TRANS-URETHRAL RESECTION OF BLADDER TUMOR

A WORKSHOP
MODERATED BY
WAEL SAMEH MD
PROFESSOR OF UROLOGY / ONCOLOGY
ALEXANDRIA UNIVERSITY
INTRODUCTION

• Most common malignancy of the urinary tract
• 11th human cancer
• 75% - 85% are NMI 70% Ta
• Incidence vs prevalence
INTRODUCTION

- Most common malignancy of the urinary tract
- 75% - 85% are NMI
- Risk Factors
  - Smoking
    Recent tobacco smoking statistics showed a very high prevalence in Egyptian men (56% in 2005) and a very low prevalence in women (<1% in ever-married women aged 15–49 yr) [43]. Women in Malawi had the highest incidence.

3.6. Africa

Bladder cancer incidence rates in Africa were among the lowest worldwide (Figs. 1 and 3, Table 1), with some notable exceptions such as Egyptian men (regional data: ASR = 19.0 per 100,000) or women from Malawi (regional data: ASR = 9.2 per 100,000; second highest incidence rates in women in our study). Bladder cancer mortality rates in Egyptian men were relatively high (ASR = 5.6 per 100,000) although these rates decreased sharply in recent years (EAPC = -4.0%; Fig. 4).
# RISC Categorization

<table>
<thead>
<tr>
<th>Risk group stratification</th>
<th>Characteristics</th>
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<tbody>
<tr>
<td>Low-risk tumours</td>
<td>Primary, solitary, Ta, G1* (PUNLMP, LG), &lt; 3 cm, no CIS</td>
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<td>Intermediate-risk tumours</td>
<td>All tumours not defined in the two adjacent categories (between the category of low- and high-risk).</td>
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<tr>
<td>High-risk tumours</td>
<td>Any of the following:</td>
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<tr>
<td></td>
<td>• T1 tumour</td>
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<td></td>
<td>• G3** (HG) tumour</td>
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<tr>
<td></td>
<td>• CIS</td>
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<tr>
<td></td>
<td>• Multiple and recurrent and large (&gt; 3 cm) Ta, G1G2 tumours (all conditions must be presented in this point)*</td>
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<th>Risk category</th>
<th>Definition</th>
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<td>Subgroup of highest-risk tumours</td>
<td>T1G3/HG associated with concurrent bladder CIS, multiple and/or large T1G3/HG and/or recurrent T1G3/HG, T1G3/HG with CIS in the prostatic urethra, some forms of variant histology of urothelial carcinoma, LVI</td>
<td>Radical cystectomy should be considered. In those who refuse or are unfit for RC intravesical full-dose BCG instillations for one to three years.</td>
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</tbody>
</table>
Conventional and contrast Radiology

- Shadow – Filling defect
- Upper and lower UT
- D.D Hematoma
- Goblet’s sign
- Under-filled UB
Ultrasound-Doppler

- Soft tissue echogenicity
- Internal Doppler flow
- D.D hematoma
- Back pressure HUN
- Extra-vesical extension
- Pelvic Adenopathy
- Search for metastasis

Computed Tomography MDCT
Magnetic Resonance Imaging

**muscle invasive or not?**

**T1**

**T2**
Multi-parametric MRI in cancer UB

- **T1WI and T2WI for Morphology and anatomy**

- **DWI and ADC map for Cellularity**

- **DCE MRI for Vascularity**

**VI-RADS1:** Uninterrupted low SI line representing muscularis integrity, ≤1.0 cm size.

**VI-RADS2:** As VIRADS #1 but >1.0 cm and thickened inner layer.

**VI-RADS3:** Disappearance of category 2 findings, but no clear disruption of low SI muscularis layer.

**VI-RADS4:** Interruption of low SI line suggesting extension into muscularis layer.

**VI-RADS5:** Extension of intermediate SI tumor to extravesical fat.
URINE CYTOLOGY
In The Management Of Bladder Cancer

Specimen Collection

**Voided sample**
- Advantage:
  - Easy for both pt & Dr
- Disadvantages:
  - females?, old males?

**Bladder wash (bladder barbotage):**
- Advantages:
  - * Better cell yield in a clear background
  - * Better cell morphology
  - * No contamination
- Disadvantage:
  - Invasive
Clinical Situations

Negative urine cytology

TURBT:
A solitary, small, primary tumor
So:
- No need to take random mucosal biopsies
- Pathology: low grade NMI (TCC)
- The tumor can be safely categorized as a low-risk lesion

Positive urine cytology:

Along with TURBT,
You have to take cold cup mucosal biopsies
either: selected site or random
to exclude CIS
During Follow up

Imaging is negative

**Cytology positive**

Consider the following:
cystoscopy along with:
- cold cup mucosal biopsies
- selective urine cytology from the ureters

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Can Cytology replace Cystoscopy In the follow up?

