



¹⁸FLT PET/CT for early assessment of chemotherapy response in advanced breast cancer patients.

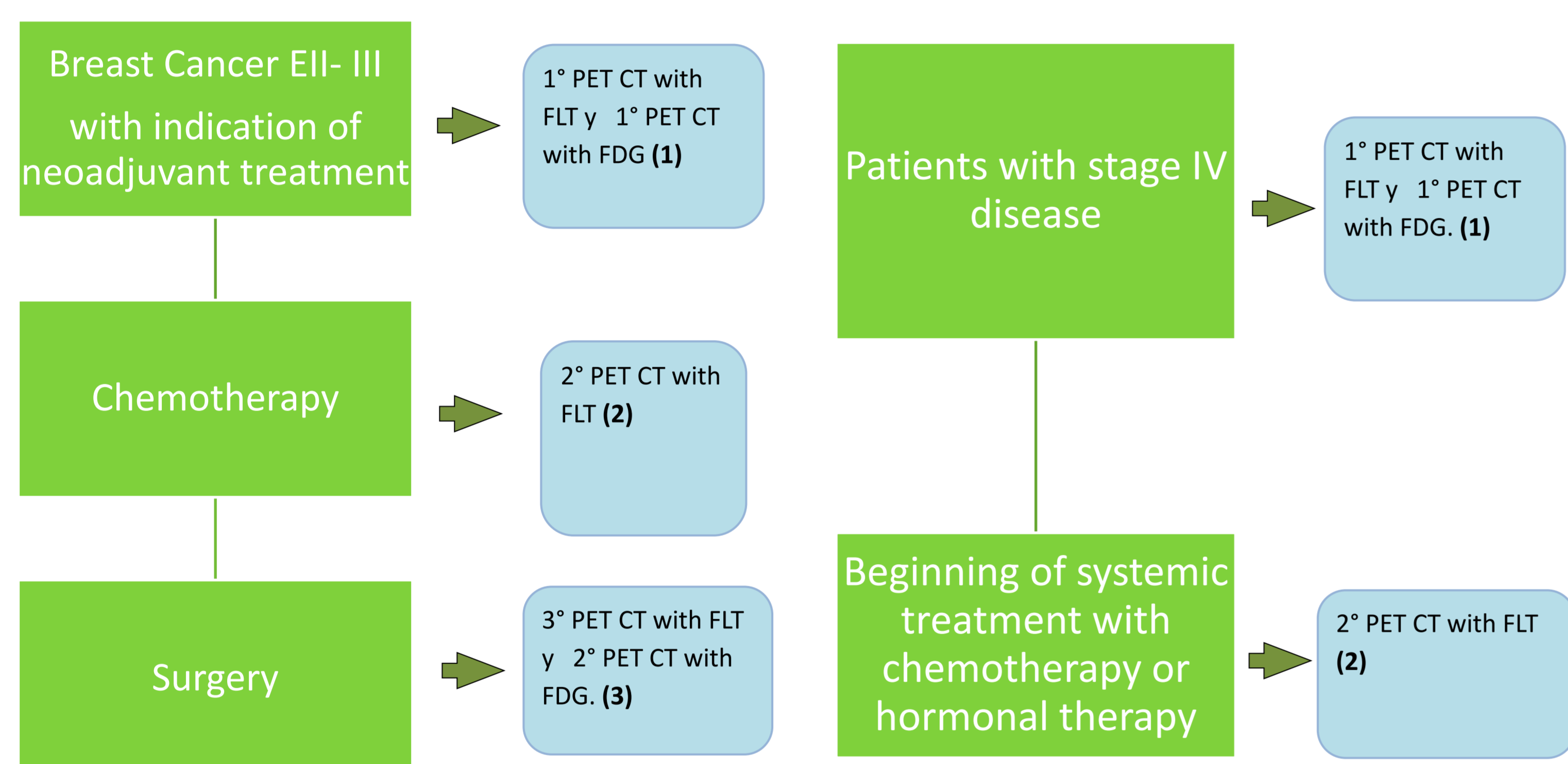
Omar Alonso¹, Andres Damian¹, Cecilia Espalter², Noelia Silveyra², Lucia Delgado², Henry Engler¹
¹Centro Uruguayo de Imagenología Molecular (CUDIM), ² Departamento de Oncología, Hospital de Clínicas, Universidad de la República, Montevideo, Uruguay

INTRODUCTION

Even though the available information is still limited, recent studies have shown that [F-18] fluoro-30-deoxythymidine (FLT) PET might be useful in monitoring chemotherapy response in patients with breast cancer. The aim of this study is to prospectively evaluate the performance of FLT PET/CT to monitor early chemotherapy response in advanced breast cancer patients.

