## Neoplasms of the bladder

- - 95% of primary bladder tumours originate in the transitional epithelium; the remainder arise from connective tissue (angioma, fibroma, myoma & sarcoma)
- Secondary tumours of the bladder are not rare and most commonly arise from a neighbouring organ particularly the sigmoid & rectum, the prostate, the uterus or ovary, although bronchial neoplasms also may spread to bladder.

## Carcinoma of the bladder

- Histological types of bladder cancer include, transitional, squamous and Adencarcinoma ( or mixed).
- Over 90% are transitional cells in origin. pure squamous carcinoma is uncommon ( 5%). Primary adenocarcinoma, accounts for l-2% of cases.

## Transitional cell carcinoma

### etiology

- Cigarette smoking is the main etiological factor and accounts for more than 40% of cancers.
- Occupational exposure to urothelial carcinogens
- The following compounds may be carcinogenic:

2 - naphthylamine; benzidine
4 - amino biphenyl
2- chloroaniline methylene dianiline;

- Occupations which have been reported to be associated with a significantly increased risk of bladder cancer are:

✶ leather workers * textile workers * dye workers

✶ petrol workers * painters * tyre rubber & cable workers

***metastatic spread***: bladder carcinoma spreads by:-

- direct spread--into the adjacent organs such as the colon, prostate, and uterus
- Lymphatics — the primary lymphatic drainage pattern from the bladder is to the external iliac, hypogastric, and presacral lymph nodes
- Haematogenous dissemination — to the lungs, bones, and liver.
- Implantation- bladder cancer may be seeded into the urethra & possibly onto other parts of the bladder by direct contact. Also to the wounds therefore open surgical excision & biopsy of bladder tumor is contraindicated

## *Tumor Staging & Grading*

***The Stage*** is an indication as to where the tumor was physically located

Stage has two “superficial” and “invasive.”
*Superficial tumors involve only the lining of the bladder.

* an invasive tumor is growing into the layers of the wall of the bladder.

***The grade*** is simply an estimate of the speed of growth of the tumor

## *Primary tumor*

| | |
|---|---|
| Ta | noninvasive papillary carcinoma |
| Tis | carcinoma in situ |
| T1 | tumor invades subepithelial connective tissue |
| T2a | = = superficial muscle |
| T2b | = = deep muscle |
| T3a | = = perivesical tissue-microscopic only |
| T3b | = = perivesical tissue-macroscopic |
| T4a | = = prostate, uterus, vagina |
| T4b | = = pelvic wall, abdominal wall |

## *Lymph nodes*

| | |
|---|---|
| N1 | single regional lymph node, <2cm in diameter |
| N2 | one or more lymph nodes, none>5 cm in diameter |
| N3 = = = = = | , >5 cm in diameter |

## *Metastases*

| | |
|---|---|
| M1 | distant metastasis |

AJCC , American Joint Committee on Cancer

## Grade

- Grade I: mild anaplasia (well differentiated)
- Grade II: moderate anaplasia (moderately differentiated)
- Grade III : sever anaplasia (poorly differentiated)

## Diagnosis :-

***1- signs & symptoms***.

- Approximately 80% of patients present with gross, painless haematuria.
- Dysuria & irritative symptoms are present in 20% of patients-especially those with carcinoma in situ.
- Secondary urinary infection may be present in about 30% of patients.
- Upper urinary tract obstruction signs

***2- Cystoscopy***. It is the most important investigation, it is important to confirm the presence of the tumor & to show the shape of the tumor whether it is small villous, papillary, sessile or pedunculated tumour.

N.B :- the sessile tumor is the worst because it is very fast growing type.

***3- Urinary cytology***. Cells for microscopic examination are collected from voided urine or bladder washings. Urinary cytologic study is not sensitive(30%) in diagnosing low-grade bladder cancer but is excellent for detecting carcinoma in situ & high-grade lesions(90%).

***4 - Flow cytometry***. Is the computerized analysis of DNA content in exfoliated cells. The main advantage over routine cytologic study is the ability of flow cytometry to detect low-grade-tumors accurately.

***5- Imaging studies*** ultrasound, IVU, CT scan (important to show any L.N involvement), MRI (to show the extent of the tumor)

Standard white light cystoscopy

Hexvix cystoscopy

## Treatment :-

***1 - carcinoma in situ & superfidal bladder cancer (Ta, T1):-***

TURBT & fulguration followed by a course of intravesical instillations of thiotepa, mitomycin or adriamycin . Or course of intravesical immunotherapy with intravesical bacille Calmette-Guerrin (BCG).

- the risk of overlooking neoplastic lesions of the bladder using white-light endoscopy is significant, so we can do photodynamic examination of the bladder ( 5-ALA is installed into the bladder through small Foley' s catheter & by using U.V light, the carcinoma cells appear as red-colored cells, while the rest normal cells appear as blue-colored cells).

***- 2 invasive bladder cancer(T2b,T3a,T3b,T4a,T4b):-***

Radiotherapy or Surgery or combination of both

***A- partial cystectomy:-*** removal of a 2 cm margin of normal tissue around the tumor. Here the tumor should be single & away from the ureteric orifice at least by 1 inch & must be in the dome of the bladder.

***B- Radical cystectomy with urinary diversion*** is usually the treatment of choice for invasive bladder carcinoma

- In male we do removal of the U.B, prostate & surrounding L.N. then do urinary diversion.

***Types of urinary diversion are :-***

- *ureterosigmoidostomy *cutaneous ureterostomy
- * Ileal conduit *recently orthotopic ileal neobladder