

Surgical Management of Isolated Port Site Metastasis Following Robotic Assisted Gynaecological Cancer Surgery – A Case Report

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ABSTRACT

Background: Port site recurrence a rare complication of laparoscopic or robotic surgery for gynaecological cancer. The exact mechanism it is not well understood and there are few cases detailing this phenomenon specifically after robotic assisted surgery for gynaecological cancer.

Methods: The authors present a case of isolated port site metastasis in a 49 years-old woman with Stage 1B1 grade 2 endocervical adenocarcinoma following primary robotic radical hysterectomy with lymph node dissection. The recurrence was diagnosed 16 months post primary surgery in the anterior abdominal wall and the lung. Both were resected with clear margins and the patient continued follow up. A further second ipsilateral port site recurrence was diagnosed 81 months after the initial surgery, this was also excised and the abdominal wall reconstructed with mesh.

Conclusion: Isolated port site recurrence can be successfully managed by surgical excision in selected cases, however more research should be done to develop better understanding of the mechanisms and risk factors for port site metastasis in different gynaecological cancers which would in turn help to improve clinical decision making.

Keywords: Port site metastasis; Gynaecological cancer; Cervical cancer; Minimally invasive surgery; Robotic surgery

INTRODUCTION

Laparoscopic port site metastasis has been described as early as 1978 by Döbrönte et al. At the time the concept of robotic assisted surgery was still in the distant future yet the rapid advances in imaging technology, microprocessors and optics have pathed way for a new era in robotic surgery which is now widely implemented in the management of gynaecological cancer [1]. The oncological safety of

minimal access surgery has been a widely debated topic. One of the concerns with minimal access surgery is port site metastasis to the abdominal wall. The incidence of port-site metastasis after conventional laparoscopy is thought to be low and has been reported as 1%–2% (Ramirez 2003, Zivanovic 2008). Robotic assisted surgery, on the other hand has seen relatively few studies and case reports examining port site metastasis [2-5].

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The overall incidence of port-site metastasis after robotic assisted surgery is thought to be low and has been reported as 0.9% by Barraez and colleagues (2015) in their analysis of endometrial cancer cases. Similarly, Lönnerfors et al (2013) have reported robotic port-site metastasis in 1.9% (9 women) of patients with cervical and endometrial cancer with high-risk histology and/or advanced stage thought to be contributing factors. Nodofor (2011) and colleagues reported on 2 patients (1.1%) with port-site metastasis following robotic surgery for gynaecological malignancies, in both identified cases, the patients had concurrent metastasis elsewhere. Moreover, a retrospective cohort analysis by Rindos et al. (2014) detected port site metastasis in 1.4% (2 of 142) patients who underwent robotic-assisted surgery for gynaecological cancer and in both cases the patients also had other areas of metastasis [6]. Indeed, in the majority of reported cases, patients with port site metastasis have other concurrent metastasis and isolated oligometastatic port site recurrence is rare.

CASE PRESENTATION

A 49 years old lady presented to the gynaecology oncology clinic in December 2016 with diagnosis of grade 2 endocervical adenocarcinoma following a targeted loop biopsy and a colposcopic examination. The symptoms at presentation were of postcoital bleeding and abnormal vaginal discharge. There were no medical comorbidities, and no previous surgery other than a caesarean section. On physical examination there was evidence of 4 cm exophytic tumour on the cervix with no vaginal or parametrial invasion. Radiological staining with contrast Computed Tomography (CT) of the thorax, abdomen and pelvis as well as a Pelvic Magnetic Resonance Imaging (MRI) did not demonstrate any distant metastatic disease or lymphadenopathy [7]. The cancer was pre-operatively staged by cancer multidisciplinary team as International Federation of Gynecology and Obstetrics (FIGO) (2009) 1B2 and she was offered surgery at a gynaecology cancer centre (Pecorelli 2009). She underwent a total robotic radical hysterectomy, left pelvic sentinel lymph node identification with bilateral pelvic lymphadenectomy [8]. The procedure was performed on the Da Vinci Si Surgical System (Intuitive Surgical, Sunnyvale, California, USA). Indocyanine Green was injected at 3 o'clock and 9 o'clock into the cervix for sentinel node identification [9]. A Vectec uterine manipulator was used. Primary Veress needle entry was performed with and a 12 mm camera port was placed 4 cm above umbilicus. Further left lateral 12 mm assistant port, left iliac fossa 8 mm robotic port and two right 8 mm robotic ports were placed under direct vision. The port placement was curvilinear and angled toward the pelvis (Figure 1).