Material and Methods

We studied nine patients (35-82 years old, one male) with metastatic (n=5) or locoregionally advanced (n=4) breast cancer. All patients were studied with FLT and FDG PET/CT before treatment, and six of them were also studied with an interim FLT PET/CT 15-30 days after the beginning of systemic treatment. SUVmax of assessable lesions was compared with therapy response according to UICC criteria



(1) The 1st FLT and FDG PET / CT is performed within 2 weeks before the start of treatment. (2) The 2nd FLT PET CT to be performed on 15-20 days after the start of chemotherapy (3) 3rd FLT PET CT with CT and 2nd FDG PET was performed after completion of neoadjuvant therapy.

(1) The 1st FLT and FDG PET/ CT is performed- within 2 weeks of the start of treatment. (2) The 2nd FLT PET CT is performed 15- 20 days after the beginning of chemotherapy or 30 days after the beginning of hormone therapy.

Results

Before treatment, FDG and FLT SUVmax analysis of non-osseous lesions showed a significant correlation (P = 0.023, n=22). FLT and FDG SUVmax absolute values were not significantly different. With the exception of one patient, those studied with an interim FLT PET/CT exhibited a significant decreased uptake after treatment (7.69±3.9 vs. 4.49±2.9, mean ± SD of pre and post treatment SUVmax values respectively, n=22, P=0.00028). Four of the patients were categorized as responders, while 5 showed stable disease (n=3) or progression (n=2).

Illustrative Clinical Cases

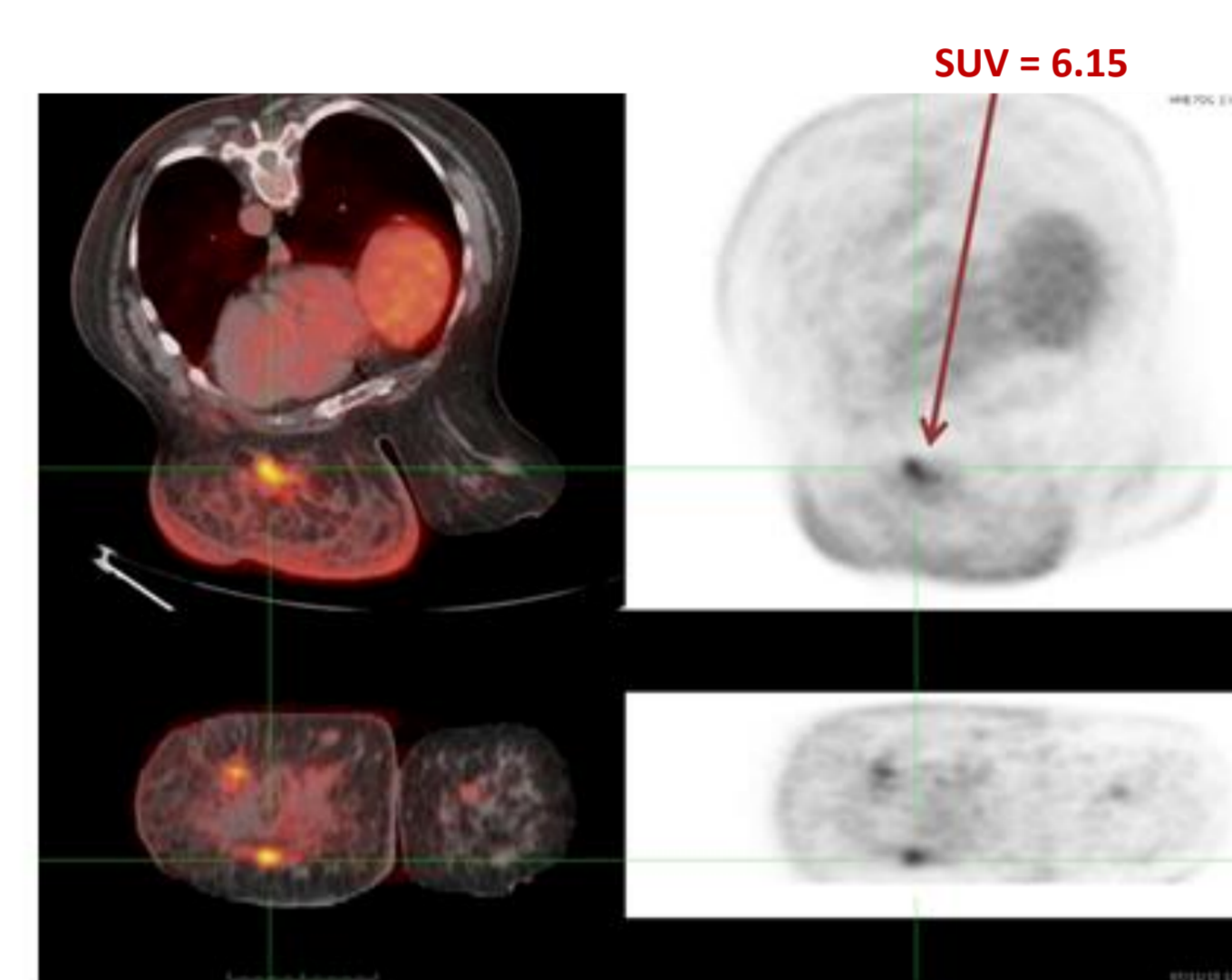
Patient	Age	Gender	Histology	Histology grade	Estrogen Receptors/Progesterone Receptors	Ki 67 %	Lateralization	Stage	Treatment
1	81	F	CDI	II	-/-	15-20	Left	IIIc	TC
			CDI y CLI(50%)	I	+/+	15-20	Right	I	
2	46	M	CDI	II	+/+	20-30	Right	IIIc	AC + T

