



# Klinik und Poliklinik für Diagnostische und Interventionelle Radiologie und Nuklearmedizin



## Stand der **PSMA PET/CT** Diagnostik

Update SBRT bei Oligo-Metastasen:  
Indikationen beim Prostata-  
und Bronchialkarzinom

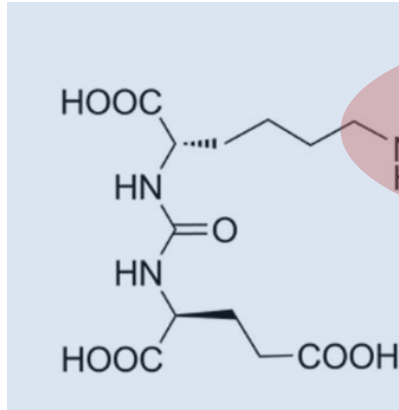
Freitag, 23. November 2018  
10:00 - 17:30 Uhr

Dr. med. Christoph Berliner  
23. November 2018

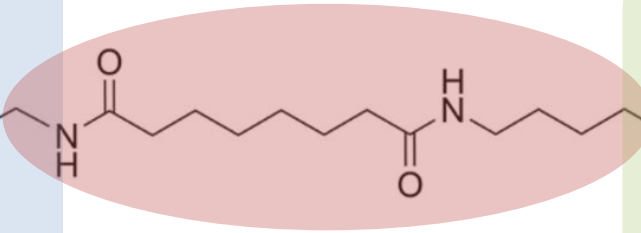


Universitätsklinikum  
Hamburg-Eppendorf

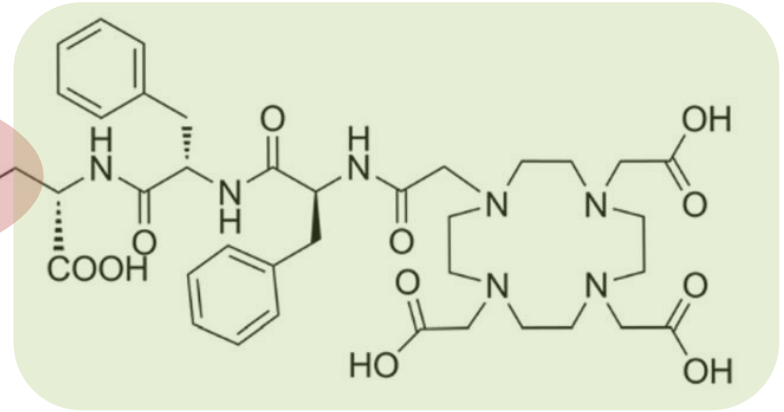
# PSMA Moleküle



PSMA-Bindungsgruppe



