

Erasmus MC

University Medical Center Rotterdam



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Intra-operative assessment of RP surgical margins

the patient's and pathologist's view

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Radical prostatectomy

International Collaboration on Cancer Reporting (ICCR)

Required data elements for reporting:

- histological type
- grade (Gleason score, Grade group)
- extraprostatic extension
- seminal vesicle and bladder neck invasion
- surgical margin status

Surgical margin status

The *pathologist's* view

The *urologist's* view

The *patient's* view

Required and recommended data elements (ICCR):

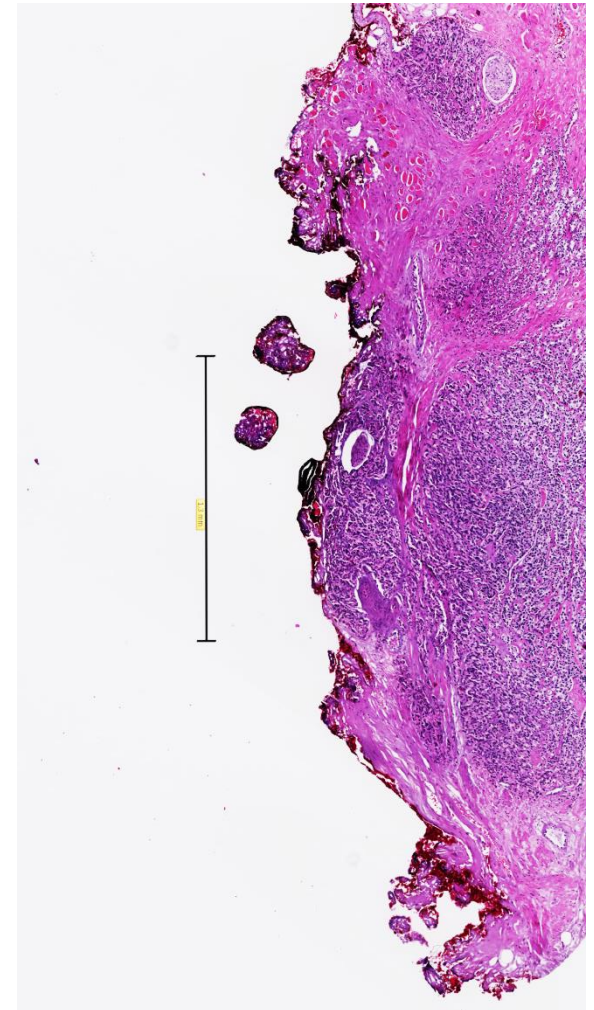
- involved/ not involved
- location of positive margin
- type of positive margin
- extent of positive margin
- Gleason pattern at positive margin

Positive surgical margin

- Tumour should be present in the ink
- Location of positive margin
 - quality control for urologist
 - posterolateral has adverse impact
- Type of positive margin
 - capsular incision increased risk of recurrence

