

# CT guided wire localization of a biopsy proven recurrent rectal adenocarcinoma in an inguinal lymph node: A case report

Geoffrey Bellini<sup>1</sup>, Paul Heideman<sup>1</sup>, Antony Ruggeri<sup>1</sup>, Satchi Hiremath<sup>2</sup>, James Weese<sup>3</sup>, Wesley Papenfuss<sup>4</sup>, Aaron Chevinsky<sup>5</sup>

Bellini G, Heideman P, Ruggeri A, et al. CT guided wire localization of a biopsy proven recurrent rectal adenocarcinoma in an inguinal lymph node: A case report. *Surg Case Rep.* 2019;3(1):8-9.

This case report aims to describe the use of CT guided wire localization for excision of a non-palpable PET avid lymph node (LN) in the groin. We present a case of a patient with a recurrent very distal rectal adenocarcinoma metastasized to a right inguinal LN who underwent wire localization under CT scan guidance just prior to surgical excision and inguinal node dissection.

We adjusted our incision to ensure not only the LN of interest was easily found and excised but also aesthetic closure based on its location. The node of interest proved to be recurrent metastatic rectal adenocarcinoma (proven preoperatively by a needle biopsy with clip placement to facilitate localization). We believe this technique to be useful for both localizing groin LN and allowing for optimal aesthetic closure.

**Key Words:** *Inguinal lymph node; Needle localization; CT guided; Rectal adenocarcinoma*

## INTRODUCTION

It is estimated that nearly 44,180 new cases of rectal adenocarcinoma will be diagnosed in 2019 with almost 64% being male patients (1). Metastatic spread to the inguinal LN's is rare and considered systemic disease (2). A recent study suggests that solitary inguinal LN metastasis in a primary rectal cancer can be treated for cure with a 5 year survival rate of 52% in one case series of 27 patients (3). Metachronous metastasis to an inguinal LN, which is even more rare, is defined as an occurrence after a period of three months post operatively (4). PET scan serves as an important imaging modality to investigate for recurrence or metastasis for a number of different primary carcinomas. Often times, LN will appear PET avid requiring biopsy and ultimately possible resection. Wire localization has long been a technique employed in breast surgery to identify non palpable lesions (5,6). More recently, this technique has been utilized for the identification of axillary lymph nodes after neo adjuvant chemotherapy in patients with initially node positive breast cancer (7). In addition, there have been reports promoting the use in the identification of non-palpable cervical lymph nodes (8). To our knowledge, this is the first report of using this technique to localize a LN in the inguinal region.

## CASE REPORT

A 61-year-old female developed rectal bleeding in early 2015 and was found to have a 1.2 cm × 0.8 cm rectal lesion just above the dentate line. Biopsy showed moderately differentiated adenocarcinoma. CT scan of the chest abdomen and pelvis did not reveal any sign of metastatic disease. The lesion was Stage 1 T<sub>2</sub> N<sub>0</sub> M<sub>0</sub>. The patient underwent a trans anal excision and did not receive any additional treatment (at her request, although adjuvant therapy was recommended). On surveillance imaging, the patient had known liver cysts that appeared to grow a small amount in size compared to prior CT. These liver lesions were negative on prior PET CT. Nonetheless, now three years out from the index operation, another PET CT was performed to evaluate these liver lesions. The PET-CT revealed a PET avid LN in the right inguinal region, posterior and immediately adjacent to the femoral vein, which on biopsy revealed recurrent adenocarcinoma. No other metastatic sites were seen, and her CEA was 1.5. At the time of biopsy, a clip was placed in the LN. MRI did not show any other residual cancer in the rectum. A colonoscopy was performed prior to surgery, which only showed tubular

adenoma in the cecum. CT guided wire localization of the PET avid LN was performed the morning of surgery (Figure 1).

A right superficial inguinal dissection with wire localization and right sartorius muscle transposition was performed to remove the exact PET avid node. Postoperatively, the patient underwent physical therapy and placement of compression stockings. She did well and was discharged on post-operative day three. Final pathology revealed metastatic adenocarcinoma of the affected lymph node along with nine other negative lymph nodes. She was treated with postoperative chemoradiation with Xeloda. She has since completed four additional months of FOLFOX therapy and is currently NED six months post operatively from her superficial inguinal dissection.

