumour deposit. The largest lymph node measures 2x1 cm and situated posterior-lateral to the pectoralis minor muscle.



Fig. 1 : Post-operation Day 5 to day 7, the fluid in the drain was milk-like, consistent with chyle leak clinically.

Her post operative recovery was uneventful till post-operation day-4 when milky material was observed in both drains. Clinically, the milky drainage was suggestive of chyle (Fig. 1). The patient was informed and advised on low fat diet. The surgical site was covered with compression dressing. The drain output increased in trend up to day-7 post surgery but subsequently reduced in volume slowly. Maximum volume drained was close to 300cc/day. Eventually, the drain was removed on day-10 post surgery. Patient was then reviewed in outpatient department. Her wound was well healed without seroma formation, indicating successful conservative management.

DISCUSSION

Chylous leakage seldom occurs after axillary surgery because the axilla is anatomically remote from the thoracic duct. The reported incidence of chylous leakage after neck surgery is 1-

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3% and its incidence after surgery for breast cancer is about 0.5%¹. In 60% of case, the thoracic duct drains into the left internal jugular vein. However, there are numerous anatomical variations in the termination of thoracic duct, rendering it susceptible to injury during surgery involving the neck or axilla region. It has been reported that more than two terminal ducts exist in 7-20% of cases². The rare anatomical variation of the lymphatic trunk, located postero-inferior to the axillary vein may be responsible for the chylous leak after axillary dissection². Mandeep singh et al in his analysis of 6 cases which developed chylous leak after axillary dissection stated that injury to the thoracic duct or its aberrant branches is apparently not the cause of chylous fistula. Injury to the left subclavian duct or its tributary, which drains into the thoracic duct, has been hypothesized to be the source of chyle leak in axilla³.

It is not easy to recognize lymphatic duct injuries intra-operatively as the duct collapses after injury. It is also difficult to predict injury to the lymphatic trunks preoperatively because of its rare occurrence and the absence of well-known risk factors. Nakajima *et al.* reported that they did not find any characteristic risk factors after analysis of 4 cases. Some author claim that extensive nodal disease involving the axilla space may be associated with higher risk of thoracic duct injury. Multiple large axilla lymph nodes may be the risk factor contributed to chyle leakage in our case. Careful dissection and ligations in the deep axillary space can prevent this complication in patient with massive axillary metastasis.

Chylous leakage is usually diagnosed by the typical "milky" drainage fluid after surgery. Definitive diagnosis is confirmed by biochemical analysis of the electrolyte, protein, and fat content of the fluid. However, such facilities are not available in all the hospital in Malaysia. Lymphoscintigraphy or computed tomography is a helpful tool in localization of chyle fistula and confirmation of chyle collection.

The function of thoracic duct is transportation of digested fat into the venous system. Hence, low fat diets, taking only medium chained triglyceride or parenteral nutrition support are recommended in primary conservative management. The other management of chylous leakage available in the literatures including adequate drainage, pressure bandage, bed rest, intravenous Octreotide and oral injection of tetracycline hydrochloride⁵. Chylous leakage can also be

managed without special dietary control. Nakajima *et al* did not use any special nutrition for his 4 patients and the fistulas were eventually closed in 18 days. They removed all the drain by day 7 and aspirated the collected fluid accordingly.

Some authors preferred timely or early re-exploration after considering the duration of the hospital stay and morbidity involved¹. An early surgical approach can be considered because the risk associated with re-exploration of the axilla is not very high and earlier ligation of chylous fistula can avoid delaying subsequent oncologic treatments. Surgical management consists of direct ligation of the injured lymphatic channel. Alternatively, plugging with gel foam, glue, local muscle rotation flaps or other packing materials can be considered¹. Itkin M *et al.* have 109 patients who underwent non-operative thoracic duct embolization for traumatic thoracic duct leak, concluded that catheter embolization is safe, feasible and successful in eliminating a high output chyle leak in majority of patient with chylothorax. It is foreseeable that catheter embolization would be possible in chylous fistula involving axillary region in the future.

CONCLUSION

Although chyle leak after axillary dissection is very rare, it can still happen. Therefore, the need of level II axillary clearance should be carefully assessed before surgery. Sentinel lymph node biopsy should be considered for all early breast cancer, thus avoiding unnecessary axillary dissection. Management of chylous leakage post axillary dissection should be individualized. Early surgical intervention should be advocated for high output fistula.

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