

## Diagnostic Yield of Transurethral resection of prostate transurethral resection of bladder tumor TURP and (TURBT) in Mosul Two Years Study

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### Abstract

Yield of TURP-TURBT (Transurethral resection of prostate transurethral resection of bladder tumor) in Mosul has not been studied before. Prostatic & bladder cancers are increasing in this specific locality, to know their frequency and grades this study was done. Four hundred and ninety TURP-TURBT chips were received, examined grossly, processed routinely, and then analyzed microscopically. The study was performed in Alzahrawi hospital - histopathology laboratories of Mosul city in Iraq between January 2006 and through December 2007. There were 320 (65.3%) were taken by TURP and 170 (34.7%); were taken by TURBT (142 male and 28 female). Benign prostatic hyperplasia was the predominant TURP finding (282; 88.1% cases), while prostatic carcinoma was found in 38 (11.9%) cases. Most of the prostate cancer cases were received as high grades (Gleason's grade 4 and 5). Transitional cell carcinoma was the chief TURBT finding (149; 87.6%). prostatic carcinoma and transitional cell carcinoma are common in this locality. Most cases of prostate carcinoma were diagnosed as high grades.

المحصلة التشخيصية لحالات قص البروستات والمثانة ناطوريا في الموصل -  
دراسة لمدة سنتين

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### المستخلص

استعمال الفحوصات النسيجية للتوصل الى التشخيص النهائي لحالات قص البروستات واورام المثانة ناطوريا وتصنيف اورام المثانة والبروستات نسيجيا. دراسة مستقبالية لـ ٤٩٠ خزعة نسيجية للبروستات والمثانة مأخوذة ناطوريا من المرضى واستعمال الفحوصات النسيجية. من بين جميع الحالات كان هناك (٣٢٠) حالة (٦٥.٣%) من البروستات TURP وكان هناك (١٧٠) حالة (٣٤.٧%) من حالات قص المثانة (١٤٢ نكور و٢٨ اقات) شكلت حالات تضخم البروستات الحميد الضية الغالبة (٢٨٢ - ٨٨.١%) وحالات سرطان البروستات (٣٨ - ١١.٩%) وكان معظمها من المرحلة الشديدة نسيجيا. وكان سرطان المثانة هي الاكثر شيوعا في حالات قص المثانة ناطوريا TURBT. سرطان البروستات والمثانة من الامراض الشائعة في المنطقة.

معظم حالات سرطان البروستات من المرحلة الشديدة نسيجيا ومعظم حالات سرطان المثانة من المرحلة الثانية نسيجيا.

## Introduction

### TURP

An enlarged prostate gland can compress the urethra causing problems with urination. The increased workload produces several changes to the bladder ranging from initial increased instability and irritability and ending with permanent loss of bladder compliance<sup>(1,2,3)</sup>. Fortunately, most of these symptoms resolve over time after removal of the prostatic obstruction<sup>(3, 4, 5)</sup>. Transurethral resection of prostate (TURP) is an elective surgical procedure applied to the endoscopic removal of part or all of the prostate gland. For most of the 20th century-from, 1909, when Hugh Hampton Young performed his first cold-cut prostatic punch operation, until the late 1990s, when effective medical therapy and newer, less invasive technologies for the relief of prostatic obstruction were developed, the premier treatment for symptomatic benign prostatic hypertrophy (BPH) was TURP. It was the 'first successful, minimally invasive surgical procedure of the modern era'<sup>(5)</sup>. To this day, TURP remains the criterion standard diagnostic and therapeutic technique for obstructive prostatic hypertrophy<sup>(2, 3, 4)</sup>. In addition, it is both the surgical treatment of choice and standard of care when other methods fail<sup>(6, 7)</sup>. TURP may also be performed on men having cancerous prostates, and can be a treatment of choice for such patients when they are at high medical risk for anesthesia or a major operation<sup>(6,7)</sup>. Also it can be used safely for follow up of patients after any kind of therapy<sup>(2,3, and 5)</sup>. Histological findings: BPH and prostatitis occur simultaneously and are the most frequent lesions detected<sup>(8,9, and 10)</sup>. The transitional zone is the primary site of origin of

majority of BPH which slowly strangles urinary flow as men age. BPH is exceedingly common, with up to 25% of elderly men requiring TURP. It occurs primarily as 2, histological types: stromal hyperplasia (fibromuscular) and glandular hyperplasia (nodular, epithelial) The growth rate of the epithelium and particularly the stroma in BPH is much faster when compared with that of the same tissue types, predominantly stromal with the glandular component averaging only approximately 22% of the total.

