

## MP20-15

### Background & Objectives

Since the prostate-specific membrane antigen (PSMA) is highly expressed in the cell surface of the solid tumor microvasculature including renal cell carcinoma (RCC), PSMA PET/CT imaging has been a promising method for RCC diagnosis, especially for clear cell RCC (ccRCC) patients.  $^{18}\text{F}$ -FDG PET/CT of whole body imaging is widely used as a valuable method for evaluating metastatic or recurrent lesions in patients with RCC. The aim of this study was to compare the diagnostic value of ccRCC between  $^{68}\text{Ga}$ -labelled PSMA PET/CT and traditional  $^{18}\text{F}$ -FDG PET/CT.

### Methods

Twelve patients with ccRCC were involved in the study in which 8 patients suffered from metastasis. All patients underwent both  $^{68}\text{Ga}$ -PSMA PET/CT and  $^{18}\text{F}$ -FDG PET/CT.  $\text{SUV}_{\text{max}}$  was calculated for both primary RCCs and PET-positive metastatic lesions. We compared the  $\text{SUV}_{\text{max}}$  of same lesions between  $^{68}\text{Ga}$ -PSMA PET/CT and  $^{18}\text{F}$ -FDG PET/CT images. Metastatic bone, lymph node and lung lesions as well as the primary tumor were evaluated respectively.

### Results

Primary ccRCC lesions were found in 7 patients. The  $\text{SUV}_{\text{max}}$  value of primary lesions in  $^{68}\text{Ga}$ -PSMA and  $^{18}\text{F}$ -FDG PET/CT were  $15.34 \pm 3.82$  and  $8.62 \pm 3.11$ , respectively ( $P=0.012$ , Fig.1).  $^{68}\text{Ga}$ -PSMA was much more sensitive than  $^{18}\text{F}$ -FDG in bone ( $\text{SUV}_{\text{max}}$ :  $35.64 \pm 5.78$  vs.  $3.52 \pm 1.63$ ) and lymph node ( $\text{SUV}_{\text{max}}$ :  $43.26 \pm 8.53$  vs.  $16.79 \pm 4.68$ ) lesions. However, PSMA based PET/CT was not sensitive for lung metastatic lesions compared to  $^{18}\text{F}$ -FDG PET/CT (Fig.2).

### Figure 1

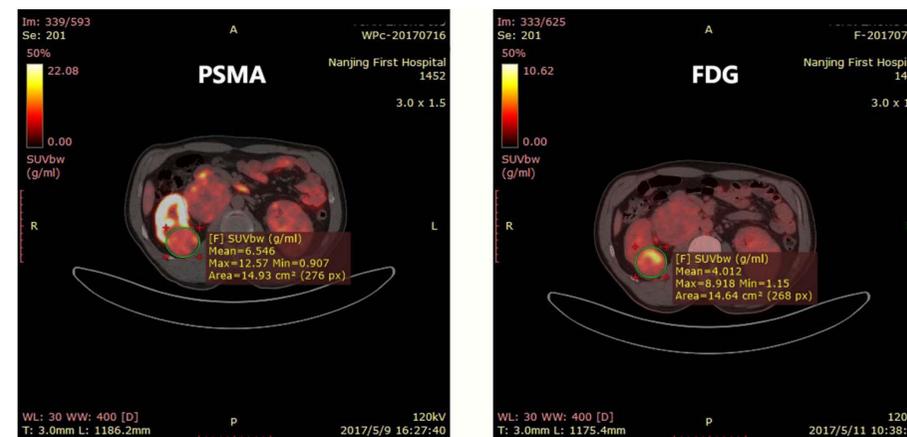


Fig.1 Image of ccRCC primary lesions in  $^{68}\text{Ga}$ -PSMA and  $^{18}\text{F}$ -FDG PET/CT, respectively.

### Figure 2

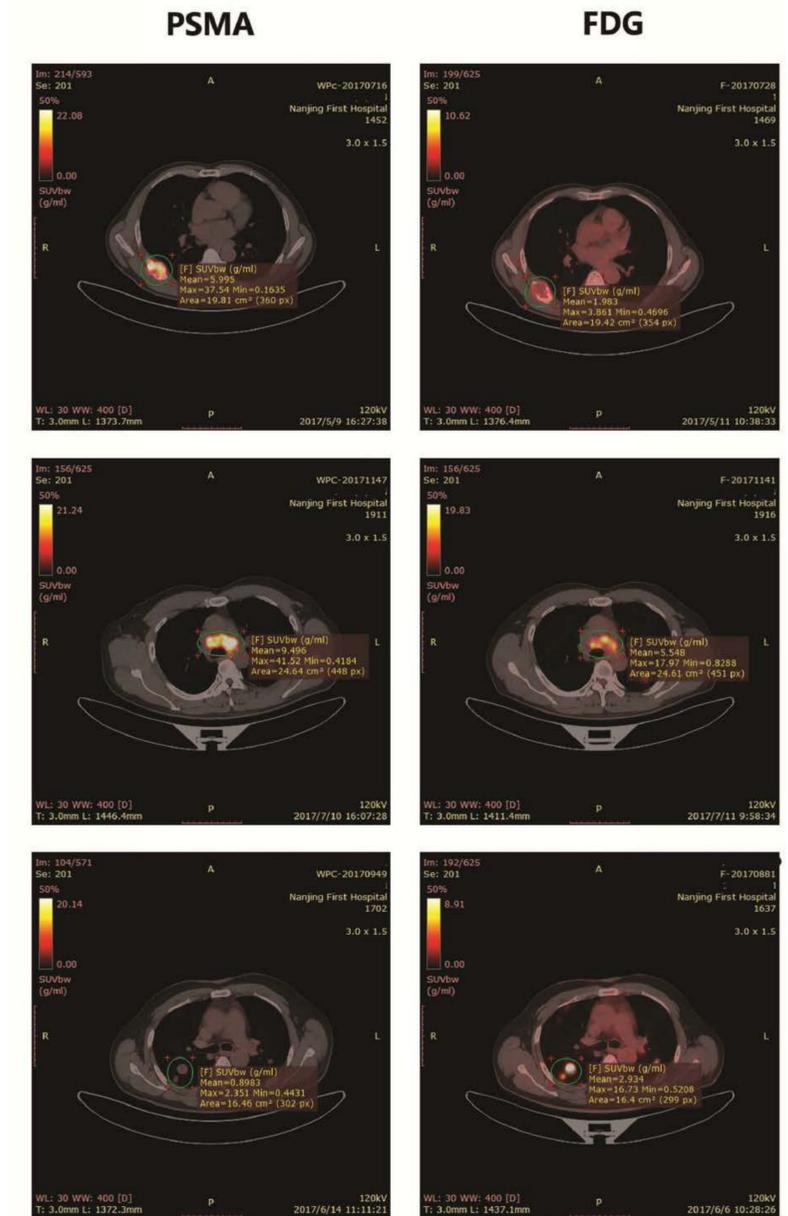


Fig.2 Image of bone, lymph nodes and lung metastatic lesions in  $^{68}\text{Ga}$ -PSMA and  $^{18}\text{F}$ -FDG PET/CT, respectively.