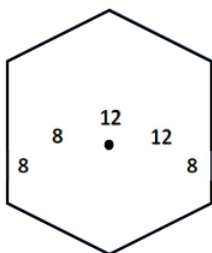


Figure 1: Abdominal port placement for primary surgery (port size in mm).

Lymph node retrieval was undertaken intraoperatively in a laparoscopic bag. The uterus was retrieved vaginally. The skin incisions were closed with 2-0 vicryl rapide sutures. The procedure was uncomplicated with estimated blood loss of 175 ml. The patient was discharged the following day [10]. The final histopathology report confirmed grade 2 endocervical adenocarcinoma with no lymphovascular space invasion and a depth of stromal infiltration of 15 mm. There was no evidence of extra cervical soft tissue extension. The tumour was completely excised with a margin of 9 mm [11-13]. All of the lymph nodes were negative for malignancy. The final FIGO (2009) cancer stage was 1B1 and after review by the multidisciplinary team, clinical follow up was recommended. Unfortunately, after 16 months of follow up (May 2018), a surveillance CT scan had demonstrated 17 mm left rectus sheath nodule and a 7 mm left lower lobe pulmonary nodule (Figure 2).



Figure 2: Axial CT marking left rectus sheath nodule.

A Positron Emission Tomography-Computed Tomography (PET-CT) demonstrated increased uptake in the rectus sheath nodule (SUV 14.8). A diagnostic laparoscopy was performed to exclude intra-abdominal recurrence. She underwent radiolabelled excision of the lung and left rectus sheath nodules. Subsequent histopathological examination had demonstrated a metastatic adenocarcinoma of primary cervical origin in both specimens (CK7, CEA, P16 positive and lack of TTF1 and CK20 expression). Both resection margins were clear of the tumour. The results were discussed in the gynaecological cancer MDT and the patient continued follow up. She continued follow up uneventfully until September 2023 (81 months after primary surgery) when she presented with left-sided abdominal pain. A contrast CT scan had demonstrated a recurrence in the left rectus sheath with subsequent PET CT demonstrating an Fluorodeoxyglucose (FDG) avid lesion (SUV 59) in the inferior aspect of the left rectus sheath measuring 7.5 cm. There was no evidence of other metastatic disease (Figure 3).

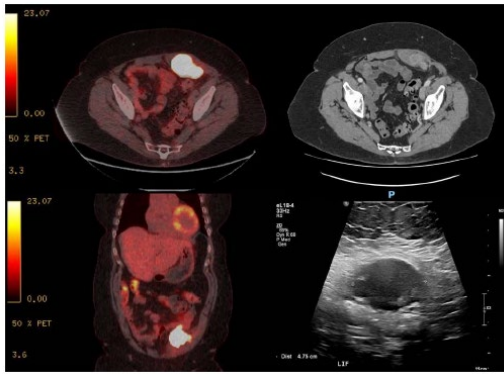


Figure 3: Ass in the left rectus sheath (top left = axial PET CT, bottom left = coronal PET CT, top right = axial contrast CT, bottom right = trans abdominal ultrasound).

Following consensus from the multidisciplinary team, the patient underwent a multi-speciality joint surgical procedure involving plastic surgery, general surgery as well as a gynaecological oncology team. The tumour was excised through an abdominoplasty (flap) approach, with subsequent defect reconstruction with acellular dermal matrix and mesh (Figure 4). The tumor did not involve the bowel or other intra-abdominal structures.