### TURBT

Bladder tumors mostly sprout up from the flat lining epithelium into a growth projecting into the interior of the bladder cavity, the main type is transitional cell carcinoma(TCC)<sup>(11, 12 and 13)</sup>. In general, tumors at this stage are not life threatening and can be removed using a procedure, called transurethral resection of bladder tumor (TURBT)<sup>(14, 15, 16)</sup>, such procedure is accomplished using a lighted tube inserted through the urethra into the bladder, and performed under sedation or anesthesia. This option is available for both men and women. As TURP, TURBT plays both diagnostic and therapeutic roles in bladder cancers<sup>(12,15,16)</sup>. The procedure is performed to remove and examine bladder tissue and/or tumors" and be the only treatment necessary for noninvasive tumors; it is a feasible and safe organ-sparing approach without deferring the survival probability<sup>(17, 18, 19)</sup>. Moreover, it is a relatively cost effective when compared with open cut through abdomen<sup>(14,15,18)</sup>. Depending on the amount of tissue



that is removed as well as other factors, the procedure could be done on an outpatient basis or with a short hospital stay<sup>(14,15,16)</sup>.

Contraindications of TURP-B are mostly relative. They include impaired cardiopulmonary function, uncorrectable bleeding disorders, and active urinary tract infection<sup>(8, 9,19)</sup>.

Complications are those of any other surgery including bleeding and infection. Specific complications can also occur, which include erectile dysfunction, retrograde ejaculation or incontinence<sup>(7,12,19)</sup>.

### Aims of Study

- 1 - To find out the general outcome of both TURP and TURBT (TURP-B) in Mosul.
- 2- To assess the grading of prostatic carcinoma and transitional cell carcinoma in Mosul.

### Materials and Methods

During a 2 years period, from the second of January 2006 and through December 2007, TURP-B was performed on 490 patients at Alzahrawi teaching hospital in Mosul, the major city in the north of Iraq. Patient's age and sex, clinical data (chief complaint and duration), site of lesions, and type of operation were retrieved from the request forms. The samples were separated into 2 groups; those obtained from TURP and those from TURBT procedures, and the cassettes were examined grossly concerning the amount, size, and shape of the chips material. Then the chips were routinely processed. One cassette (Weight 10 grams) was taken, and the material was embedded in paraffin, and stained with hematoxylin and eosin stains. Microscopical interpretation was then done, and the results were analyzed accordingly. Prostatic carcinoma and TCC were

graded, using WHO & Gleason's grading systems<sup>(20,21)</sup>.

### Results

During the 2 years period of the study (2006 and 2007), There were 320 (65.3%) were taken by TURP and 170 (34.7%); were taken by TURBT (142 male and 28 female). The curette material sized 10-40 mm and weighed 10 - 70 grams. The histological diagnoses comprised different histological findings, varying from hyperplastic and inflammatory conditions were the dominant findings followed by neoplastic lesions in both TURP and TURBT (Table1). TURP was performed on 320 (65.3%) men (Table2); BPH was the predominant finding (282 cases; 88.1%); the age ranged from 30 to 90 years; the peak incidence was in the 7<sup>th</sup> decade with a mean age of 65 years. Prostatic carcinoma was found in 38 (11.9 %) cases; the age ranged from 50 to 90 years; the peak incidence was in the 7<sup>th</sup> decade. All cases of prostate cancer were adenocarcinoma of small ducts; most were in grade 4 and 5 (18; 47.4 and 17; 44.7% respectively); 3 (7.9%) cases were in grade 3; no case was seen in grade 1 and 2. (Table3). TURBT was done in 170 (34.7%) patients; 142 (83.5 %) were males, and 28 (16.5 %) were females. There were 149 (87.6%) cases of bladder carcinoma, 148 (87.1%) TCC and 1 (0.5%) squamous cell carcinoma (SCC); the age range was between 40 and 100 years; the peak frequency was in the 7<sup>th</sup> decade with a mean age of 62 years (Table4; Figure1); 130 (76.5%) were males and 18 (10.6%) were females (Table4). Concerning the grading of TCC, 27 (18.1%) were in grade 1, 90 (60.4%), grade 2, and