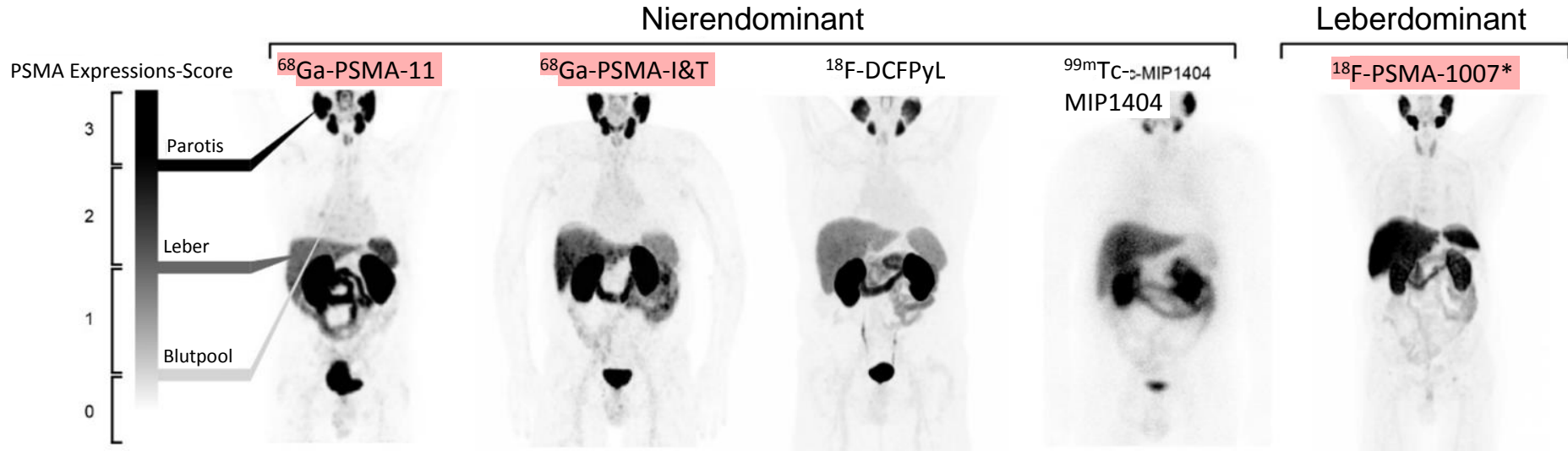
Linker



DOTA-FFK(Sub-KuE)

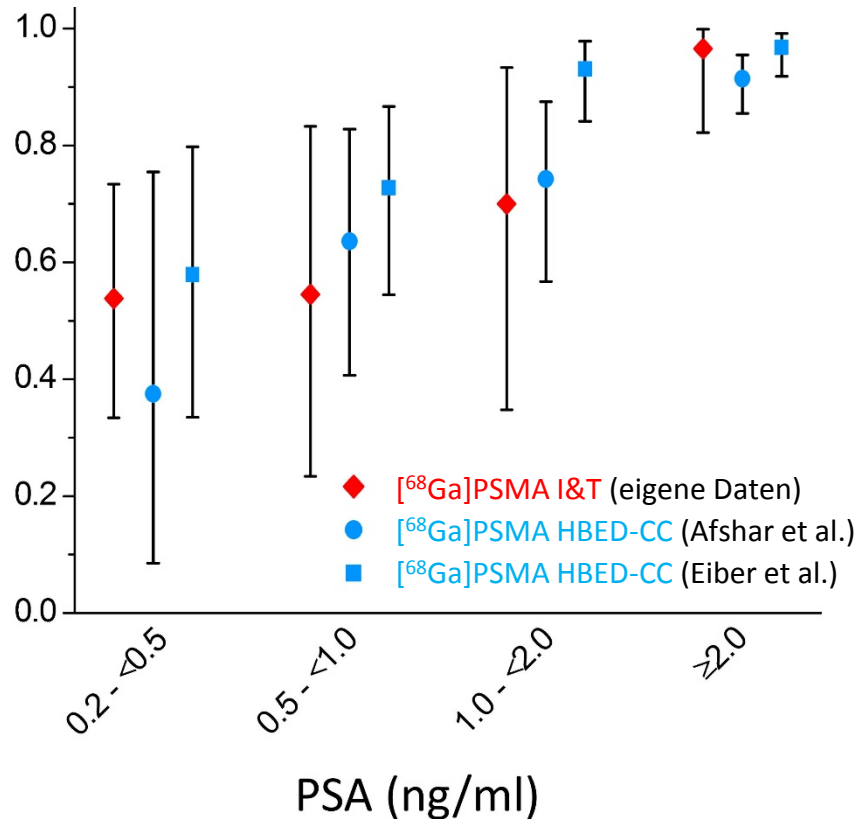
Komplexbildner für Radioligand

# PSMA Moleküle



# Datenlage retrospektiv

Detektionsrate



- Hohe Detektionsraten schon bei niedrigem PSA
- „Outperformance“ aller bisherigen Bildgebung
- Einschließlich alter Tracer wie Cholin oder auch Fluciclovine
- Einschließlich Szintigraphie, MRT und CT



## **The Impact of <sup>68</sup>Ga-PSMA PET/CT on Management Intent in Prostate Cancer: Results of an Australian Prospective Multicenter Study**