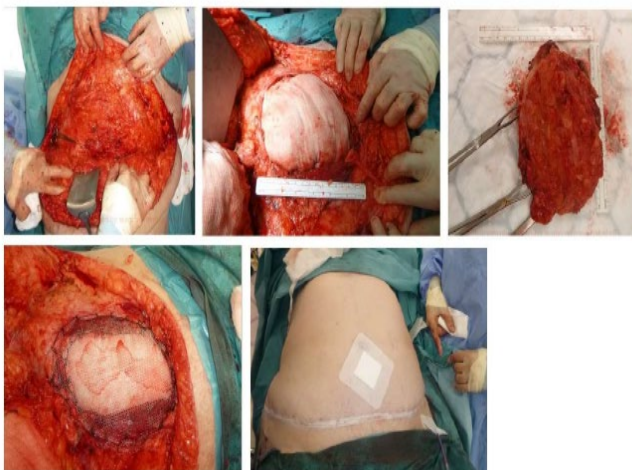


Figure 4: Rectus sheath tumor excision (abdominoplasty approach) and abdominal wall reconstruction.

The histopathology report showed a high-grade poorly differentiated adenocarcinoma. All of the surgical margins were clear. Tumour immunohistochemistry demonstrated positive staining for p16 and CK7 with overall impression favouring that of a metastatic HPV-associated adenocarcinoma of cervical origin. The patient has recovered well following surgery and is asymptomatic. Three months after the surgery, another 12 mm FDG avid nodule was discovered on the superficial anterior chest wall. This was excised surgically, but did not demonstrate any evidence of malignancy. The patient is continuing regular clinical follow up and surveillance.

DISCUSSION

Isolated port site metastasis is defined as cancer recurrence at trocar sites with no evidence of metastatic disease elsewhere (Gao 2020). It is a rare complication of minimal access surgery for gynaecological cancer and is thought to have an estimated prevalence of 0.2%-0.5% (Barres 2015, Lonnerfors 2013). In cervical cancer specifically, there are limited case reports describing port site metastasis (Zhong 2018) and the majority are thought to be associated with squamous cell histological type (Ramirez 2004). The management of port site metastasis is often individualised and is dependent on the distribution of the disease, presence of other metastasis, and patient fitness to undergo further treatment. Options include radical excision alone or in combination with adjuvant chemotherapy and abdominal wall irradiation (Benabou 2020). Benabou et al., describe a comparable case of laparoscopically managed FIGO Stage 1B1 endocervical adenocarcinoma where the patient also underwent clinical surveillance. Abdominal wall recurrence was diagnosed after 4 years and this was also near the prior assistant port site; a port which was used for removal of lymph nodes in a laparoscopic bag (Benabou 2020). The recurrence was managed by surgical excision and reconstruction alone, however 3 years later the patient was diagnosed with a second port-site recurrence on the same side of the abdominal wall. Given the infrequent occurrence of port site metastasis and lack of data specific to gynaecological oncology, it is difficult to draw conclusions and identify contributing factors. This case report demonstrates that port site metastasis can be successfully managed with surgical excision. It is clear that more research should be done to develop better understanding of the mechanisms and risk factors for port site metastasis in different gynaecological cancers which would in turn help to improve clinical decision making.

CONCLUSION

This case report demonstrates that port site metastasis can be successfully managed with surgical excision, as evidenced by this report where the patient is asymptomatic and disease free 7.5 years after her initial cancer diagnosis. It is clear that more research should be done to develop better understanding of the mechanisms and risk factors for port site metastasis in different gynaecological cancers which would in turn help to improve clinical decision making.

The authors have no conflict of interest to declare. Written consent from the patient was obtained for publication of this case report, a copy of the consent from can be made available to the editorial board upon request.

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