Conclusion

FLT PET/CT might perform well to monitor early response to systemic chemotherapy. Comparison with pathological and biochemical markers of the disease is mandatory to establish the potential use of FLT PET in the evaluation of systemic treatment response.

Patient 1

FDG before Chemotherapy



FLT before Chemotherapy

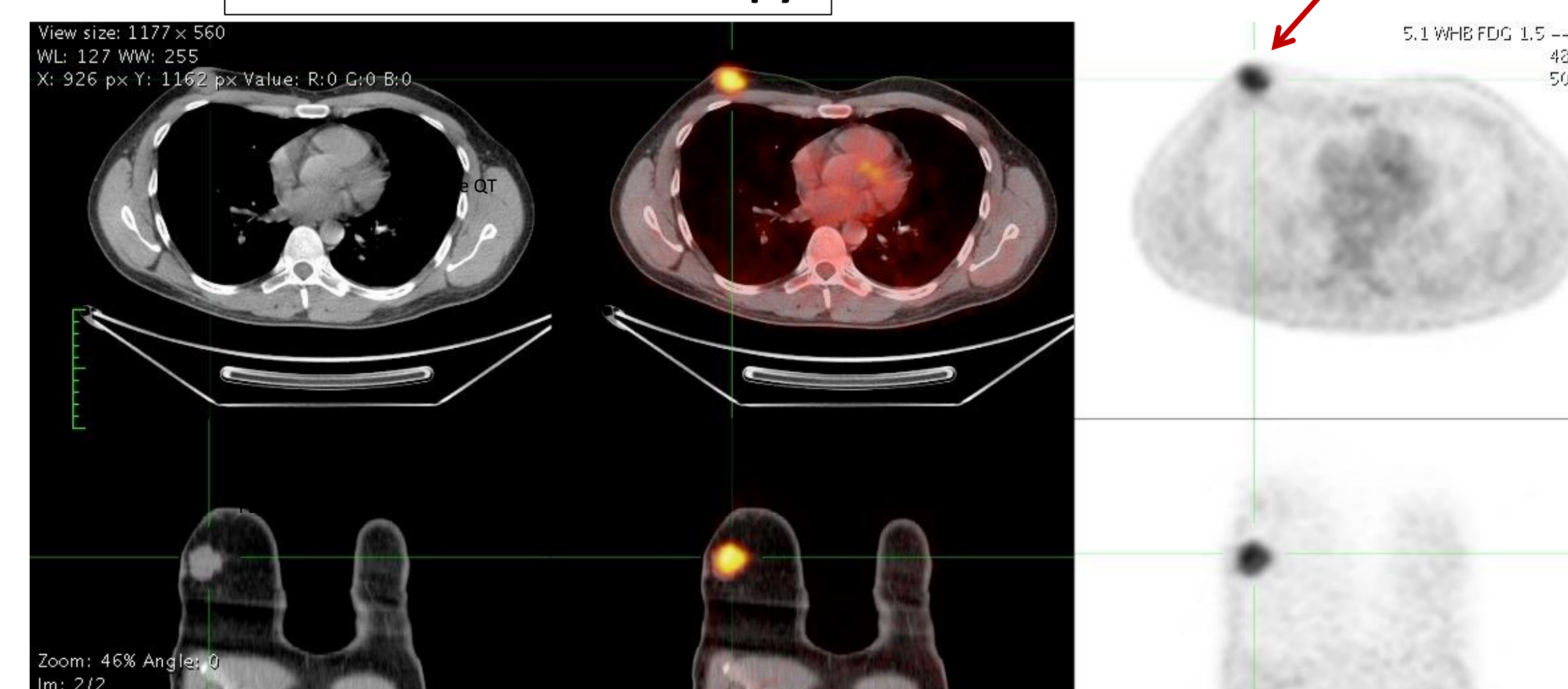


FLT after Chemotherapy

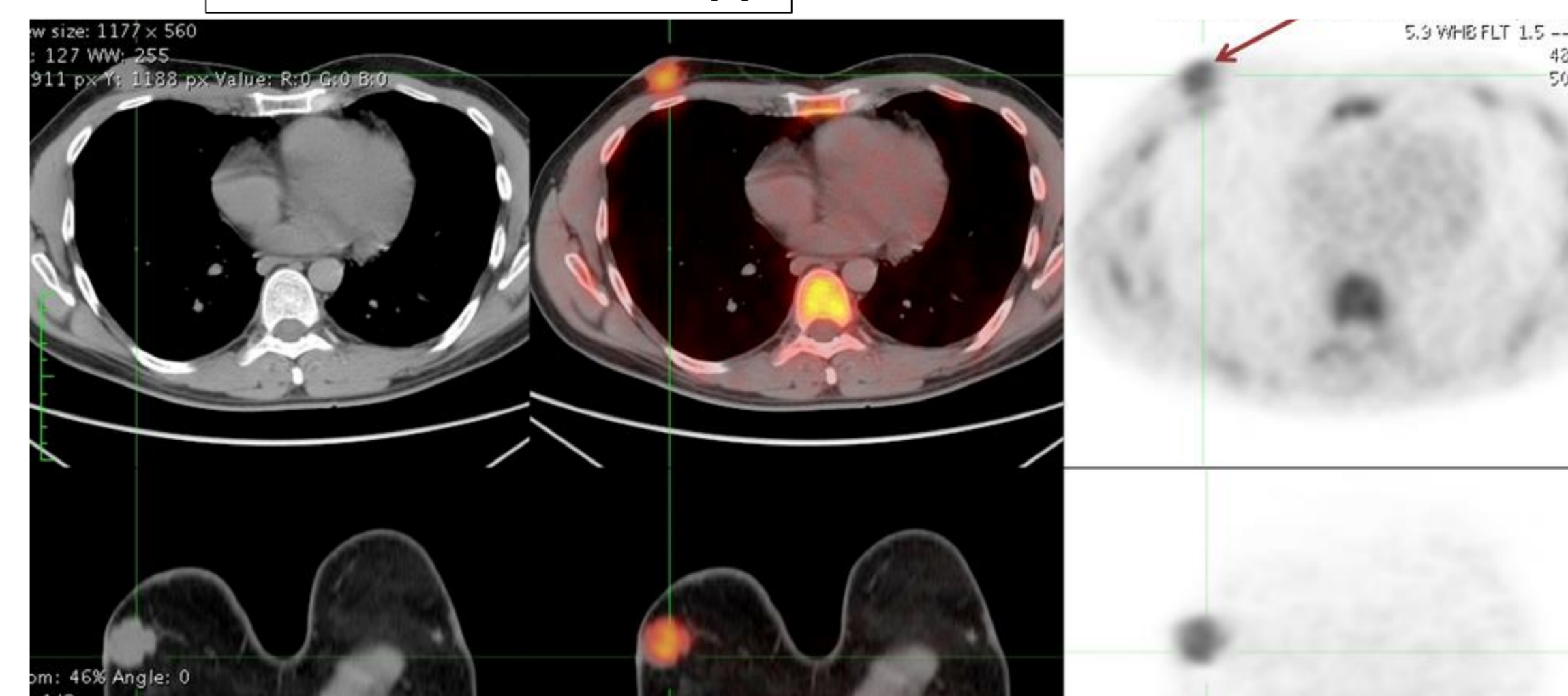


Patient 2

FDG before Chemotherapy



FLT before Chemotherapy



FLT after Chemotherapy

