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CANCER OF THE URINARY BLADDER

BY

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CANCER OF THE URINARY BLADDER

During the years 1957 through 1961, one hundred and two patients were admitted and treated for cancer of the urinary bladder at Nebraska Methodist Hospital. A review of these patients provides the basis for this study.

PATIENT SELECTION

Only patients having their first occurrence sometime during this five-year span are included, i.e., readmission for recurrence in patients diagnosed prior to 1959 have been excluded.

These patients were studied through extensive use of hospital charts containing the usual history and physical, operative report, pathology report, and radiotherapy report when irradiation was used. Follow-up study was provided by review of office records of the attending urologist, by the tumor registry at Nebraska Methodist Hospital, and through the use of questionnaires sent to the referring physicians. In all cases a minimum of five years' follow-up was done and in the earlier cases the follow-up approaches ten years.

AGE AND SEX

The age at the time of diagnosis ranged from 41 to 89 years for men and from 47 to 86 years for women with 71 per

cent of cases in the 60 to 79 age range for men and 69 per cent of cases in the same age range for women.

Of the 102 patients, 78 (76.4%) were men and 24 (23.6%) were women or about 3:1 male to female (Table 1). Greenslade¹

TABLE 1. SEX AND AGE OF PATIENTS

<u>Age, Yr.</u>	<u>Total Patients</u>		<u>Male</u>		<u>Female</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
40-49	5	4.9	4	5.1	1	4.2
50-59	13	12.7	12	15.5	1	4.2
60-69	35	34.3	27	34.6	8	33.3
70-79	37	36.2	28	35.9	9	37.5
80-89	<u>12</u>	<u>11.9</u>	<u>7</u>	<u>9.0</u>	<u>5</u>	<u>20.8</u>
TOTAL	102	100.0	78	100.0	24	100.0
MEAN AGE	68.2		67.5		70.8	

reports a sex ratio of slightly more than 2:1 male to female and Humphreys² reports a ratio of 4:1.

PRESENTING SYMPTOMS

The most frequently encountered symptom combination was hematuria in 74 per cent of patients (clots in 11 per cent and microscopic hematuria presumably discovered on routine urine analysis in 3 per cent), frequency in 23 per cent, and dysuria in 20 per cent. Other symptoms occurring less frequently

include nocturia in 13 per cent of patients, hesitancy in 10 per cent, urinary retention or obstruction in 5 per cent, anorexia in 3 per cent, weight loss in 2 per cent, chills and fever in 1 per cent, and weakness in 1 per cent. Pain was a complaint in 18 per cent of patients with 8 per cent complaining of abdominal or supra pubic pain, 7 per cent of low back pain, 2 per cent of penile or scrotal pain, and 1 per cent complaining of leg pain (Table 2). Jewett³ reports hematuria,

TABLE 2. PRESENTING SYMPTOMS

<u>Symptom</u>	<u>Patients</u>	
	<u>No.</u>	<u>%</u>
Hematuria	90	88
Gross	76	74
Clots	11	11
Microscopic	3	3
Frequency	23	23
Dysuria	20	20
Nocturia	13	13
Hesitancy	10	10
Retention or Obstruction	5	5
Anorexia	3	3
Weight Loss	2	2
Chills and Fever	1	1
Weakness	1	1
Pain	18	18
Abdominal or Supra Pubic	8	8
Back	7	7
Penile or Scrotal	2	2
Leg	1	1

either gross or microscopic, to be present in 97 per cent of cases and hematuria plus some form of bladder irritability

(frequency, urgency, pain, burning on urination, or tenesmus) to be present in various combinations in 100 per cent of cases.

GRADING AND STAGING

In all cases histological grading was done by the Department of Pathology at Nebraska Methodist Hospital using a modified form of the system found in W. A. D. Anderson.⁴ Grade I tumors show papillations with little epithelial hyperplasia, no nuclear variation, and no invasion beyond the mucosa. In grade II tumors epithelial hyperplasia is seen, and nuclear irregularities are present; but invasion past the mucosa is still absent. Grade III tumors have invaded the muscularis and show more marked anaplasia. Invasion is through the vesical wall in grade IV tumors, and all squamous cell carcinomas were routinely called grade IV because over 75 per cent of cases had shown metastases.

Staging was done through a combination of tumor histology and clinical findings at the time of surgery. Stage I tumors were superficial, being limited to the mucosa. In stage II the tumor had invaded the muscle, and no attempt was made to determine depth of muscle invasion. Stage III tumors showed invasion into the perivesical fat and/or presence of tumor thrombi in the lymphatics, and stage IV tumors had metastasized distantly or caused fixation of the bladder in the pelvis. This system roughly corresponds to that of Marshall⁵ (Table 3).