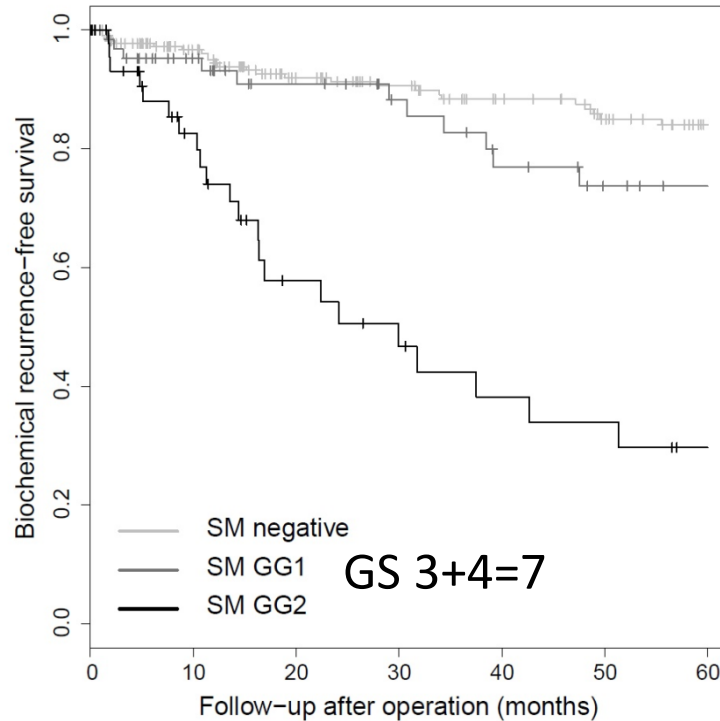
Positive surgical margin

- Extent of positive margin
 - HR 1.08 per mm
 - < 1mm no increased BCR



Positive surgical margin

- Gleason pattern at margin



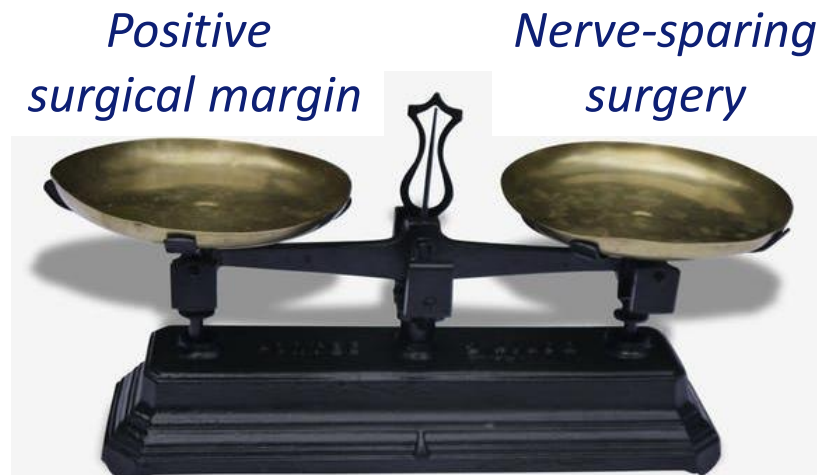
- no additional value of cribriform in margin