The answer is generally: NO
Cytology is only an adjunctive tool
(WHY?)
Low versus high grade

WHO 1973

WHO ISUP 2004

Progression to ≥ T2
Complete TURBT
or
Just a good biopsy

MOHAMED EL SAQA, MD
ASSISTANT LECTURER OF UROLOGY, ALEXANDRIA UNIVERSITY

- TURBT is not only a diagnostic procedure.

- In NMIBT, Complete TURBT is the initial management step.

- In MIBT, Complete TURBT is the first management step in case of Multimodal bladder preservation protocol.

EAU guidelines 2017

<table>
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<th>Summary of evidence</th>
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<td>In a highly selected patient population, long-term survival rates of multimodality treatment are comparable to those of early cystectomy.</td>
<td>2b</td>
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Complete resection may not be feasible due to:

- Large size and multifocal tumor
- Extravesical tumor extension
- Complications such as bleeding or significant extravasation
- A critical location (dome, obturator jerk)
- Medical instability requiring termination of the procedure
- An inexperienced surgeon
Take home messages

- Complete resection is the first management step of bladder tumor.
- Complete TURBT achieves better hemostasis.
- Complete resection decrease the incidence of understaging.
- Always do complete TURBT when ever possible.
- Always consider safety during resection.
- MRI can direct your biopsy.
To optimize (3)

To optimize (5)
Pre-Cystoscopy imaging
High resolution non-contrast MRI /contrast if needed

| Take the biopsy from abnormal areas in the prostatic urethra and from the precollicular area (between the 5 and 7 o’clock position) using a resection loop. In primary non-muscle-invasive tumours when stromal invasion is not suspected, cold-cup biopsy with forceps can be used. Use methods to improve tumour visualization (FC, NBI) during TURB, if available. Refer the specimens from different biopsies and resection fractions to the pathologist in separately labelled containers. The TURB protocol must describe tumour location, appearance, size and multifocality, all steps of the procedure, as well as the extent and completeness of resection. In patients with positive cytology, but negative cystoscopy, exclude an upper tract urothelial carcinoma, CIS in the bladder (random biopsies or PDD-guided biopsies) and tumour in the prostatic urethra (by prostatic urethra biopsy). Perform a second TURB in the following situations: • after incomplete initial TURB, or in case of doubt about completeness of a TURB; • if there is no muscle in the specimen after initial resection, with the exception of TaLG/G1 tumours and primary CIS; • in T1 tumours. | Weak | Weak | Strong | Strong |
To optimize (6)

Extended TURBT was defined as resection of the whole tumour, resection of tumour base and 1 cm of apparently normal bladder wall around the circumference of the tumour. Fig. 1 shows the bladder wall after the extended TURBT.

OBTURATOR JERK

WAEL SAMEH MD
PROFESSOR OF UROLOGY / ONCOLOGY
ALEXANDRIA UNIVERSITY
OBTURATOR JERK

- empty bladder
- low pressure
- Short cuts
- low current
- Light pedal touch / remove immediately
- bipolar resection
- General anaesthesia Deep
- Local obturator block
- Earthing
- Endo Mode
Advanced Endoscopic Imaging for Bladder Cancer

Khaled Refaai
Alexandria Urology Department

- While widely used, WLC has several well-recognized shortcomings:
  1. WLC can miss up to 49% of bladder cancers.
  2. CIS may be difficult to visualize or differentiate from inflammation.
  3. Smaller or satellite tumors may be missed.
  4. Bladder cancer may be incompletely resected therefore under staged.
(1) PHOTO-DYNAMIC DIAGNOSIS
"BLUE LIGHT OR FLUORESCENCE CYSTOSCOPY"

Uncover the wolf in sheep’s clothing
What about now?

