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Surgical Film

Comprehensive, therapeutic retroperitoneal pelvic and infrarenal aortic lymphadenectomy for advanced cervical carcinoma☆

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HIGHLIGHTS

- PET/CT scans do not show the highest extent of cervical carcinoma metastasis.
- Removing bulky nodes improves effectiveness of chemoradiation for cervical carcinoma.
- Removing all nodes at risk: from the pelvis to the renal veins can reveal occult nodal metastases and facilitate radiotherapy planning.

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ABSTRACT

This 49-year-old female with stage III cervical carcinoma presented with a PET/CT scan showing bilateral pelvic and common ileac adenopathy. A retroperitoneal approach to resect the nodes well above the highest documented PET positive region was employed in July 2011. The bilateral infrarenal, bulky inframesenteric and pelvic nodes were comprehensively removed, revealing bilaterally positive nodes in 5/36 pelvic nodes, 13/25 inframesenteric nodes, and 3/20 infrarenal nodes (these latter not detected on PET). Image-modulated radiation to 10 cm above the renal vein, with concurrent cisplatin chemotherapy was undertaken, resulting in a disease-free status thus far.

Introduction

Cervical cancer typically spreads by local invasion and via lymphatic channels. Treatment aimed locally at the cervix is most often successful, with rare recurrences in the primary site, and more frequent and fatal recurrence in the lymph nodes, especially when the nodes are large. PET and CT scans can identify larger nodes with metastatic lesions, but smaller nodes can escape recognition, confounding effective radiation port planning. Removing the enlarged and "at risk" nodes prior to instituting chemoradiation has been reported to offer a better disease-free survival [1]. In this case, we sought to reduce the burden of lymphatic cancer with lymphadenectomy of the FDG avid nodes and to determine if the nodes above this level might also have metastasis in order to plan effective chemoradiation. A retroperitoneal approach was employed to minimize adhesions and complications.

Case history

A 49 year old woman who's last Papanicolau smear was 9 years prior had noticed a watery-bloody discharge for over a year. A poorly differentiated squamous cell carcinoma was identified by biopsy. Rectovaginal exam revealed bilateral extension of tumor to the pelvic sidewalls, confirming FIGO Stage III disease. A PET/CT scan showed bilateral pelvic and common ileac adenopathy, but no FDG-avidity in the aortic nodes or higher. (Fig. 1) The diagnostic computed tomogram confirmed bulky adenopathy in the pelvis and common ileac vessels, patent ureters, and the absence of aortic adenopathy. CT of the chest was negative. Serum assessments of liver and renal function were normal.

Operative technique (see video): Diagnostic laparoscopy to confirm that the peritoneal cavity was free of disease was undertaken, then a left-sided retroperitoneal approach for lymphadenectomy using a left MacBurney incision and three additional 5 mm ports. The four left sided ports accommodated two 5 mm instruments for the surgeon, the bipolar sealing device (Ligasure Advance, Covidien, Boulder, CO) and a grasper. The assistant held the 5 mm camera and a flexible liver retractor (Snowden Pencer, CareFusion, San Diego, CA). The retractor is used in many cases in which the peritoneum develops a mild to moderate leak of air into the peritoneal cavity. A methodical and comprehensive bilateral excision of the fatty node-bearing tissue was

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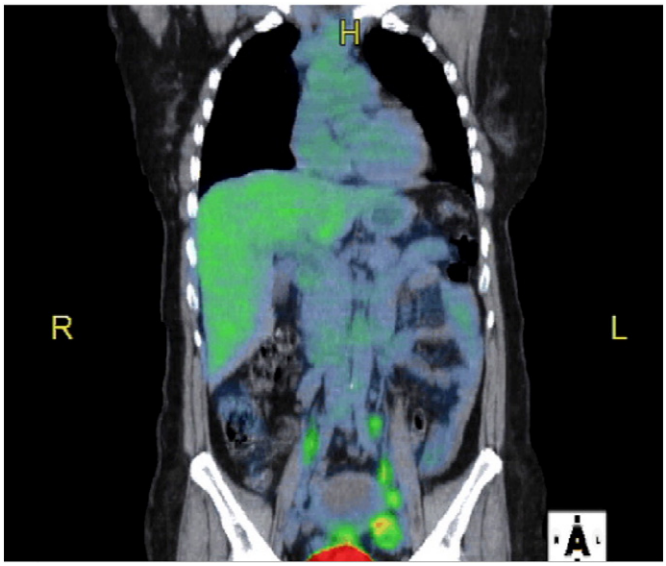

