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MI University 360

Biograph mCT Flow
A Case Study

Answers for life.

Small Cell Lung Cancer

This illustrative case was provided by Dr. Kirk Frey, University of Michigan, Ann Arbor, Michigan, USA. The protocols are based on his previous experience and commonly used practices in nuclear medicine.

The final decision for procedure protocols must be made by the physician, who should consider experience, recommendations and regulations. Siemens and its representatives disclaim any liability for claims arising from the use of these protocols.

Biograph mCT Flow and Biograph mCT Flow Edge are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens organization for further details.
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Small Cell Lung Cancer

Clinical History

- Patient presented with small cell lung cancer based on biopsy. Lower thorax was presumed primary site of carcinoma.
- The patient had recently experienced visual complaints
- She was referred for an FDG PET/CT scan for initial staging
- In this case, a whole-body protocol was used for cancers such as lymphoma, melanoma and small-cell lung cancer

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Small Cell Lung Cancer

Clinical Benefit of FlowMotion

- The flexible scan range of FlowMotion™ technology allowed slower table speed through the area of interest (brain/head), enabling acquisition with higher count statistics. As the patient moved through the second zone (the rest of the body through the bottom of the pelvis), the table speed increased, allowing the ability to look for lymph nodes and metastases critical for staging. The table accelerated once more through the third zone (lower pelvis, proximal and lower extremities)

- The parameters can be varied across multiple zones in a single pass

- FlowMotion technology allows the flexibility to choose reconstruction parameters during acquisition based on patient history

Small Cell Lung Cancer
Protocol for glucose metabolism evaluation*

Zone 1
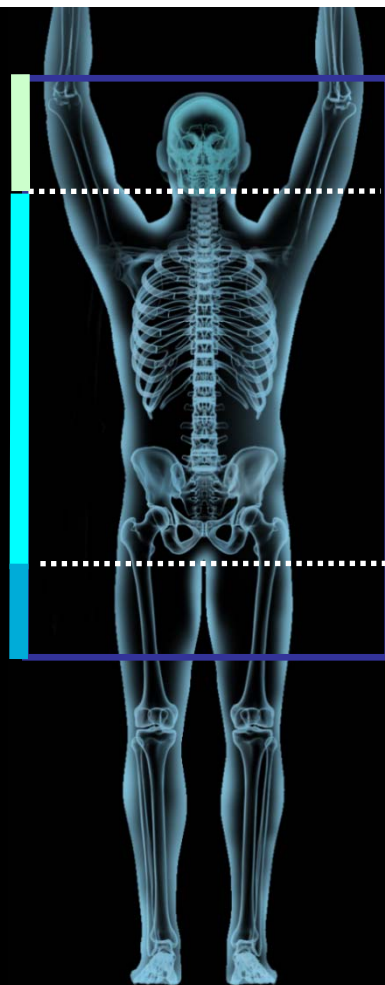0.4 mm/s table speed
400 x 400 matrix
reconstruction

Zone 2
1.0 mm/s table speed
256 x 256 matrix
reconstruction

Zone 3
2.0 mm/s table speed
256 x 256 matrix
reconstruction

Examination Protocol
Scanner: Biograph mCT with FlowMotion technology
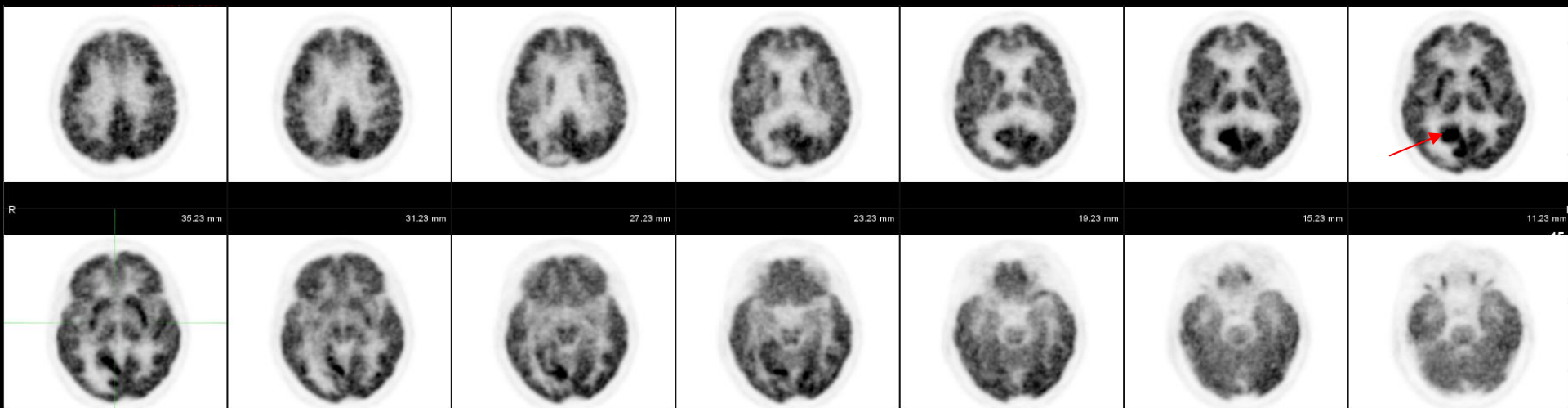Injected dose: 8 mCi
CT: 70 mAs, kV 130
Slice thickness: 5.0 mm