The urologist's view

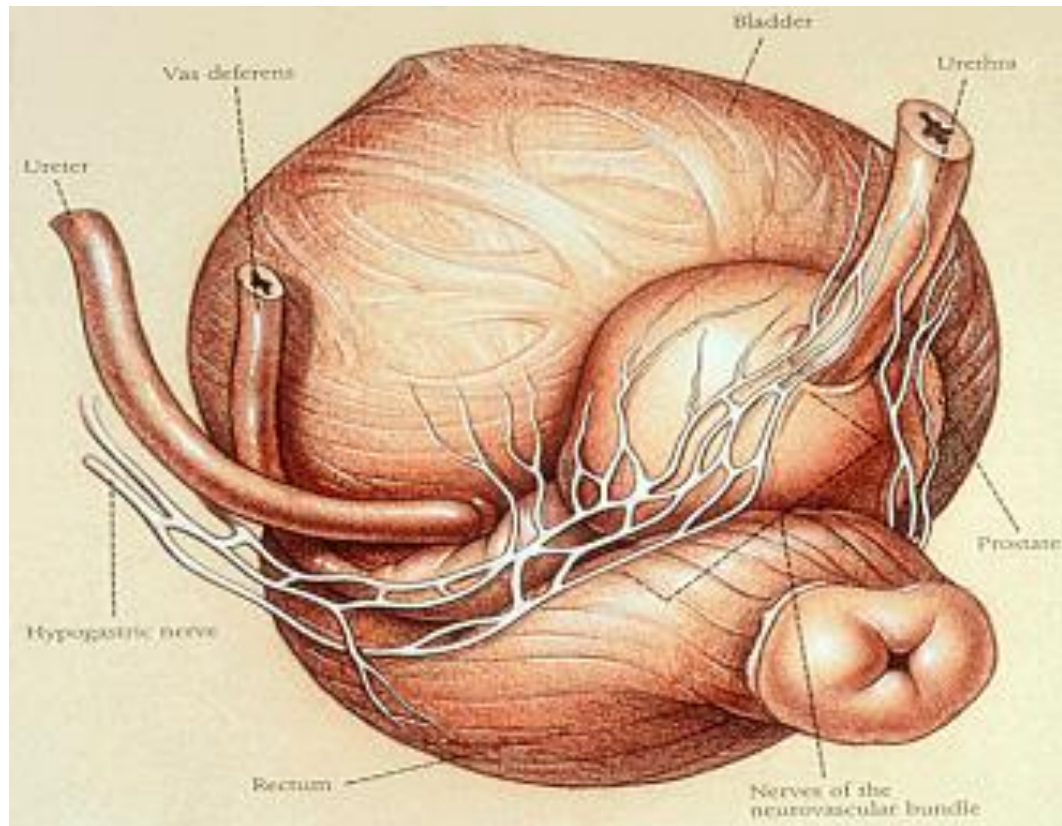
Post-operative decision-making

- Surgical margin assessment mostly prognostic
