

FDG-PET/CT scanning for the detection of pelvic lymph node metastasis in penile carcinoma

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Introduction

For staging pelvic lymph nodes, CT and MRI have insufficient sensitivity of 20-50%^{1,2}. In this retrospective cohort we describe the diagnostic accuracy of FDG-PET/CT for the staging of pelvic lymph nodes in patients with proven inguinal metastases.

Aim: To describe the diagnostic accuracy of FDG-PET/CT for staging pelvic lymph nodes in patients with proven inguinal metastases.

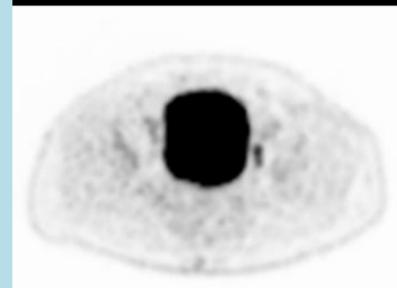
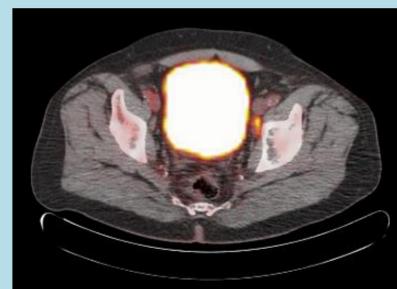
Methods

Blinded revision of all PET/CT scans of patients with:

- bilateral or immobile inguinal metastases (cN2-cN3)
- positive fine-needle aspiration cytology (FNAC)
- positive imaging of regional lymph nodes.

Two methods of scoring on 4-point scale (see below): clinical assessment and semi-quantitative (activity compared to blood pool and liver).

Reference: pelvic lymph node dissection (PLND) / positive imaging / follow-up > one year



100 scans / 200 pelvic sides

→ 6 scans unavailable

No reference:

3 bilateral

13 unilateral

91 scans / 169 pelvic sides

References: 63 PLND, 106 imaging/follow-up

Test performances with 95% Confidence Intervals

%	Per pelvis		Per patient	
	Clinical	Semi-quant	Clinical	Semi-quant
Sensitivity	89 [76-96]	89 [76-96]	85 [71-94]	85 [71-94]
Specificity	76 [67-83]	69 [60-77]	62 [47-75]	54 [39-68]
PPV	57 [49-65]	51 [44-58]	64 [55-72]	59 [51-67]
NPV	95 [89-98]	95 [88-98]	84 [71-92]	82 [68-91]

PPV, positive predictive value; NPV, negative predictive value

Score	Clinical	Semi-quantitative
0	not at all suspect	normal
1	reactive LN, ddx metastasis	≤ blood pool
2	metastasis, ddx reactive LN	> blood pool ≤ liver
3	highly suspect for metastasis	> liver

	Clinical scoring		Semi-quantitative scoring	
	Reference positive	Reference negative	Reference positive	Reference negative
PET positive (2/3)	40	30	40	38
PET negative (0/1)	5	94	5	86

Conclusions

FDG-PET/CT showed **good test performance** for staging pelvic lymph nodes of penile carcinoma patients with inguinal metastasis. PET/CT is the **best available imaging modality** and can be a **useful tool** in the decision to perform a pelvic lymph node dissection.