Paul J. Roach, Roslyn Francis, Louise Emmett, Edward Hsiao, Andrew Kneebone, George Hruby, Thomas Eade, Quoc A. Nguyen, Benjamin D. Thompson, Thomas Cusick, Michael McCarthy, Colin Tang, Bao Ho, Philip D. Stricker and Andrew M. Scott

*J Nucl Med.* 2018;59:82-88.  
Published online: June 23, 2017.  
Doi: 10.2967/jnumed.117.197160

- 431 Patienten aus 4 Zentren
- 51% Änderung des Therapiemanagements
- 62% in der Gruppe „biochemisches Rezidiv“
- 21% in der Gruppe Primärstaging

## <sup>68</sup>Ga-PSMA PET/CT: Joint EANM and SNMMI procedure guideline for prostate cancer imaging: version 1.0

Wolfgang P. Fendler<sup>1,2</sup> · Matthias Eiber<sup>1,3</sup> · Mohsen Beheshti<sup>4</sup> · Jamshed Bomanji<sup>5</sup> · Francesco Ceci<sup>6</sup> · Steven Cho<sup>7</sup> · Frederik Giesel<sup>8</sup> · Uwe Haberkorn<sup>8</sup> · Thomas A. Hope<sup>9</sup> · Klaus Kopka<sup>10</sup> · Bernd J. Krause<sup>11</sup> · Felix M. Mottaghy<sup>12,13</sup> · Heiko Schöder<sup>14</sup> · John Sunderland<sup>15</sup> · Simon Wan<sup>5</sup> · Hans-Jürgen Wester<sup>16</sup> · Stefano Fanti<sup>6</sup> · Ken Herrmann<sup>1,17</sup>

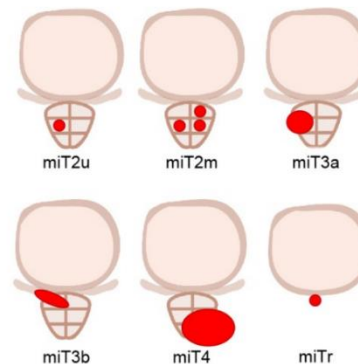


### PROstate cancer Molecular Imaging Standardized Evaluation (PROMISE): proposed miTNM classification for the interpretation of PSMA-ligand PET/CT

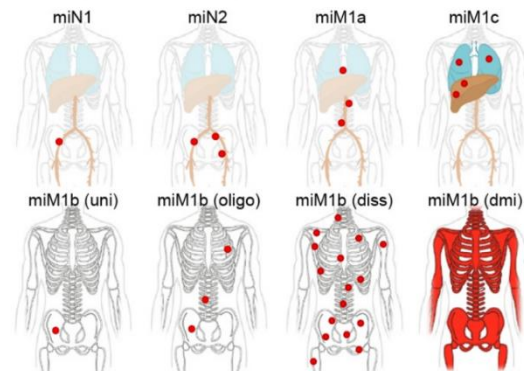
Matthias Eiber, Ken Herrmann, Jeremie Calais, Boris Hadaschik, Frederik L. Giesel, Markus Hartenbach, Thomas A. Hope, Robert Reiter, Tobias Maurer, Wolfgang A. Weber and Wolfgang P. Fendler

*J Nucl Med.*  
Published online: November 9, 2017.  
Doi: 10.2967/jnumed.117.198119

Lokalbefund (T)



Regionale Lymphknoten (N) und Fernmetastasen (M)



# Der diffus ossär metastasierte Patient

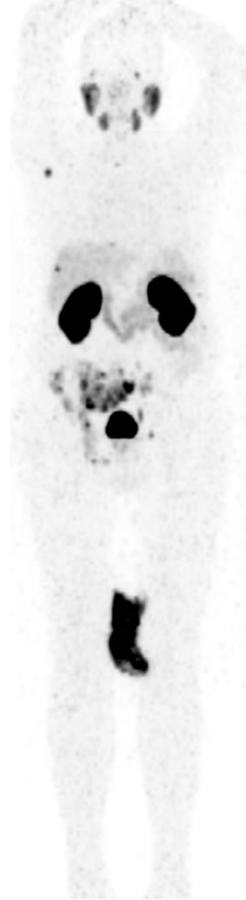


05/2017

- PSA: 131 µg/l
- [113 MBq](#) PSMA
- Gemini GXL10

miTNM:

T0 N0 M1b(diss)



03/2018

- PSA: 37,4 µg/l
- [203 MBq](#) PSMA
- Gemini GXL10

miTNM:

T0 N0 M1b(diss)



07/2018

- PSA: 56 µg/l
- [103 MBq](#) PSMA
- Vereos

miTNM:

T0 N0 M1b(diss)

# Das biochemische Rezidiv



## Patient A

PSA: 0,53  $\mu\text{g/l}$

Gleason: 4+3=7

pT1c N0 M0 R0



## Patient B

PSA: 4,96  $\mu\text{g/l}$

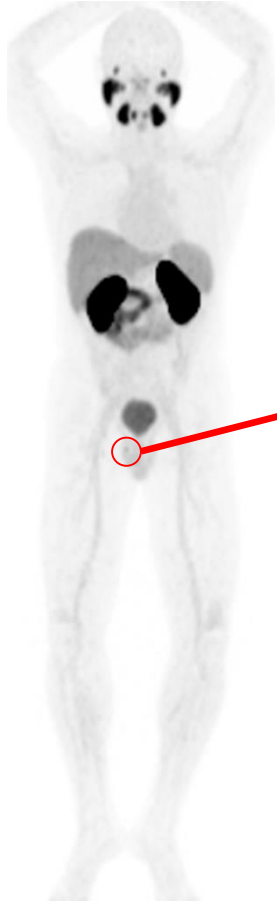
Gleason: 4+3=7

pT3a N0 M0 R1

Z.n. RTx



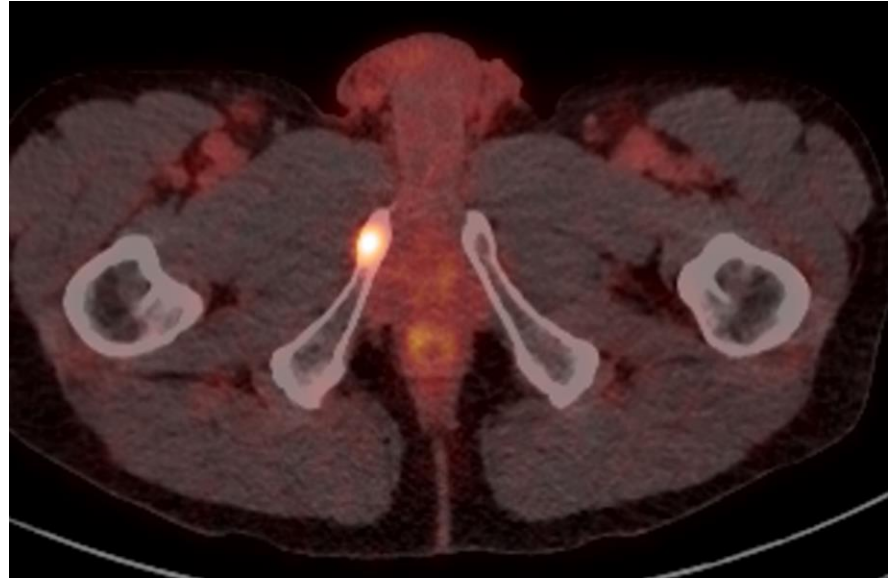
