


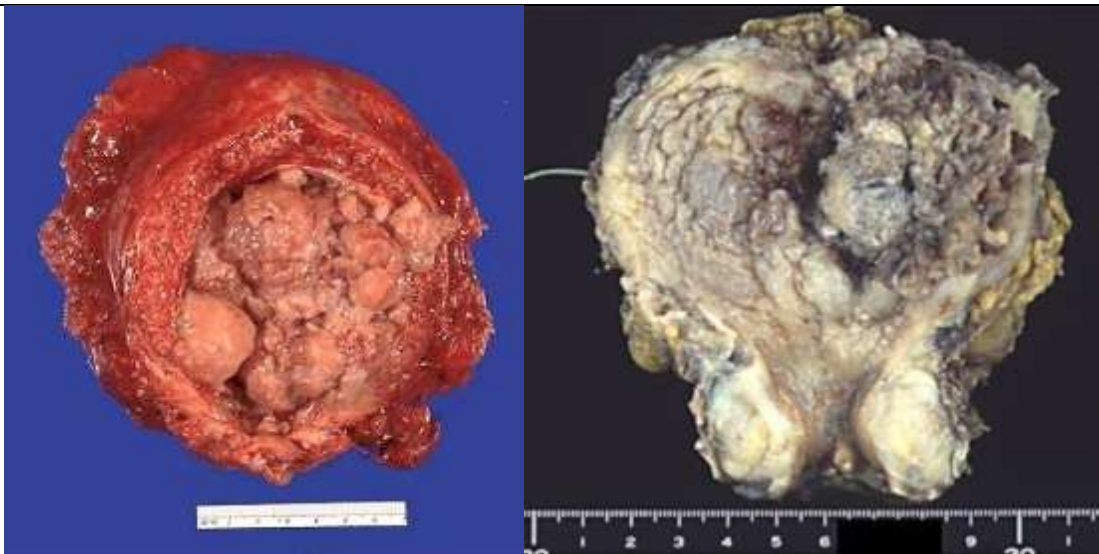
368 & 369

XIX. Diseases of the Urinary System

| Carcinoma (squamous cell type) IV- 4. 551 | |
|--|---|
| Kidney: | <ul style="list-style-type: none"> • Is moderately enlarged and swollen due to hydronephrotic changes |
| | <p style="text-align: center;">Ureter:</p> <ul style="list-style-type: none"> • Is somewhat dilated (hydro-ureter) |
| | <p style="text-align: center;">Shows:</p> <ul style="list-style-type: none"> • Scattered sandy patches • Projections (ureteritis glandularis) • Cysts (ureteritis cystica) |
| Urinary bladder Shows: | <ul style="list-style-type: none"> • Sandy patches (dirty yellowish granules) • Rough internal surface • Congested cysts (cystitis cystica). • Cysts are: <ul style="list-style-type: none"> ○ Small ○ Rounded ○ With clear or brownish material • A tumour (diffuse in the wall) |
| | <p style="text-align: center;">The tumour:</p> <ul style="list-style-type: none"> • Appears in the bladder at one of the ureteric orifices • Is large in size (about 6 x 5 x 2 cm.) • Rather rounded or slightly ovoid in shape • Infiltrating the wall and ulcerating (with raised edges and opaque greyish white) • Firm in consistence |
|  | |

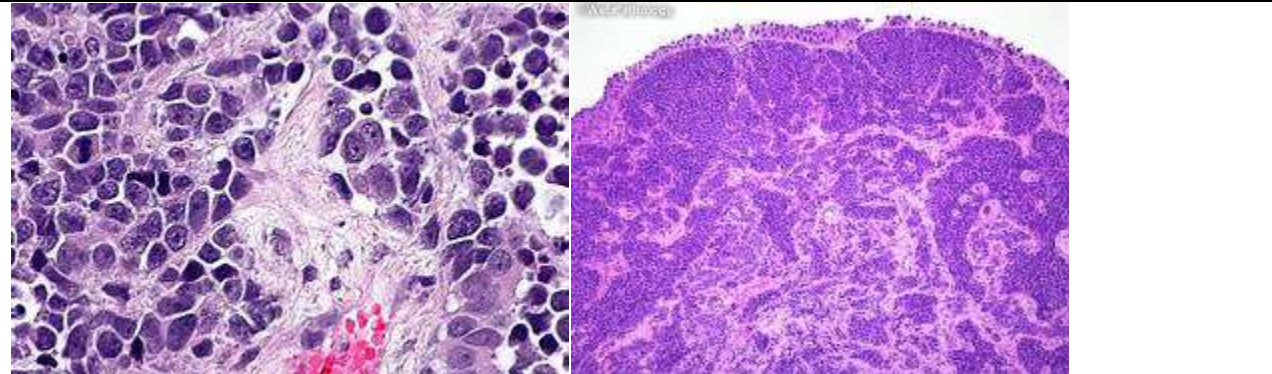
N.B.:

- Histologically, the various lesions were **bilharzial in nature** and the tumour in the bladder proved to be squamous cell carcinoma.
- **Carcinoma of the urinary bladder is a common type of cancer in Egypt particularly amongst the poor classes or those working as farmers; and, it accounts for 6-8% of cases of all cancer in the body.**
- **Although most authors working in the field of cancer and Bilharziasis believe that cancer of the bladder is related to urinary Bilharziasis, they differ amongst themselves upon the exact inter-relationship and the underlying mechanism of the sequence of changes.**
- ***So many theories exist in the literature:***
 1. ***"The mechanical irritation theory"***.
 - Prolonged bladder-irritation by the Bilharzia ova (Schistosoma eggs).
 2. ***"Chronic inflammatory theory"***.
 - Chronic sepsis.
 3. ***"The Bilharzial toxin theory"***.
 - Bilharzial toxins (of miracidia and worms) → carcinogenic substances.
 4. ***"The urinary retention"*** theory Prolonged urinary retention → Interference with the evacuation of urine from bladder → retention → more chance for more **prolonged action of already existing carcinogenic substances to act** (and particularly if the patient is susceptible); the action of bilharzial affection of the urinary bladder in this case is the production of this retention through destruction of the muscle coat as a sequel to bilharzial cystitis and fibrosis.
 5. ***"The overlapping factors theory"*** (metaplasia and hyperplasia; auto-immune reaction etc.).



Carcinoma (fungating) – IV- 4. 554.

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|-------------------------------|--|
| <i>Urinary bladder Shows:</i> | <ul style="list-style-type: none"> • Cystitis • Sandy patches (dirty yellowish-grey areas) • <i>A tumour</i> |
| | <p><i>The tumour:</i></p> <ul style="list-style-type: none"> • Projects into the cavity of the bladder • Is moderately large (bulky) • Infiltrating the wall (malignancy) • Mucoid in some parts • Firm in consistence. (In most parts) |



N.B.:
Carcinoma of the bladder is rather common.
Predisposing factors

1. Papillomatous growths.
2. Chronic prolonged irritation.
3. Certain dyes excreted in the urine for a long time and which are carcinogenic agents (aniline = beta-Naphthylamine).
4. Chronic cystitis with leucoplakia (relation to the epidermoid type of carcinoma).
5. Associated Bilharziasis (a possible relation to the epidermoid type of carcinoma).

Carcinoma (papillary) IV-4. 554

| | |
|-------------------------|--|
| <i>Urinary bladder:</i> | <ul style="list-style-type: none"> • Shows a tumour |
| | <p><i>The tumour:</i></p> <ul style="list-style-type: none"> • Papillary • Fleshy in appearance and consistence • Infiltrating the wall of bladder (malignancy) • Invading the adjacent vagina |

N.B.:

- Histologically, it proved to be an **infiltrating papillary carcinoma with invasion of the bladder-wall** (as well as a tendency to squamous metaplasia of some tumour cells).

Papillary carcinoma may:

1. Remain localized for a long time with false appearance of innocence.
2. Give implantation-growths in the other parts of the bladder.
3. Spread to
 - Iliac lymph nodes.
 - Lumbar lymph nodes.
 - Other organs by blood (rare): Lungs, liver and bones.



Carcinoma (solid) IV- 4. 555

Urinary bladder

- Shows a tumour

The tumour:

- Is growing into the wall of the bladder
- Is moderately large
- Ulcerating
- Infiltrating (malignancy)
- Somewhat fungating (slightly)
- Opaque greyish-white
- Very firm in consistence in most parts)

N.B.:

- This is a non-papillary type of carcinoma of the bladder.
- It has infiltrated deeply through the bladder-wall.
- It appears as a slightly projecting ulcerated mass (with raised thickened edges) that invaded the underlying thickened bladder-wall (which appears grey and necrotic).