32 (21.5%) grade 3 (Table5). The remaining 21 (12.4%) cases of TURBT were diagnosed as cystitis; 12 (57.1%) were males and 9 (42.9%) were females; the age

ranged from 35 to 62 years; the peak frequency was in the 5<sup>th</sup> decade with a mean age of 51 years (Table4). All cystitis cases were nonspecific inflammatory in nature.

**Table (1):- Histological findings of TURBT-TURP**

Diagnosis	TURB/TURP	
	%	No.
BPH	57.6	282
TCC	30.2	148
Prostate cancer	7.7	38
Cystitis	4.3	21
SCC	0.2	1
Total	100	490

**Table (2):- Histological types of the TURP.**

Diagnosis	TURP	
	%	Number
BPH	88.1	282
Adenocarcinoma	11.9	38
Total	100	320



Table (3):-Number and percentage of adenocarcinoma cases by grade

Grade	Adenocarcinoma	
	%	Number
Grade 1	0	0
Grade 2	0	0
Grade 3	7.9	3
Grade 4	47.4	18
Grade 5	44.7	17
Total	100	38

Table (4):- Histological findings and sex distribution in TURBT

TURBT	Male	Female	Total
TCC	130 (76.5%)	18 (10.6 %)	148 (87.1%)
Cystitis	12 (7.1%)	9 (5.3%)	21 (12.4%)
SCC	1 (0.5%)	0(0.0%)	1 (0.5%)
Total	142 (83.5%)	28 (16.5%)	170 (%)

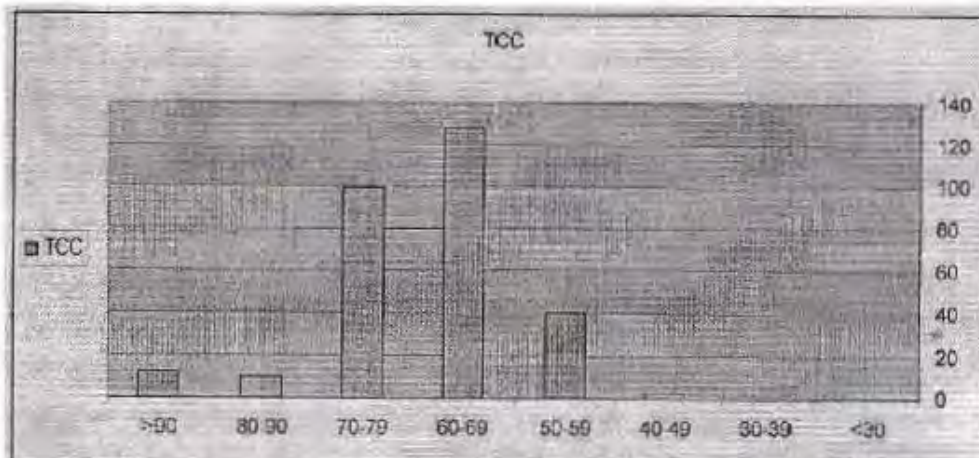


Fig.(1):- Distribution of TCC cases by age interval.

Table(5):- Histological grades of TCC and sex distribution.