Fluorescence-guided transurethral resection of bladder tumours reduces bladder tumour recurrence due to less residual tumour tissue in Ta/T1 patients: a randomized two-centre study

Gregers G. Hermann, Karin Mogensen, Steen Carlsson, Niels Marcussen, Susanne Duun

CONCLUSION

- WL TURB often leaves residual tumour in the bladder. HAL TURB improves the detection of Ta/T1 tumours of the bladder resulting in more complete TURB procedures and thus a reduced recurrence rate.
(2) NARROW BAND IMAGING

"NBI"
Immediate single instillation of chemotherapy

Dr. Ahmed Mostafa
Lecturer of urology

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<td>One immediate instillation of intravesical chemotherapy after TURB.</td>
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<td>Intermediate-risk tumours</td>
<td>All tumours not defined in the two adjacent categories (between the category of low and high risk).</td>
<td>In patients with previous low recurrence rate (less than or equal to one recurrence per year) and expected EORTC recurrence score &lt; 5, one immediate instillation of intravesical chemotherapy after TURB. In all patients either one-year full-dose BCG treatment (induction plus three-weekly instillations at three, six and twelve months), or instillations of chemotherapy (the optimal schedule is not known) for a maximum of one year.</td>
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PRECAUTIONS

- Place a 3-way catheter in the OR attached to an irrigant fluid, which is left turned off.
- Administer the chemotherapy agent through the main catheter port, clamp with hemostat and attach to a drainage bag. The system is thus closed.
- Staff should be notified to unclamp after 1 hour.
- Run 1 liter of saline through the irrigant port over next 30–60 minutes,
- Remove and discard the Foley along with urinary drainage bag into biohazard container.[2]

Mitomycin C

- Most commonly used worldwide.
- Cytotoxic antibiotic, inhibits DNA synthesis in bladder cancer cells.
- Contraindicated in bladder perforation, any previous allergy and pregnant or lactating women.
- Dose: 40 mg in 20 ml sterile water
- Preparation should be done using aseptic technique.
- Alkalization of urine with oral 1.3 gm NaHCO3 night before, and 30 minutes prior to treatment.
Gemictabine (Gemzar)

- Gemcitabine (2',2'-difluorodeoxycytidine) is a chemotherapeutic agent that inhibits DNA synthesis in dividing cells.

- After being transported into the cell, it is phosphorylated and incorporated into the DNA and RNA, which cause inhibition of cell growth and trigger apoptosis.

- Regimens containing gemcitabine are used systemically to treat muscle-invasive and more advanced urothelial cancer.

Second Look TURBT

Ahmed Elabbady, MD
Urology Department
University of Alexandria
UroAlex 2019
Second TURBT

Indications

- After incomplete initial TURB, or in case of doubt about completeness of a TURBT
- If there is no muscle in the specimen after initial resection, with the exception of TaLG/G1 tumours and primary CIS
- In T1 tumours.

Second TURBT

- increase recurrence-free survival (RFS)
- improve outcomes after BCG treatment
- provide prognostic information
- overall survival (OS) in one study.
Second TURBT

• *Timing of second resection*

  Retrospective evaluation showed that a second resection performed 14-42 days after initial resection provides longer RFS and PFS compared to second resection performed after 43-90 days

• Based on these arguments, a second TURB is recommended in selected cases *two-six weeks* after initial resection

Complications of TURBT

Osama Zaytoun, MD
Lecturer of urology, Alexandria University
The most common complication are

- Bladder perforation (2-5%)
- Bleeding (1-3%)
- Pain or spasm (3%)
- Retention (2.8%)
- Infection (2.1%)
- Obstruction of ureteric orifice
- Volume overload and electrolyte imbalance... Lengthy resection
- Urethral stricture... Bulbomemebranous junction and fossa navicularis

- Small perforations are of no clinical significance and Urethral catheter is usually sufficient to decompress the bladder and allow spontaneous healing of the site of perforation.

- Large extraperitoneal perforations often resolve with catheter alone but may require insertion of percutaneous drainage.

- Intraperitoneal perforations may also do well with catheter drainage/drain placement

- Open exploration and repair is recommended only if there is concern about bowel injury or huge perforation
Bleeding

- This may occur either with inadequate hemostasis or when the patient strains the lower abdomen postoperatively on recovery from anesthesia to open up vessels that have been cauterized.

- Effective clot evacuation is the first management step.

- Venous bleeding generally only requires evacuation of clots and institution of continuous bladder irrigation so that the bladder remains decompressed and spontaneous hemostasis can occur.

- If the bleeding is arterial, it may be necessary to return to operative theatre to cauterize the bleeding vessel.