# Das biochemische Rezidiv – Patient A



PSA: 0,53 µg/l

Gleason: 4+3=7

pT1c N0 M0 R0

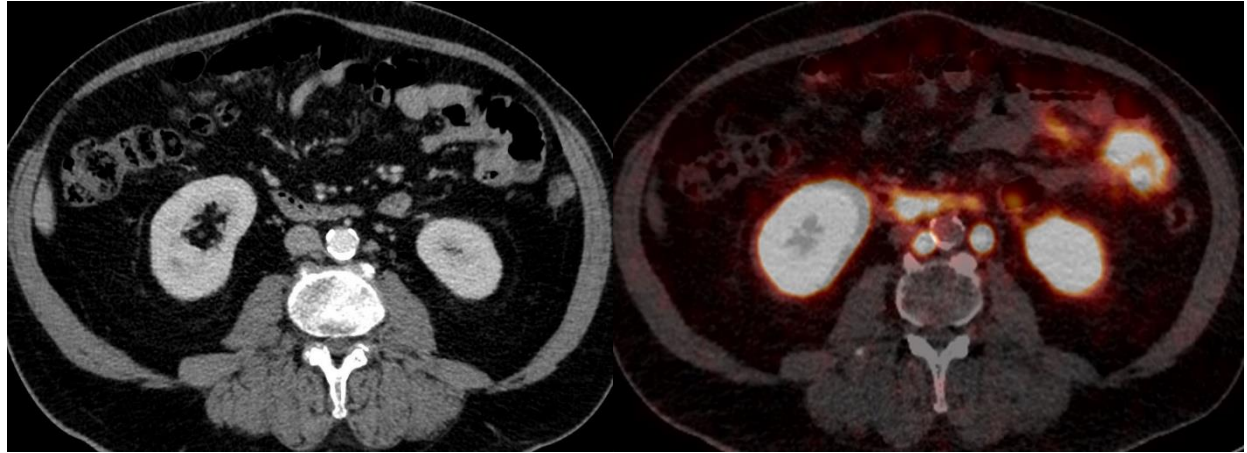


miTNM: T0 N0 M1b(uni)

# Das biochemische Rezidiv – Patient B



PSA: 4,96  $\mu\text{g/l}$   
Gleason: 4+3=7  
pT3a N0 M0 R1  
Z.n. RTx



miTNM: T0 N2 (IIR, EIR, CIR, CIL) M1a(RP)

# Das Primärstaging

## Patient A

PSA: 23  $\mu\text{g/l}$

Gleason: 4+5=9

## Patient B

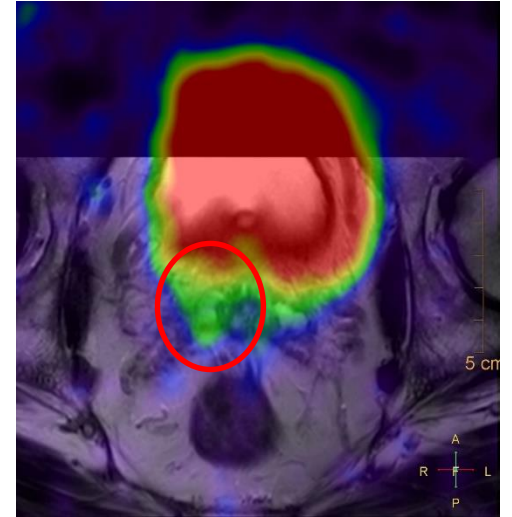
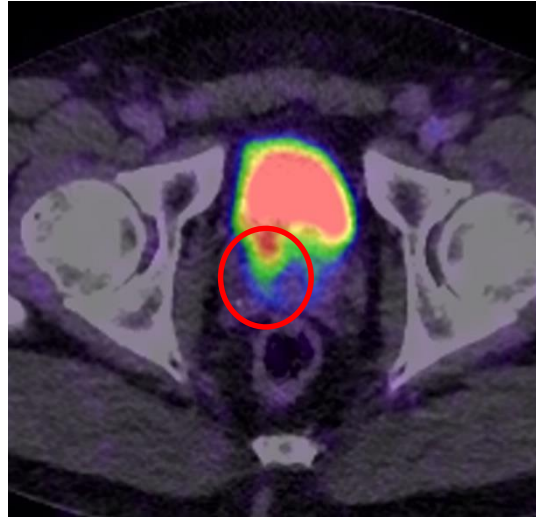
PSA: 1,15  $\mu\text{g/l}$