- Extensive positive margins – radiotherapy

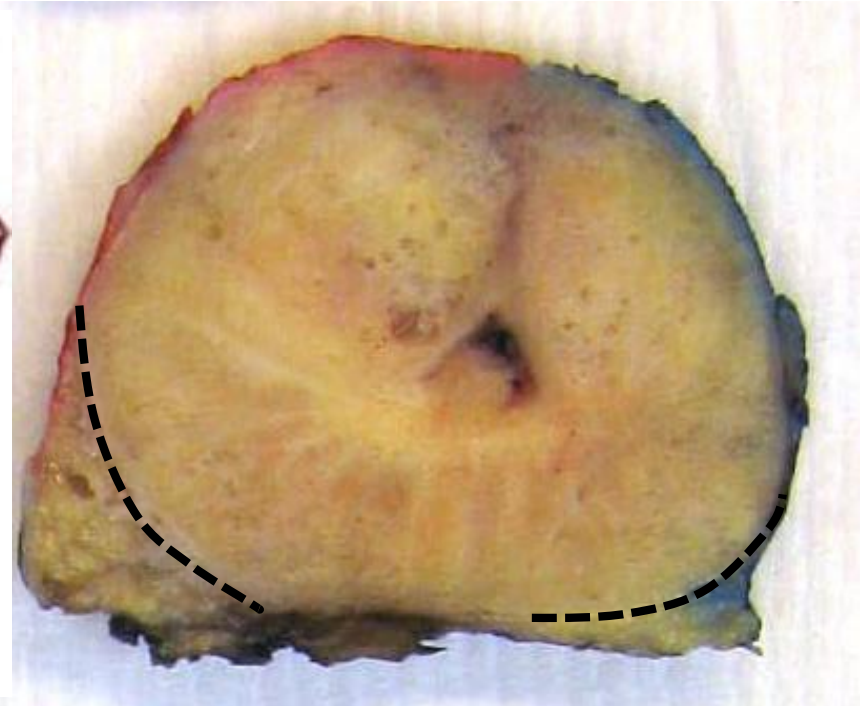
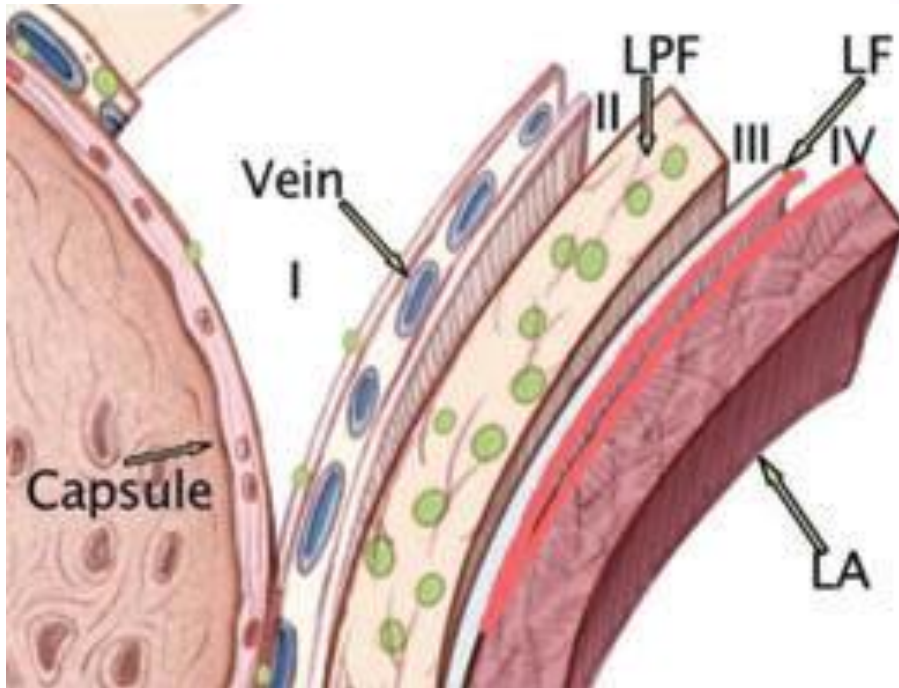
Planning surgical procedure