TABLE 3. MARSHALL'S METHOD OF STAGING

<u>Stage</u>	<u>Degree of Invasion</u>
O	Limited to mucosa
A	Not beyond submucosa
B ₁	Muscle invasion not beyond halfway level
B ₂	Muscle invasion beyond halfway level
C	Invasion into perivesical fat
D ₁	Metastases, local, to pelvis
D ₂	Metastases outside pelvis

TUMOR TYPE

Of 102 cases of bladder tumors 83 cases or 81 per cent were transitional cell carcinomas of various grades. Seven or 6.9 per cent were squamous cell, and one case of adenocarcinoma was found. This distribution agrees closely with that reported by G. B. Goodman and John Balfour⁶ of 89 per cent, 5 per cent, and .9 per cent respectively, in a study of 121 cases who received cobalt⁶⁰ therapy for carcinoma of the bladder.

Eleven cases or 10.8 per cent were found to be metastatic in origin arising from primaries in the prostate (4), gastrointestinal tract (3), uterine cervix (2), endometrium (1), and renal pelvis (1) (Table 4).

TABLE 4. TUMOR TYPE

PRIMARY (93 OF 102)			
Type	Male	Female	
Transitional Cell Carcinoma	1	2	
Grade I	1	2	
Grade II	38	11	
Grade III	20	2	
Grade IV	4	5	
Adenocarcinoma	1	0	
Squamous Cell Carcinoma	7	0	
METASTATIC (11 OF 102)			
Type	Male	Female	
Adenocarcinoma, 1 ^o in GI Tract	2	1	
Adenocarcinoma, 1 ^o in Prostate	4	0	
Adenocarcinoma, 1 ^o in Endometrium	0	1	
Transitional Cell Carcinoma, 1 ^o in Renal Pelvis	1	0	
Squamous Cell Carcinoma, 1 ^o in Uterine Cervix	0	2	

Two simultaneous primary carcinomas were discovered in nine patients. These included transitional cell carcinoma of the bladder with adenocarcinoma of the prostate (3), transitional cell of the bladder with squamous cell carcinoma of the bladder (3), transitional cell with epidermoid carcinoma of the bladder (1), transitional cell with renal cell carcinoma

of the right kidney (1), and transitional cell of the bladder with squamous cell carcinoma of the uterine cervix (1).

SELECTION OF METHOD OF TREATMENT

Therapy was based primarily on tumor stage and grade. Stage I (mucosal) tumors were treated initially and after recurrence by transurethral fulguration when accessible and by partial cystectomy when unaccessible. Stage II (muscular) tumors of grade II were treated with partial cystectomy when small and with total cystectomy when large or multiple. Stage II, grade III and IV tumors, were treated with total cystectomy. Stage III tumors of grade II or less were treated with total cystectomy if resectable and with palliative external irradiation if not, as were cases of more advanced cancer. Contact radiotherapy and intracavitary irradiation were not used. Riches⁷ also reports to have given up these two modes of therapy.

SURVIVAL

Of 102 cases ten were lost to follow-up. Of the remaining 92 patients ten had primary cancer outside the bladder with metastases to the bladder. Of these ten, four died within 40 months of their first hospitalization for bladder metastasis; one is dead of pulmonary embolus five months after detection of bladder pathology; one died in 27 months of an unknown cause; and two are living, six and seven years after bladder

spread. Of the remaining 82 cases, 35 or 42.7 per cent are dead of their primary cancer. Eighteen or 22.0 per cent are living with their primary cancer which means that they have had at least one recurrence after initial treatment. Seventeen or 20.7 per cent are dead of causes not related, and 12 or 14.6 per cent are living and well without recurrence of bladder tumor.

It is interesting to note that there are two cases of grade III tumors who are living and well without recurrence, six years and six and one half years after initial treatment. These two cases represent that fortunate situation in which it was possible to remove all malignant tissue at the time of total cystectomy.

As pointed out by Thompson⁸, the stage of neoplasm is much more important in predicting survival than is the histological grade although grade and stage are to some extent correlated. In most cases invasion past the muscularis is a bad prognostic sign (Table 5).

SUMMARY

One hundred and two cases of cancer of the urinary bladder seen and treated for the first time are discussed. A minimum of five years' follow-up was obtainable in all cases except ten, who were lost to follow-up.

It is obvious that cancer of the urinary bladder is a serious disease, accounting for 7,215 deaths in 1958². The

TABLE 5. TUMOR STAGE VS. SURVIVAL
5+ YEARS AFTER TREATMENT

<u>Tumor Type</u>	<u>Tot. No. Pts.</u>	<u>Dead of 1^o Ca.</u>	<u>Living 1^o Ca.</u>	<u>Dead Unrelated</u>	<u>Living and Well</u>
Trans. Cell					
I	33	0	14	11	8
II	20	13	2	4	1
III	9	5	2	1	1
IV	<u>11</u>	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>
	73	29	18	16	10
Squa. Cell					
I	0	0	0	0	0
II	3	2	0	0	0
III	4	3	0	0	1
IV	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>
	8	5	0	1	2
Adeno.	1	1	0	0	0
TOTAL	82	35	18	17	12
PER CENT	100	42.7	22.0	20.7	14.6

importance of early diagnosis and well-planned and conducted treatment cannot be overemphasized. Therefore, the most common symptom, hematuria, either gross or microscopic, always demands an adequate evaluation.

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