Sex	Grade1	Grade2	Grade3	Total
Male	22(14.7%)	79(53%)	29(19.5%)	130(87.2%)
Female	5(3.4%)	11(7.4%)	3(2%)	19(12.8%)
Total	27(18.1%)	90(60.4%)	32(21.5%)	149(100%)

### Discussion

Prostate cancer is an important and widely prevalent disease; it is the most common cause of cancer in men and the second leading cause of cancer death, after lung cancer, in united state<sup>(22, 23)</sup>. Moreover, prostate cancer is slow growing tumor, and most patients are diagnosed early outside Iraq. And those with clinically localized cancers can survive 10 years without aggressive therapy<sup>(5,6,20,24,25)</sup>. On the other hand, BPH is a common urological condition in the aging male<sup>(2,31)</sup>; at least 50% of men over age 50 have some degree of prostatic hyperplasia resulting in some sort of worrisome urinary symptoms<sup>(1-3)</sup>. TURP a procedure involving no incision is the most commonly used for diagnosis and treatment of benign tumors, of the prostate; but is also performed on men with prostate cancer, and may be the only allowed method, when an open prostatectomy and other aggressive techniques cannot be performed due to other health factors<sup>(5-7)</sup>. During the 2 years period of the current study BPH was the commonest TURP pathology, therefore forming more than 50% of cases, followed by prostate cancer (Table2). These results have been confirmed by other studies<sup>(1-3)</sup>. The rate of prostate carcinoma (11.9%) in this study correlates with that reported in Western countries<sup>(6,7)</sup>, higher than

those reported in Saudi Arabia, Kuwait, and among Japanese and Chinese<sup>(26-28)</sup>. These results may explain by high prevalence of prostatic carcinoma in our locality and also early detection of disease and therefore it needs more study in the future. Dietary factors are considered responsible for the geographical differences in prostate cancer; other causes include social habits different ethnic, groups, and genetic influences<sup>(22, 30, 31)</sup>. Regarding the grading, most diagnosed cases of prostate carcinoma were in grade 4 and 5 ( Sum: 8-10) (47.4%, 44,70/0 respectively) (Table3). Such high grades at diagnosis when compared with those reported in western countries<sup>(12, 20, 22)</sup>, can be related to the same reasons influences the high rate of prostate carcinoma. Bladder cancer is the fourth most common cancer in men and the eighth among women in USA resulting in high death rates<sup>(23)</sup>; it is the second most prevalent urological malignancy in middle aged and elderly men; about 90% of the cases are transitional cell carcinomas<sup>(32,33,34)</sup>. TCC can come back after surgery, the recurrence rate is so high, especially the superficial types, that may reach up to 70% at 5 years, because of multicentric of bladder carcinoma or inadequate resection, so repeated cystoscopic exploration may be sometimes necessary<sup>(35, 36)</sup>. TURBT is the usual method for initial



diagnosis of bladder cancer in our locality; it is performed both to excise all visible tumors and to provide specimens for pathologic evaluation<sup>(37)</sup>. A repeat TURBT can be performed in cases of incompletely resected tumors<sup>(37)</sup>. In the current study, TCC was the commonest TURBT finding (87.1%) (Table4); Such high yield of TCC correlates with those reported in Egypt, Saudi Arabia, and industrialized countries including North America, Northern Europe, and united state<sup>(38, 39, and 40)</sup>. Smoking, race, and chronic bladder irritation, as a result of recurrent infection, stone formation, and recurrent catheterization, may be responsible for the high frequency of TCC in this locality<sup>(41)</sup>. Most patients were males (83.5%); the peak age was in the 7<sup>th</sup> decade; and the main presenting symptom was frank hematuria, these features have been documented by others<sup>(38-39)</sup>; Most cases of TCC in the present study were reported as grade 2, followed by grade 3 and lastly grade 1 (Table5). Squamous cell carcinoma was seen in only one patient. Such low finding correlates with that reported in industrialized nations where schistosomiasis is not Widespread, and lower than that reported in areas where this parasite infection is widespread as South Iraq, Egypt, and Africa<sup>(21, 35, and 40)</sup>. No cases of adenocarcinoma was found in this studied patients.

### Conclusions

Urinary bladder transitional cell carcinoma and prostate cancer are widely frequent in TURP and TURBT, and so a screening protocol is advised.

- Prostatic carcinoma is showing high grade at the time of diagnosis.
- Transitional cell carcinoma

grade 2 is more common than grade 1 and 3 at the time of diagnosis.

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