## DISCUSSION

Inguinal lymph node metastasis from rectal adenocarcinoma is rare but can occur in both the synchronous and metachronous setting (9). A retrospective study from Japan looked at 323 patients with rectal adenocarcinoma and



Figure 1) CT guided wire localization of right inguinal LN

<sup>1</sup>Aurora Saint Luke's Medical Center Milwaukee, Wisconsin, USA; <sup>2</sup>Aurora Health Care Medical Group, USA; <sup>3</sup>Aurora Cancer Care, Aurora Health Care, USA; <sup>4</sup>Department of Surgical Oncology-Robotic Surgery, Entrepreneur Greater Milwaukee Area Hospital and Health Care, USA; <sup>5</sup>Department of Surgery, Milwaukee, Wisconsin, USA

Correspondence: Geoffrey Bellini, Aurora Saint Luke's Medical Center, Milwaukee, Wisconsin, USA. Telephone 414-649-6000; e-mail geoff.bellini@gmail.com

Received: March 26, 2019, Accepted: April 23, 2019, Published: April 26, 2019



This open-access article is distributed under the terms of the Creative Commons Attribution Non-Commercial License (CC BY-NC) (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits reuse, distribution and reproduction of the article, provided that the original work is properly cited and the reuse is restricted to noncommercial purposes. For commercial reuse, contact reprints@pulsus.com

found only 4 patients with metachronous spread to an inguinal LN in the absence of other metastatic disease (10). Of those four, all underwent recommended surgical excision. Three of those patients were alive at three year follow up and one died of pneumonia. Thus, resecting the node of interest proves vital in these cases as well as metastasis from other primary cancers. Adding the extra step of clip placement at the time of initial biopsy and then CT guided wire localization helps ensure the proper LN or tissue is excised. In our patient's case, her post-operative pathology showed that the tissue had become fibrotic and inflamed, possibly from the previous core needle biopsy which appeared to obliterate the normal LN architecture. The wire localization ensured that we excised this soft tissue deposit, which proved positive for adenocarcinoma on pathology while all other LN were negative. Our incision was also modified to an elliptical S-shaped incision around the wire rather than the standard S-shaped incision based upon anatomical landmarks. The previous core needle biopsy site was included in our incision. The patient's wound was approximated with less tension as a result. Other alternatives to wire localization exist. Recent studies have supported the reliable use of radioactive seeds placed several days prior to surgery for non-palpable breast masses (11). Newer studies have looked at using non-radioactive micro impulse radar or MIR that uses radar pulses that are emitted and reflected to locate an object (12). However, there are drawbacks to any localization modality. Regardless of the approach, preoperative localization can be very useful in groin dissections as well. In terms of post-operative management, our patient completed chemoradiation that was followed by adjuvant FOLFOX chemotherapy alone. The pattern of metachronous recurrence was in a non-regional lymph node, and there was concern for future recurrence elsewhere, which serves as the rationale for her additional chemotherapy. Radiation was added for further local control.

#### CONCLUSION

In summary, we believe CT guided wire localization for non-palpable groin LN to be a safe and effective method for lymph node identification and dissection in this region. This technique allows for adjustments in the incision to allow for optimal aesthetic closure. Wire localization proves most useful in the setting of known disease in a non-palpable LN to ensure its excision.

#### REFERENCES

1. Siegel RL, Miller KD, Jemal A. Cancer statistics 2019. *CA Cancer J Clin.* 2019;69(1):7-34.
2. Weiser MR. *AJCC 8th ed: Colorectal Cancer. Ann Surg Oncol.* 2018;25(6):1454-5.
3. Hagemans JA, Rothbarth J, Van-Bogterijen GHW, et al. Treatment of inguinal lymph node metastases in patients with rectal adenocarcinoma. *Ann Surg Oncol.* 2019;26(4):1134-41.
4. Laubert T, Habermann JK, Hemmelmann C, et al. Metachronous metastasis- and survival analysis show prognostic importance of lymphadenectomy for colon carcinomas. *BMC Gastroenterol.* 2012;12(1):1-8.
5. Sailors DM, Crabtree JD, Land RL, et al. Needle localization for nonpalpable breast lesions. *Am Surg.* 1994;60(3):186-89.
6. Kopans DB, DeLuca S. A modified needle-hookwire technique to simplify preoperative localization of occult breast lesions. *Radiol.* 1980;134(3):781.
7. Trinh L, Miyake KK. CT-guided wire localization for involved axillary lymph nodes after neo-adjuvant chemotherapy in patients with initially node positive breast cancer. *Breast J.* 2016;22(4):390-96.
8. Hoang JK, De-Jesus R, Eastwood JD, et al. CT guided hookwire placement: a technical innovation for preoperative localization of nonpalpable cervical lymph nodes. *Am J Neuroradiol.* 2012;33(7):104-6.
9. Luna-Perez P, Corral P, Labastida S, et al. Inguinal lymph node metastases from rectal adenocarcinoma. *J Surg Oncol.* 1999;70(3):177-180.
10. Adachi T, Hinoi T, Egi H, et al. Surgical treatment for isolated inguinal lymph node metastasis in lower rectal adenocarcinoma patients improves outcome. *Int J Colorectal Dis.* 2013;28(12):1675-80.
11. Jakub J, Gray R, Degnim A, et al. Current status of radioactive seed for localization of non-palpable breast lesions. *Am J Surg.* 2010;199(4):522-8.
12. Cox CE, Russel S, Prowler V, et al. A prospective, single arm, multi-site, clinical evaluation of a nonradioactive surgical guidance technology for the location of nonpalpable breast lesions during excision. *Ann Surg Oncol.* 2016;23(10):3168-74.