Staging Recurrent Endometrial Adenocarcinoma and Breast Cancer

By Donald Norwood, Jr., MD, radiologist, and Theodore Hronas, MD, radiologist, CARTI Cancer Center, Little Rock, Arkansas

In cases of recurring endometrial adenocarcinoma, it can be difficult to differentiate normal physiologic activity from a pathologic process. Imaging of the lower abdomen can also be affected by motion artifact due to respiration. Lesion localization and characterization, particularly in cases of recurrence, are important considerations in a patient's treatment plan.

Advancements in PET/CT imaging, such as those delivered by Discovery™ MI DR and Q.Clear, have improved our ability to characterize areas of recurrence, as well as provide a more accurate distinction of normal anatomy from a pathologic process.

Patient history

A 79-year-old woman with a history of breast cancer and a recent history of endometrial adenocarcinoma with recurrence within the vagina and vaginal cuff.

Findings

The activity in the vagina is pathologic and not secondary to a redundant urinary bladder. The focal activity within the mid left ureter is physiologic and not representative of a metastatic node.

In this case, the distinct separation of normal physiologic activity within the left ureter was critical. Identifying this area of abnormal activity as physiologic allows for more focused treatment within the pelvis without extending the radiation therapy field into the upper pelvis.

Discussion

This is a complex PET/CT examination with the presence of metabolically active recurrent disease involving the right vagina and right vaginal cuff in a patient who has undergone previous surgery for endometrial carcinoma.

Mild motion-related artifact did not allow exact registration of the CT referenced images to the PET acquisition. The detail in the coronal Q.Clear images clearly showed activity to be contiguous with more subtle activity within the proximal left ureter. The focal activity within the left para-aortic region was indeterminate on the conventional images. However, with Q.Clear we could determine that the activity in the left ureter was benign and not a metastatic node. This patient had prior biopsy-proven pulmonary metastases within the right upper lobe that were previously ablated.

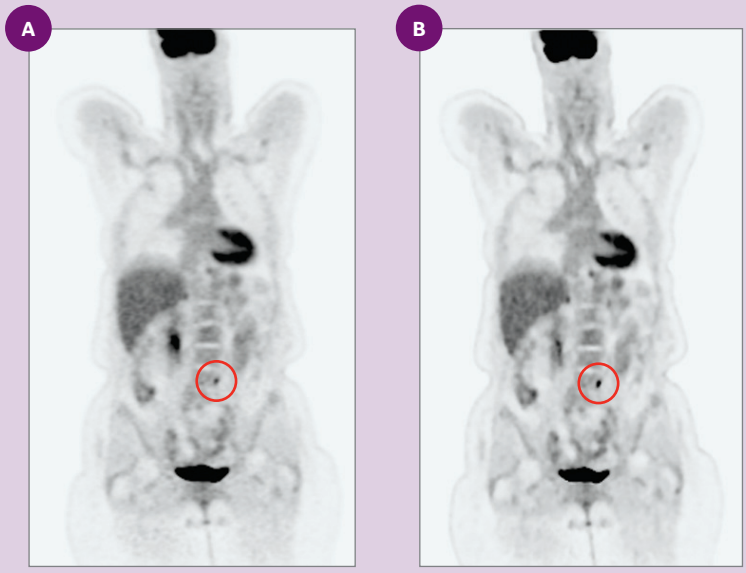

Figure 1. Comparison of (A) standard reconstructed PET with (B) Q.Clear reconstructed images.

> *In this particular case, our ability to more accurately characterize and localize the lesion will impact patient therapy by helping avoid unnecessary treatment to the upper pelvis.*
>
> *Drs. Donald Norwood and Theodore Hronas*

Therefore, the left paraspinal activity was very suspicious for possible nodal metastasis. The improved image quality (SNR) with Q.Clear and high PET sensitivity of Discovery MI DR provided greater diagnostic confidence that this activity did not represent a pathologic process.

The overall image quality of the study is very good; Q.Clear offers improved lesion characterization as to the actual morphologic size in comparison to conventional imaging. This allows for more accurate characterization of the anatomy in question. In this particular case, our ability to more accurately characterize and localize the lesion will impact patient therapy by helping avoid unnecessary treatment to the upper pelvis. ■

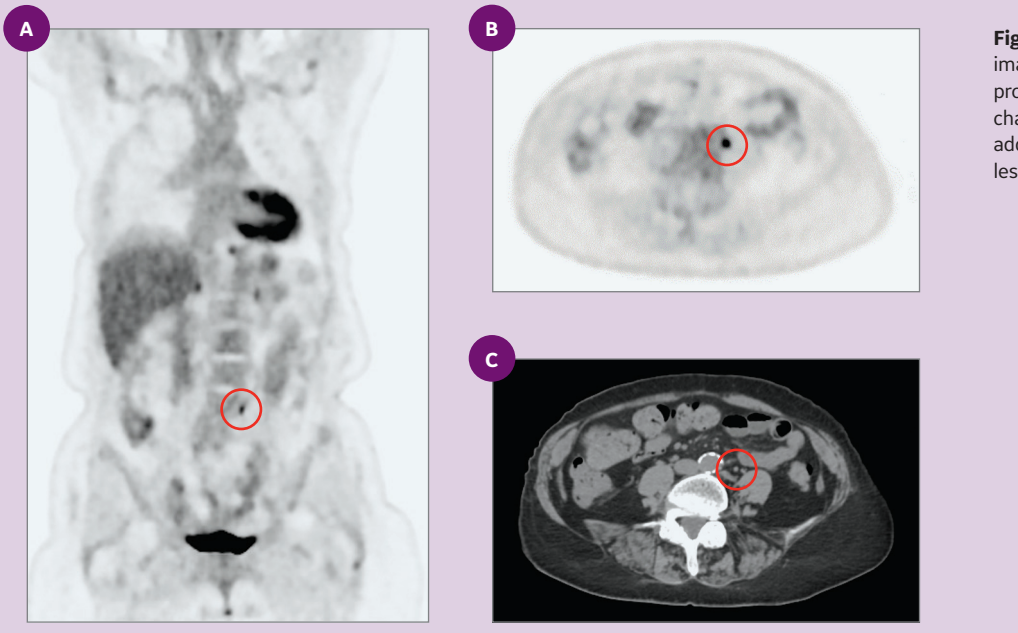

Figure 2. (A, B) Improved image quality with Q.Clear provides enhanced lesion characterization. (C) The addition of CT further guides lesion localization.