Nerve-sparing radical prostatectomy

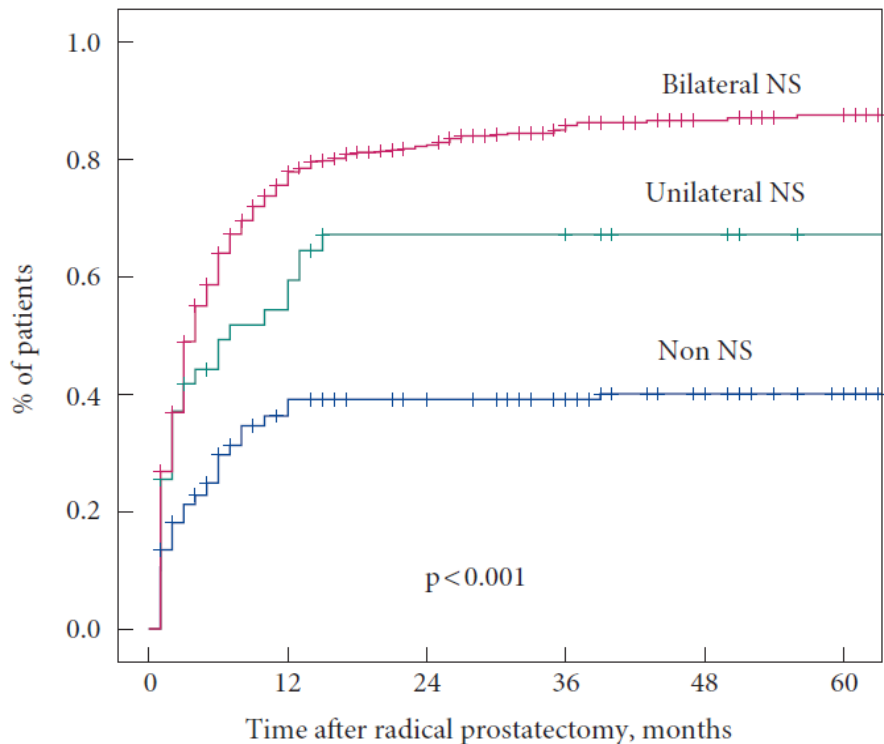


Nerve-sparing radical prostatectomy



The patient's view

Urinary incontinence



Erectile dysfunction



The patient's view: optimal balance

Maximal nerve-sparing surgery

No increase positive surgical margins

Urinary incontinence
Erectily dysfunction



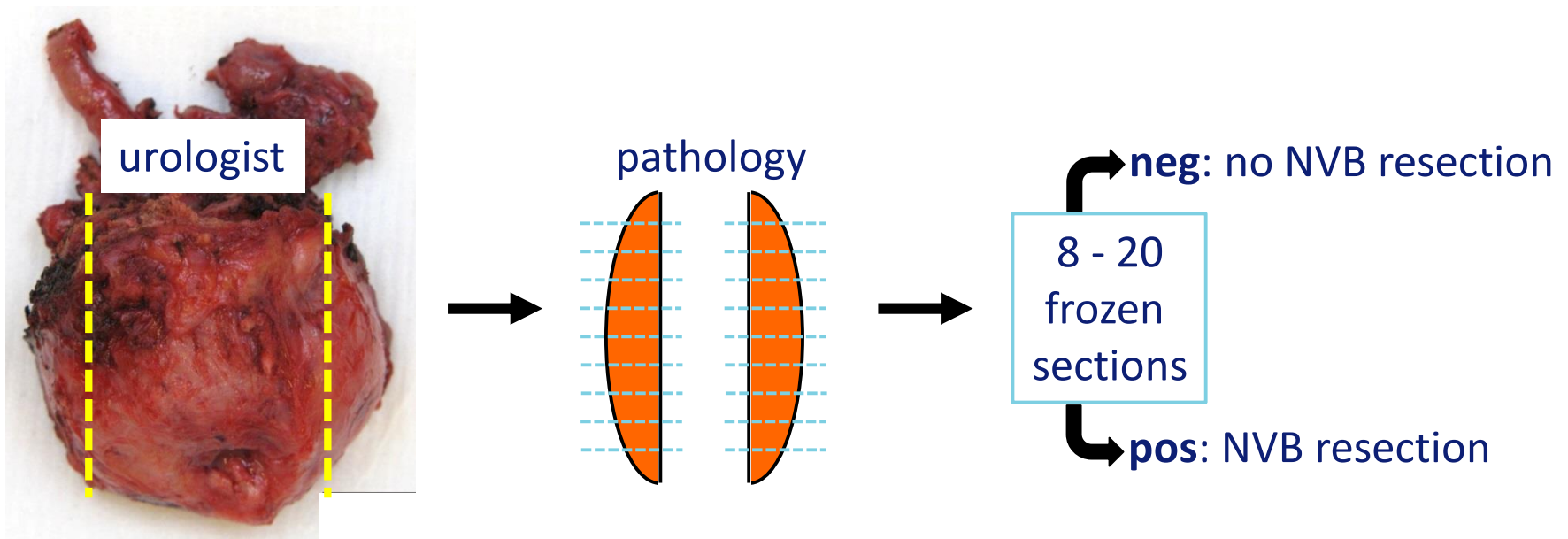
Biochemical recurrence
Adjuvant therapy

Clinical decision-making on nerve-sparing surgery?

- subjective
- biopsy tumour grade and volume
- MRI, clinical impression during operation

Neurovascular Structure-adjacent Frozen-section Examination (NeuroSAFE) Increases Nerve-sparing Frequency and Reduces Positive Surgical Margins in Open and Robot-assisted Laparoscopic Radical Prostatectomy: Experience After 11 069 Consecutive Patients

Thorsten Schlomm^{a,b,†,*}, Pierre Tennstedt^{a,†}, Caroline Huxhold^{a,†}, Thomas Steuber^a, Georg Salomon^a, Uwe Michl^a, Hans Heinzer^a, Jens Hansen^a, Lars Budäus^a, Stefan Steurer^c, Corinna Wittmer^c, Sarah Minner^c, Alexander Haese^a, Guido Sauter^c, Markus Graefen^a, Hartwig Huland^a



NeuroSAFE outcome: Hamburg

- > 5000 patients received NeuroSAFE
- 25% had positive surgical margin at NeuroSAFE
- More nerve-sparing surgery: from 81% to 97%
- Less positive surgical margins: from 22% to 15%
- No difference in BCR

NeuroSAFE outcome: UK

- 120 patients received NeuroSAFE
- More nerve-sparing and less positive surgical margins
- Less urinary incontinence: from 29% to 14%
- Less erectile dysfunction: from 49% to 23%
- Start randomized trial

NeuroSAFE: future perspective

- More nerve-sparing and less positive surgical margins
- Indications of better functional outcomes
- Labour-intensive for pathology department

- Randomized clinical trial ongoing

- Selection of patients having benefit from NeuroSAFE?

