

Case Report

## Videoscopic inguinal lymphadenectomy in malignant melanoma: safe in pregnancy?

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Lymphadenectomy is the standard of care for metastatic melanoma in the inguinal lymph node basin. Historically, open surgery was the only treatment option. However, in recent years, videoscopic inguinal lymphadenectomy (VIL) has become a popular approach as it offers a minimally invasive alternative, provides similar oncologic control and reduces wound complications. Even though the VIL approach is being used more frequently, the patient populations that stand to benefit the most from this approach are still under investigation. Despite continued advances in safety for laparoscopic surgery, many surgeons are hesitant to perform these procedures on pregnant women. In this report, we present a successful VIL in a pregnant patient, describe our technique and demonstrate the safety of performing VIL in expectant mothers. To our knowledge, this case represents the first VIL performed in an expectant mother.

### INTRODUCTION

In 2014, more than 32 000 women in the USA are estimated to be diagnosed with melanoma, with more than 3000 women dying from melanoma [1]. Moreover, nearly one-third of women diagnosed with melanoma are of childbearing age and ~8% of malignancies are diagnosed during pregnancy [2]. The treatment of melanoma in pregnant patients remains difficult and controversial as there are obvious concerns for the fetus, which include administering contrast agents, general anesthesia and as well as the stress of a major operation. It is important to determine safe and effective treatment options for this patient population. Although open inguinal lymphadenectomy has historically been the standard treatment for metastatic melanoma in the inguinal lymph node basin, multiple studies have reported significant morbidity following the procedure, with wound complication rates of 50% or higher [3–5]. Videoscopic inguinal lymphadenectomy (VIL) is a minimally invasive alternative that reports fewer wound complications, shorter hospital length of stay and a similar lymph node yield [6]. VIL is an approach in which appropriate patient populations are still being defined. This case report further illustrates the safety of VIL as it is successfully performed in an expectant mother of 24 weeks.

### CASE REPORT

In June 2013, a 38-year-old woman underwent wide local excision of her right thigh 1.4 mm thick melanoma with a negative sentinel lymph node biopsy (SLNBx). One year later and now 20 weeks pregnant, the patient was referred to our clinic with a palpable mass in the SLNBx basin. Biopsy of this mass was positive for regionally recurrent metastatic malignant melanoma. Preoperative imaging included computed tomography of the chest and magnetic resonance imaging of the abdomen and pelvis. These studies revealed post-biopsy changes in the right groin without involvement of the deep lymph nodes or other sites of concern. Both video-assisted and standard open superficial groin dissections were discussed with the patient, as well as the risks and benefits of undergoing surgery during pregnancy. After conferring with our Melanoma Multidisciplinary Clinic and obtaining approval from Anesthesia and Maternal Fetal Medicine, the patient and our team agreed to proceed with VIL.

At the time of her right VIL, our patient was 24 weeks pregnant. She was positioned supine on a split-leg table with a bump under her right hip to offload the inferior vena cava from the uterus. The femoral triangle boundaries were mapped out with a surgical pen, and the area was prepped and

draped in a sterile fashion. A skin incision was made 10 cm inferior to the femoral triangle apex to accommodate a 10-mm balloon trocar. Carbon dioxide (CO<sub>2</sub>) insufflation was started at 20 mmHg for the first 15 min and then lowered to 12 mmHg for the duration of the case. End-tidal CO<sub>2</sub> never reached above 35 mmHg during the case per anesthesia. Under direct visualization using a zero-degree laparoscope, two 10 mm trocars were placed outside the medial and lateral boundaries of the demarcated femoral triangle.

Dissection was carried forward using ultrasonic shears just above scarpa's fascia. We identified the medial and lateral boundaries of the dissection to include the adductor longus and the sartorius muscle fascia. The lateral femoral cutaneous nerve was preserved. Starting at the apex of the femoral triangle, dissection above the deep fascia of the thigh was advanced superiorly to the level of the inguinal ligament with identification of key structures, including the femoral vein and artery. The lymph node packet was removed from our working space and a 19-Fr Blake drain was introduced through the anterolateral 10-mm port and secured to the skin. Both 3-0 Vicryl and 4-0 Monocryl sutures were used to approximate the dermal and skin edges. The patient was awakened from anesthesia and transported to the obstetrics recovery unit where fetal heart tones were monitored and a viable fetus was confirmed. The patient was discharged home on postoperative day 1. Final pathology from the VIL showed nine benign lymph nodes. Her wounds healed well with no complications and the drain was removed 6 weeks after surgery.

## DISCUSSION

Wound-related complications following open lymphadenectomy often exceed 50%. Common complications include seromas, flap necrosis, wound infections and lymphedema [6]. Using VIL, previous studies have demonstrated both equal and improved lymph node retrieval with decreased morbidity [6, 7]. Avoiding wound-related complications not only improves recovery time, but also decreases hospital readmission rates and need for postoperative antibiotics. One unexpected consequence of VIL has been longer drainage times (4–6 weeks). This is most likely due to the fact that since the wounds do not breakdown, the drains continue to work instead

of draining by way of an open wound and requirements for a wound vac. An additional potential concern is the retention of CO<sub>2</sub> during the case secondary to subcutaneous induced emphysematous changes of the dissection. While this remains a real concern, it has not yet required us to abort VIL to convert to an open approach. This case demonstrates a safe approach to melanoma management without delaying treatment for an aggressive malignancy in the delicate setting of pregnancy. Using this approach, we were able to harvest adequate nodes to fully workup a patient who has had multiple melanomas despite presentation in her second trimester of pregnancy. Working in a multidisciplinary setting with inclusion of radiologists, oncologists, surgeons, maternal fetal medicine and anesthesia was essential to easily and safely facilitating the patient's plan of care. While further research is clearly needed, our case demonstrates that VIL can be a safe and effective option for inguinal node harvest for melanoma in the previously excluded population of pregnant women.

## CONFLICT OF INTEREST STATEMENT

None declared.

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