Gleason: 3+4=7

# Das Primärstaging – Patient A

PSA: 23  $\mu\text{g/l}$

Gleason: 4+5=9

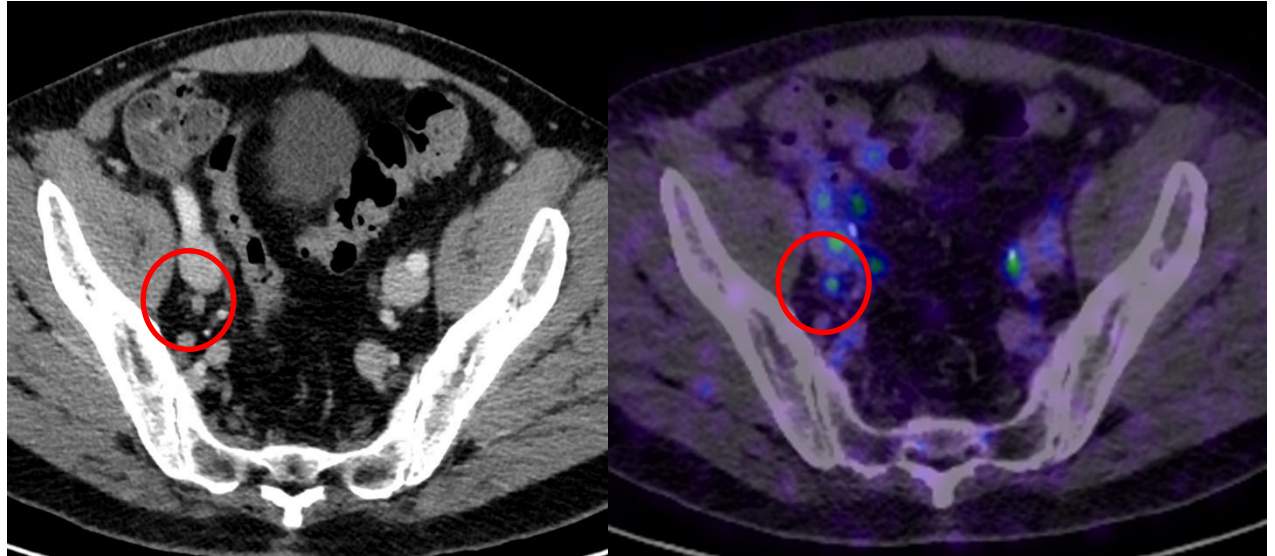


miTNM: T3b N0 M0

# Das Primärstaging – Patient B

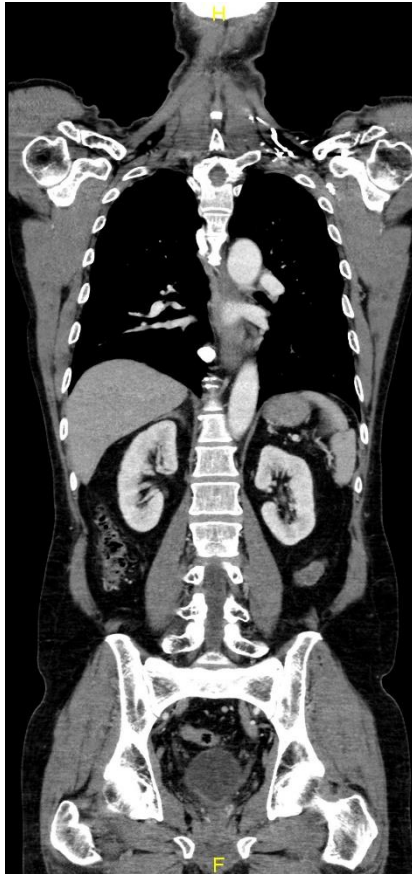
PSA: 1,15  $\mu\text{g/l}$

Gleason: 3+4=7



miTNM: T2m N1 (EIR) M0

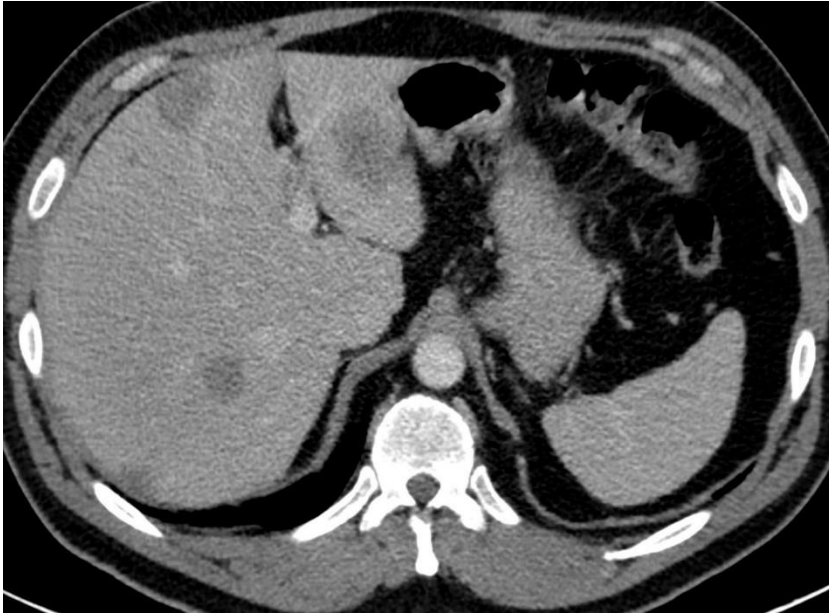
# Diagnostische KM-CT?



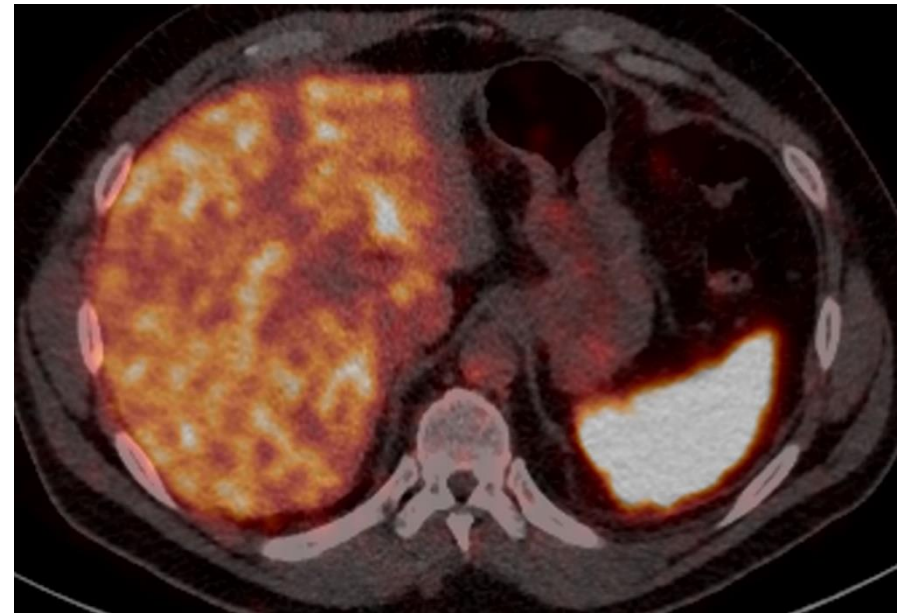
## Zufallsbefunde im diagnostischen CT:

- Nierenzellkarzinom
- Bronchialkarzinom
- Gedeckt rupturiertes BAA
- Lungenarterienembolie
- Instabile BWK Fraktur
- Sigmadivertikulitis
- Zystitis
- Meningeom
- Etc.

# Vorteil Prostatakarzinom?



PSA in vier Wochen von 1  $\mu\text{g/l}$  auf 8  $\mu\text{g/l}$



miTNM: T0 N1 (iIL) M1c (hep)

- **PSMA PET/CT überlegenes Stagingtool  
(Ausnahme Lokalbefund ->mpMRT)**
- **Diagnostische CT mit Kontrastmittel**
- **Neuere PET-Gerätegeneration**
- **Staging: miTNM**



**Vielen Dank**

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