Alternative frozen section techniques

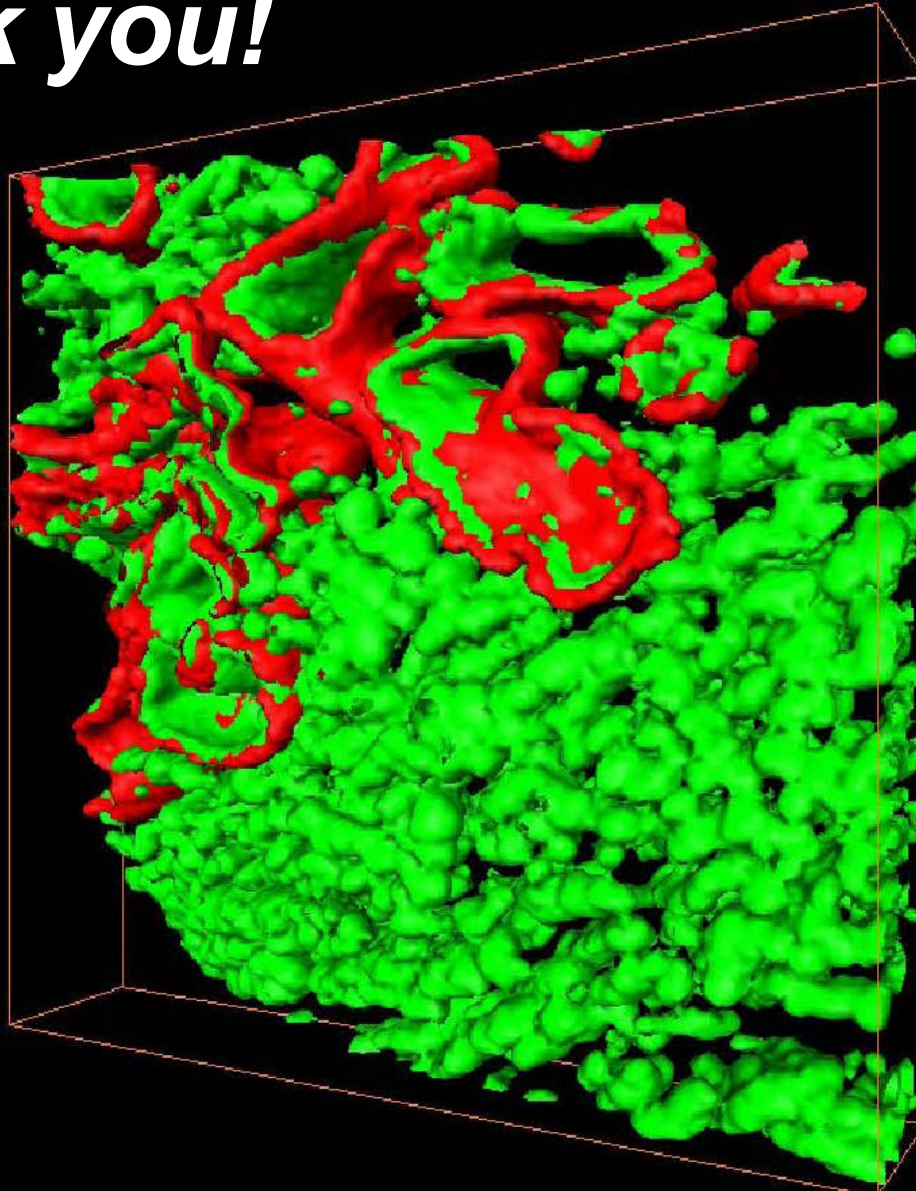
- Labour-intensive for pathology department:
 - 8-20 frozen sections per patient
 - 3-5 technicians working on 2-4 cryostats
 - 20 min pathologist time

- Alternative frozen section techniques?
 - poor standardisation
 - variable outcome

Take home messages

- Detailed pathologic evaluation of surgical margins (location, length, Gleason pattern) important for surgical quality control and prognosis
- Surgical balance: maximal nerve-sparing *versus* oncological outcome
- Intra-operative frozen section might reduce post-operative complications, but clinical trials necessary

Thank you!



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