Dear Sir,

Chyle leaks or fistulas are a well described complication of neck dissection or mediastinal surgeries. The thoracic duct or the right lymphatic duct are the main structures disrupted. There are lesser described subclavian lymphatic ducts that drain the lymph from the axillae and upper extremities bilaterally. Rarely these may be disrupted during axillary lymph node dissection that could lead to a chyle leak.

We describe a 48 year old female with invasive ductal carcinoma of the left breast who underwent a nipple sparing mastectomy with a level II sentinel lymph node biopsy. Three sentinel lymph nodes were retrieved. Frozen sections were negative for metastatic malignancy.

A subpectoral tissue expander was placed along with an inferolateral sling of acellular dermal matrix. Two drains were placed, one between the expander and acellular dermal matrix inferiorly and the other placed superiorly near the sentinel lymph node biopsy site. On postoperative day 1, after a meal, she was noted to have a milky appearance to the upper drain (Figure 1). The triglyceride level in this fluid was 454 mg/dl indicative of a chyle leak. The output from this drain was about 50 ml/day. She was immediately placed on a low fat diet.

She was discharged on postoperative day 2. At her subsequent one week follow up visit, it was noted that the upper drain output was serosanguinous. Unfortunately, the final pathology report revealed metastatic cancer in two of the sentinel lymph nodes and she was brought back for an axillary dissection. At the time of surgery, a nasogastric tube was passed and cream placed into the stomach. We were able to localize a small lymphatic leak near the prior level II sentinel lymph node biopsy region and this was clipped. The expander was removed in order to facilitate the axillary dissection. After this was performed, the breast pocket was washed out and a new expander was placed into the subpectoral pocket. The acellular dermal matrix was well adhered to the skin flaps and not replaced. Her postoperative course was unremarkable. She had no further chyle leak. All six lymph nodes in the final axillary specimen was negative for metastatic malignancy.

The right lymphatic duct and the thoracic duct (left lymphatic duct) are the main lymphatic fluid collecting systems and empty into the subclavian veins. Lymph from the axilla and upper extremities drain into their respective subclavian ducts and their tributaries which then empty into the right lymphatic duct and thoracic duct. There are no valves at the junction of these subclavian ducts into the right lymphatic duct and the thoracic duct. There are also no valves in the subclavian ducts. Damage to these subclavian ducts or their tributaries may occur during lymph node dissection. Therefore, reflux of chyle from the thoracic duct or right lymphatic duct may occur. This is very rare and incidences of <0.5% have been reported.1-3 The exact site of formation of the subclavian ducts is not clearly described but is postulated to occur around the level II lymph node region of the axilla.

To our best knowledge, this is the first article that describes chyle leak associated with a sentinel lymph node biopsy and also the first in the setting of immediate reconstruction of the mastectomy with tissue expanders and acellular dermal matrices. Interestingly also, these chyle leaks have been described only in patients who have undergone left-sided lymph node dissection.2 There is no clear explanation why these chyle leaks only occur when there is left-sided axillary lymph node dissection. One can theorize that this must be due to a different anatomical drainage of the right subclavian duct into the respective right lymphatic duct.

In this case, we postulate the initial injury to the left subclavian duct or its tributaries occurred during the sentinel lymph node dissection leading to the chyle reflux. This resolved with a low fat diet and fortuitously, with a “second look” operation where we were able to identify the lymphatic leak and clip it.

In general these chyle or lymph leaks are low output fistulas that will resolve with low fat diet. Other treatments include adequate drainage, compression bandage, bed rest or intravenous octreotide. In recalcitrant or high output cases, they may require operative exploration with direct clipping of the leak or even local muscle flaps. The literature on chyle leaks in breast reconstruction is sparse. There are no articles suggesting that the presence of a chyle leak in the presence of a tissue expander might increase the risk of infection. However, intuitively, an implant bathed in nutrient rich lymphatic fluid is likely to provide a medium for secondary bacterial infection.