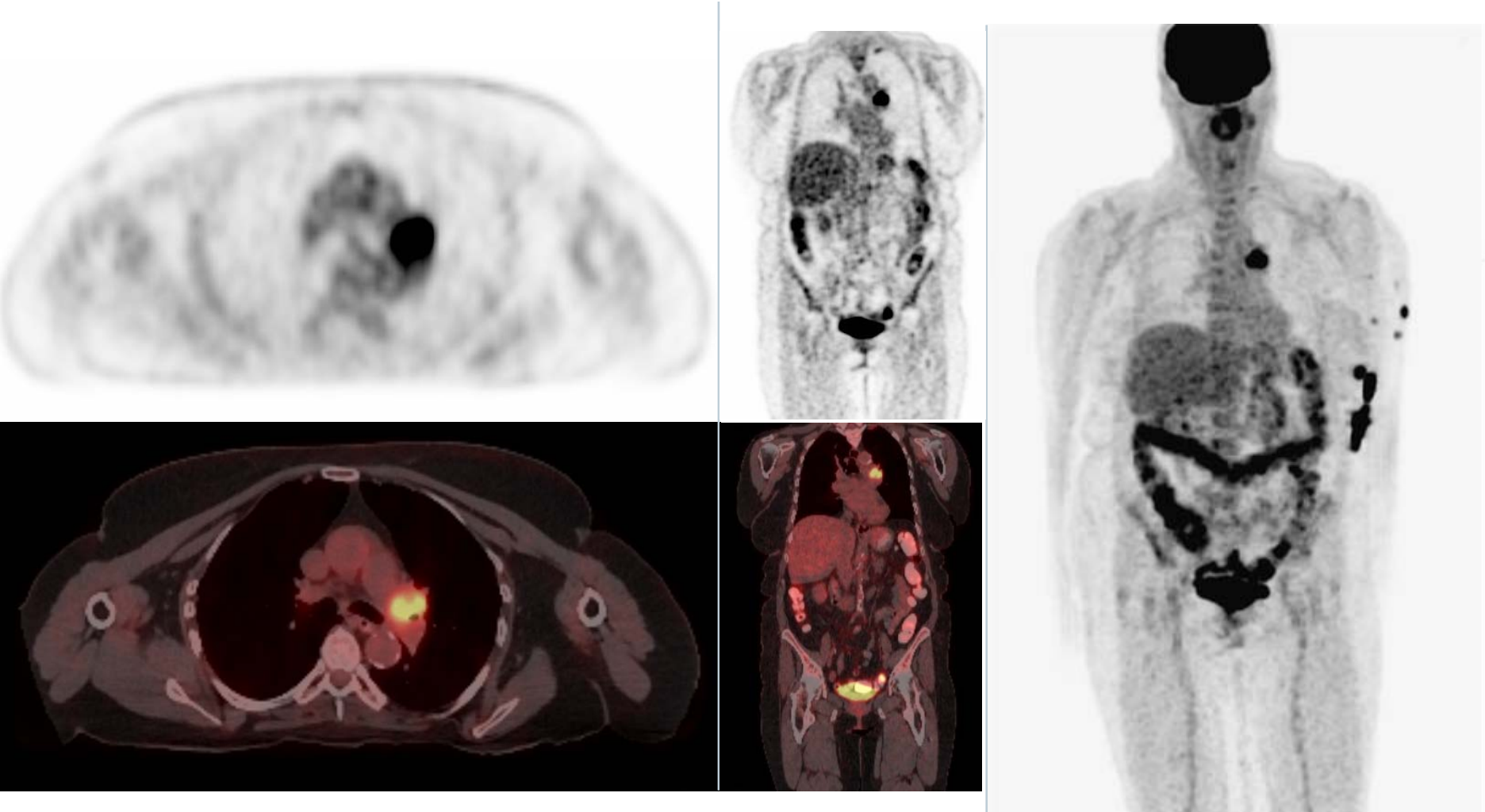Protocol courtesy of Dr. Kirk Frey, University of Michigan, Ann Arbor, Michigan, USA

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FlowMotion one-pass 256 x 256 reconstruction, zone 1-3

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Data courtesy of Dr. Kirk Frey, University of Michigan, Ann Arbor, Michigan, USA

Small Cell Lung Cancer

Conclusion

- By using the slower table speed for the area of interest (with high-resolution for the brain), FlowMotion technology helped identify a metastatic deposit in the right occipital cortex of the brain involving the primary visual cortex, which was confirmed by MRI

- The identification of the additional metastatic deposit using FlowMotion technology prompted the physician to change the staging from limited-stage small cell lung cancer restricted to the thorax to stage IV small cell lung cancer with brain metastases

- FlowMotion technology made a difference in the subsequent patient management

Global Business Unit

Siemens Medical Solutions USA, Inc.

Molecular Imaging

2501 N. Barrington Road
Hoffman Estates, IL 60192-5203
USA

Telephone: +1 847-304-7700

www.siemens.com/mi

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