



# Melanoma Seeding at the Chest-Wall Port Site Following the Thoracoscopic Removal of a Right Lower Lobe Metastasis

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## Abstract

Malignant melanoma is a cutaneous neoplasia with very high mortality rates that is one of the most aggressively-disseminating malignancies. It has been estimated that between 10% to 40% of melanoma patients will experience metastases into the lung. Here, we present a case of a recurrence of melanoma at the chest wall port site, following a thoracoscopic procedure to remove a metastatic lesion on the right lower pulmonary lobe.

**Keywords:** Malignant melanoma; Melanoma port site metastasis; Thoracoscopic procedure

## Introduction

Metastases at laparoscopic trocar or port incisions, generally referred to as “port-site metastases” are a rare complication. They have been reported to occur following laparoscopic procedures for urologic malignancies, following laparoscopic surgeries for malignant gynecological cancers as well as laparoscopic surgery for gastrointestinal cancers [1-3]. In minimally invasive surgical procedures for all of these intra abdominal cancers, the incidences of recurrence at the port site are at or lower than 1%. Malignant melanoma is a cutaneous neoplasia with very high mortality rates that is one of the most aggressively disseminating malignancies. It has been estimated that between 10% to 40% of melanoma patients will experience metastases into the lung, however melanoma patients with lung metastases (considered stage M1b) have a better prognosis than those with metastases at other visceral localizations with a 5 year overall survival of 17% [4,5]. Many pulmonary metastases are located at the periphery, making them very amenable to resection. The minimally invasive video assisted thoracoscopy has a few advantages over open surgery especially for small (<5 cm) and peripheral lesions. It involves smaller incisions, less post operative pain, shorter hospitalization, better pulmonary function, better cosmesis and lower risk of developing pneumonia. Here, we present a case of a recurrence of melanoma at the chest wall port-site, following a thoracoscopic procedure to remove a metastatic lesion on the right lower pulmonary lobe. To the best of our knowledge, this is the first report of a port-site metastasis following surgery to remove melanoma lesions from the lungs.

## Case Presentation

The case is a 56 years old male patient previously diagnosed with melanoma on the right thigh, with high risk of metastasis. On April 2011, he underwent Wide Local Excision (WLE) of his melanoma and was treated with low dose interferon in a hospital in another country. Intraoperative lymphatic mapping and right inguinal sentinel node biopsy were performed at our medical center with the reservation regarding the accuracy of the mapping due to the flap reconstruction used during the patient’s original surgery to cover the WLE defect (Figure 1 and 2). The sentinel node was negative for metastasis; however, this seems to have been a false negative result. On September 2012, a radical groin dissection was performed and adjuvant radiotherapy was administered due to melanoma recurrence in the right groin (Figure 3). A few months ago he presented with Stage 4 melanoma due to a single Right Lower Lobe (RLL) metastasis. This lesion was removed by right thoracoscopy. Follow up Positron Emission Tomography Computed Tomography (PET

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Figure 1: Wide local excision of port site melanoma.



Figure 2: After resection of the tumor.



Figure 3: The arrow refers to melanoma.

CT) 2 months after his thoracoscopic procedure revealed melanoma recurrence at the right chest wall port site, between the ribs. On April 6, 2015, he underwent full thickness chest wall resection including segments of ribs 8-9-10, and Prolene Mesh reconstruction. Postoperative course was uneventful. Chest tube removed on post operative day two.

## Discussion

In this paper, we have presented a case of seeding of a tumor at the chest wall port site following thoracoscopic removal of a melanoma metastatic lesion from the lung. Our literature search has yielded no other report of thoracic port site metastasis of melanoma. We have identified a single other report of port site recurrence, which was at the abdominal wall, following laparoscopic Adrenalectomy for metastatic melanoma. A few etiologies have been proposed for the occurrence of port-site tumor seeding. Those include contamination of the wound at the port site, either through contact with tools contaminated with cancerous cells or due to CO<sub>2</sub> leakage that promotes free movement of tumor cells that have a high propensity of implantation in the injured tissue at the port site; Pneumoperitoneum, the pressure gradient of CO<sub>2</sub> that is used as the insufflation gas during the procedure and may cause a “chimney effect”, directing free moving tumor cells to the port site and various effects on the immune system, including CO<sub>2</sub> induced immunosuppression, that may facilitate the movement of tumor cells. Most authors writing on this subject consider the aggressiveness of the initial tumor to be the primary determinant for the risk of port site metastasis occurrence, and some consider this specific complication to be a surrogate for advanced disease. Our patient suffered from an aggressive melanoma that has recurred a few different times.

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