A discussion of this rare complication following sentinel lymph node biopsy in patients undergoing immediate implant based reconstruction should be offered to patients undergoing mastectomies.

Figure 1 JP drains clearly showing milky chyle leak in one drain.
Conflict of interest

All authors have no conflict of interests to declare.

References


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A desmoplastic melanoma detected by an airport security scanner

Dear Sir,

The diagnosis of desmoplastic melanoma is challenging for both clinicians and the histopathologists. The desmoplastic melanoma often clinically presents as a non-pigmented lesion mimicking a variety of other lesions and, as result can be mistaken for a benign non-melanocytic lesion which in-turn delays diagnosis, treatment and worsens patient prognosis. In this article we report a case of an incidental finding of desmoplastic melanoma detected by an airport security scanner.

A 51 year old male patient presented to the senior author’s clinic with a slow-growing lesion on the central part of his upper back. The patient was a frequent traveler and during a recent visit to the United States, after going through an airport full body scan, an area on his back was singled out triggering a body search by the airport security officials. The airport officials identified a lesion on his back and advised the patient to seek expert medical opinion. The patient was initially referred to the dermatology team by his general practitioner who carried out a biopsy of the lesion. Initial biopsy results concluded that the lesion was consistent with a diffuse type neurofibroma or a reactive neurona. In light of the histology result, the patient opted for no further intervention. Four months later, the patient re-presented to the dermatology team complaining of itching at the sight of lesion and wished to re-visit the option of surgical excision. On presentation the patient had a 5.5 × 4.5 cm spherical lesion on his upper central back. The lesion was not fixed to the underlying structures and the patient did not have any lymphadenopathy. The patient underwent wide excision of the lesion on his back and the area was reconstructed with a split-thickness skin graft. The histology on this specimen reported a pure spindle cell/desmoplastic malignant melanoma with a Breslow thickness of 26 mm (Clark level 5). Given the new diagnosis, the patient subsequently had a staging CT scan which reported no evidence of distant metastatic disease.

The DM more commonly presents in older patients with a predilection for the head and neck region. A study by Feng et al. (2011) reported an annual incidence of 2.0 per 1,000,000 with 5-year survival rates ranging from 90.9% for local disease to 51.5% for distant disease. The diagnosis of DM poses both a clinical and histological dilemma. Histologically, these lesions are characterized by spindle shaped melanocytes surrounded by a dense fibrotic stroma, neurotropism and prominent desmoplasia. Clinically, early diagnosis of DM is challenging, as presentation is highly variable and can often mimic innocuous lesions such as neurofibroma, dermatofibroma, melanocytic naevas and scar.

On reviewing the literature, we identified one documented case of a 1.2 cm Nodular melanoma detected by an airport scanner. The area in question, on the male patients left leg, triggered specific pat-down by airport security teams on over 20 occasions. After excision of the lesion, the previous area of interest was not flagged once in over 40 flights.

Two types of Advanced Imaging Technology (AIT) systems or “full body scanners” are used as part of routine airport security checks. The two systems used are; Backscatter technology units (exposing the patients to ionizing radiation) and Millimeter wave technology units (exposing the patient to electromagnetic radiation). The Backscatter system produces a two-sided image resembling a chalk etching (Figure 1). The Millimeter-wave systems rely on millimeter waves, a type to electromagnetic radiation, which possesses a unique property of being able to pass transparently through materials such as light-weight clothing (Figure 2).

The ability of these scanners to detect potential life threatening disease and the fact that the radiation emitted is less than the background radiation emitted by mobile phones raises the possibility of this technology being used for routine screening for malignant melanoma. Mela Sciences has received FDA approval for use in the United States and European Union for a new handheld tool which uses non-ionizing radiation to aid in diagnosis called MelaFind.

Our reported case highlights this coincidental finding whilst during an airport security check and the high level of scanning technology which may in the future aid in the diagnosis of atypical skin lesions. In order for this technology to be used in a clinical setting it would have to be both sensitive and specific. Long-term effects on patient health would also have to be studied. Physicians and surgeons should be educated not to disregard any information shared.