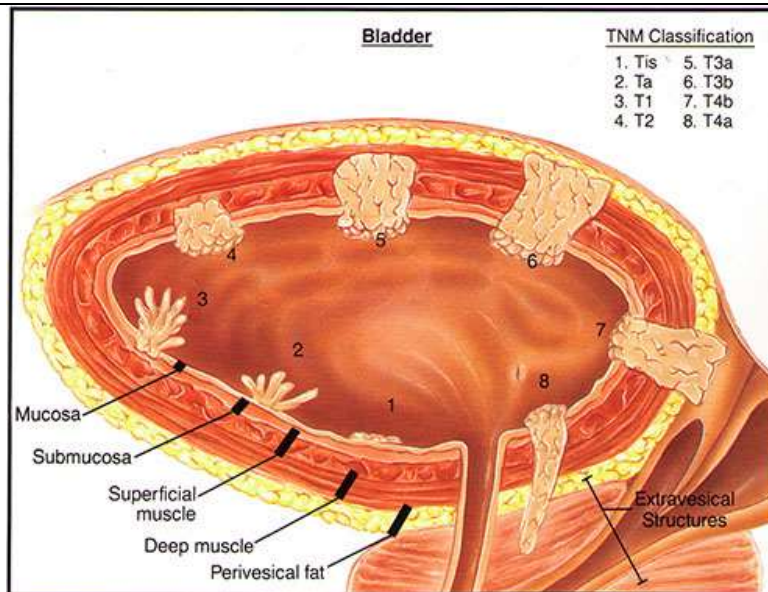
Types

1. Undifferentiated.
2. Squamous cell carcinoma.
3. Transitional cell carcinoma.
4. Adenocarcinoma (rare).

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Effects

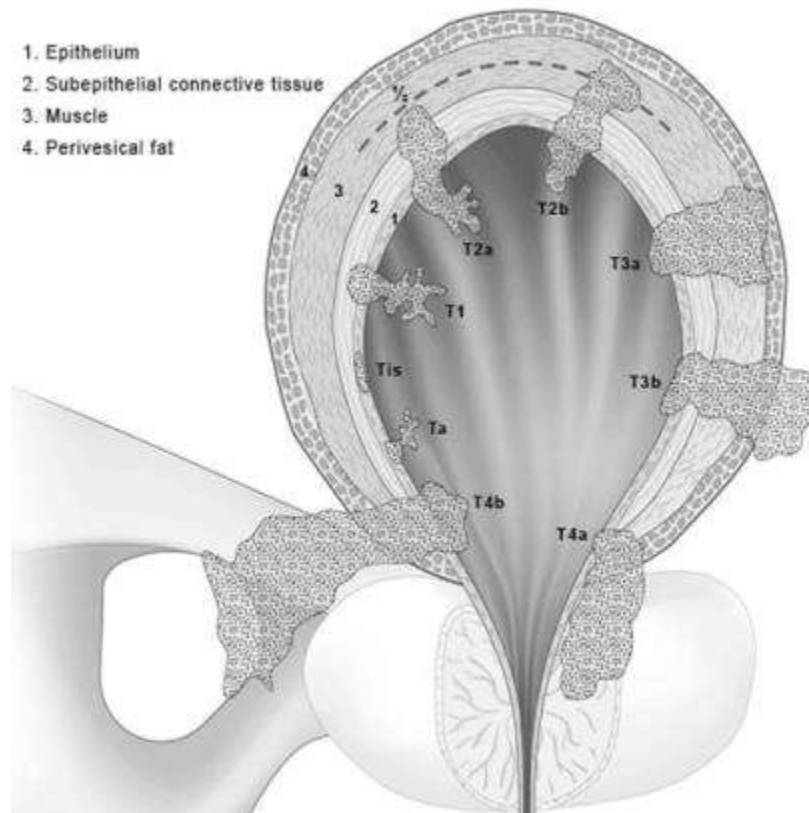
1. Retention and obstruction (by its size or/and infiltration of ureters).
2. Hydronephrosis.
3. Infection → pyonephrosis
4. Cystitis.
5. Neoplastic fistula-formation (rectum or prostate and uterus or vagina).
6. Dissemination:
 - **Spread:** (a) To lymph nodes (para-iliac, para-aortic and *inguinal*).
 - **Metastases:** (b) To distant organs (*liver, lungs and bones*).



TNM and staging of Urinary Bladder Cancer Simplified

Urinary bladder is a hollow organ whose “T” classification resembles that of the gastrointestinal tract. Since, the regional lymph nodes of the urinary bladder also lie beyond the serosa like in colon and rectum, positive regional nodes are usually seen only with advanced tumors, i.e. T4=N1. The regional lymph nodes are below the bifurcation of the common iliac arteries and above the inguinal ligament

TNM Classification



Primary Tumor (T)

Progressive involvement of the layers of wall and beyond.

- **T1:** Submucosa (Lamina propria or Subepithelial tissue)
- **T2:** Muscularis propria
 - **a:** superficial (inner half)
 - **b:** deep (outer half)
- **T3:** Perivesical fat or tissue
 - **a:** microscopically
 - **b:** macroscopically
- **T4:** Invasion of adjacent structures
 - **a:** prostatic stroma, uterus, vagina
 - **b:** pelvic wall, abdominal wall

Regional Lymph Node (N)

- **N1:** Single positive node in primary drainage regions (in true pelvis)
- **N2:** Multiple positive nodes in primary drainage regions (in true pelvis)
- **N3:** Common iliac nodes

AJCC staging for Bladder Cancer

| | N0 | N1 | N2 | N3 | M1 |
|----|-----|----|----|----|----|
| T1 | I | IV | IV | IV | IV |
| T2 | II | IV | IV | IV | IV |
| T3 | III | IV | IV | IV | IV |
| T4 | IV | IV | IV | IV | IV |

T4b or N1-3 or M1 = Stage IV (~5% five year survival)

Stage I-III is **N0M0** and corresponds to "T" classification:

- **T1N0M0 = Stage I (~88% five year survival)**
- **T2N0M0 = Stage II (~63% five year survival)**
- **T3 or 4a No Mo = Stage III (~46% five year survival)**

General Principle of Management

- **Stage I:** Conservatively resected trans urethral
- **Stage II:** Partial cystectomies
- **Stage III:** Total cystectomy and urethral diversion
- **Stage IV:** No longer completely resectable.

Multicentric urothelial carcinoma. Photograph of the bladder shows multiple synchronous tumors (arrows).