Fig. 1. Presurgical PET scan fused with computed tomogram reveals bilateral pelvic and common ileac adenopathy.

undertaken first from the inferior mesenteric artery caudally to the bilateral common ileac artery bifurcations labeled "inframesenteric nodes." The dissections from the inferior mesenteric artery cephalad to the renal veins were separately labeled "Infrarenal nodes"; and the pelvic lymphadenectomy was extended down to the crossing over of the deep circumflex ileac vein over the external ileac artery.

Results

Her surgery was performed on July 6, 2011. During the surgery, approximately 300 cc blood was lost over 3 h. She spent one night in house, and sustained no complication. She was discharged the next day with an abdominal binder in place, as this appears to reduce lymphatic fluid leakage from the many abdominal incisions, in our experience. Twenty-four nodes were positive from among 81 removed. Positive nodes were identified in five of the six fields: 5 of 36 pelvic nodes, 13 of 25 inframesenteric nodes and 3 of 16 left infrarenal nodes. None of 4 right infrarenal nodes contained metastases. Her intensity modulated radiation therapy field was designed to extend well above the margin of the resected infrarenal nodes (Fig. 2). She completed chemoradiation in September 2011, and remains free of disease with an excellent performance status as of May 2013.

Discussion

Removing enlarged lymph nodes prior to chemoradiation appears to improve survival from cervical carcinoma, especially when nodes are bulky [2,3], but prospective randomized trials confirming this concept are lacking. The PET/diagnostic CT scan cannot be relied upon to reveal the highest extent of positive nodes in cervical

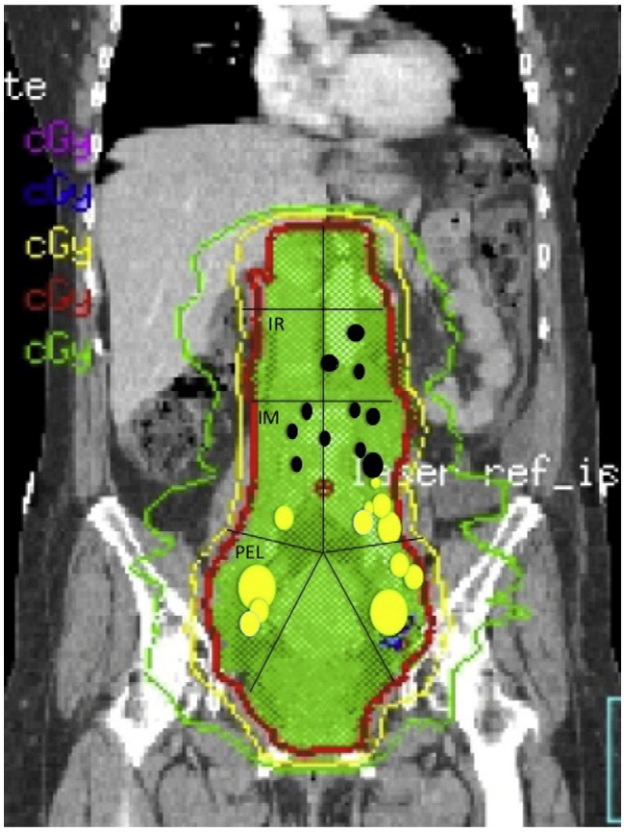

Fig. 2. Postoperative CT for image modulated radiation port planning reveals overlay of positive nodes in the pelvic (PEL), inframesenteric (IM) and infrarenal (IR) fields. Those predicted by PET are in gray, and additional positive nodes identified after surgery are in black. The IMRT was extended 10 cm above the renal veins.

carcinoma. Lymphadenectomy to determine the highest level of metastasis is safe and feasible. Use of surgical pathological data can help in effective planning of the chemoradiation ports to maximize tumor inclusion, and minimize complications [4].

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.ygyno.2013.05.014.

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