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# TRANSURETHRAL RESECTION IN PROSTATIC CANCER*

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Transurethral resection is widely used in benign prostate hypertrophy. In most institutions in the USA open prostatectomy is only used to teach physicians in training. Transurethral resection is done in practically all cases of benign hypertrophy.

The purpose of transurethral resection in prostate cancer varies from center to center, some using the procedure for treatment and some for palliation. The presence of cancer is usually an incidental finding in resection for benign prostate hypertrophy.

Our recent policy has been to treat the patient preoperatively with endocrines or radiation, and if obstruction persists to perform transurethral resection. If cancer is found in $A_1$ malignancy we do not use further treatment. In the other stages we use hormones, radiation therapy or orchidectomy. Subjective symptoms are bladder outlet obstruction, decreased urine stream, hematuria and nocturia. Objective manifestations are found on digital examination and biopsy.

Staging can be done through digital examination to determine local spread; cystoscopy uncovers vesical invasion. Bone X-ray, bone scanning and acid phosphatase levels are useful for diagnosing metastasis.

Staging classifications vary, a commonly used scheme being that of the Union International contre Cancrum (UICC)[1], which employs the following labels:

T Primary tumor

N Regional lymph nodes

M Distant metastases.

Chisholm's categories[1] depend upon the method of obtaining pathological material by TUR.

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The A B C D Classification is the one most commonly used in the United States (Table I).

TABLE I

**A B C D Classification Scheme for Prostatic Adenocarcinoma**

| Stage | Definition |
|---|---|
| $A_1$ | No clinical manifestations of carcinoma.<br>Microfocal. |
| $A_2$ | No clinical manifestations of carcinoma.<br>Multifocal or diffuse. |
| $B_1$ | Nodule under 2 cm diameter.<br>No metastases. |
| $B_2$ | Nodule over 2 cm diameter confined to prostate.<br>No metastases. |
| $C_1$ | Extensive local carcinoma invading seminal vesicles, pelvic sidewalls, bladder base, or membranous urethra.<br>Estimated weight under 75 gm.<br>No metastases. |
| $C_2$ | Same as $C_1$ except estimated weight over 75 gm. |
| $D_1$ | Metastases confined to pelvis. |
| $D_2$ | Metastases outside pelvis. |

Barry and Hodges[2] discuss the treatment of prostate cancer based on the differentation and stage of the tumor.

$A_1$ is a well differentiated carcinoma. After transurethral resection no further treatment is necessary unless needle biopsy reveals a residue.

$A_2$ is a poorly differentiated carcinoma requiring further treatment such as radial prostatectomy. Table II shows morbidity in a series of 33 radical prostatectomies for $A_2$ carcinoma following TUR.

Although in stage B lesions transurethral prostatectomy and hormones can be a choice of treatment, radical radiotherapy or radical prostatectomy are the treatment modalities with which better results are achieved[3].

In stage C symptoms related to the primary tumor are treated with external radiation or TUR and symptomatic metastases are treated as they arise.

TUR is performed in order to relieve the bladder outlet obstruction in stage D.

TABLE II

**Morbidity of Radical Prostatectomy for $A_2$ Carcinoma Following Transurethral Prostatic Resection or Suprapubic Prostatectomy[13]**

| | Diagnostic Procedure | | |
|---|---|---|---|
| | TURP | Suprapubic | Total |
| Number of patients | 26 | 7 | 33 |
| Pelvis recurrence | 7% | 14% | 9% |
| Rectal injury | 11% | 0 | 9% |
| Incontinence, stress | 50% | 14% | 42% |
| Incontinence, total | 19% | 0 | 15% |
| Anastomotic stricture | 3% | 28% | 9% |

According to Bissada and Finkbeiner[4], in the presence of urinary obstruction the best diagnostic method for prostate cancer is TUR.

Transurethral resection is accompanied by increased acid phosphatase; there is also a correlation between the amount of prostatic tissue and the increase of the serum activity[5].

Prostatic needle biopsies and transurethral resection material often have seminal vesicle material and duct structure. These specimens simulate carcinoma of the prostate[6].

Baumrucker[7] feels more secure in treating carcinoma of the prostate by resecting as much as possible in order to obtain the more anterior part of the prostate. He also gets needle biopsy material from the posterior part, thus permitting a better evaluation and eliminating much of the malignant tissue. In his view, if only the posterior part is involved then a radon seed implant will help the patient.

Many TUR biopsies are negative, but needle biopsies from the posterior lobe are positive.

Miller and Slade's[8] indication for TUR is acute retention or increased difficulty in micturition when on clinical examination the growth is thought to have invaded the prostatic capsule.

Walsh[9] found increased morbidity with TUR in prostatic carcinoma. He states that in many cases the urethra was distorted. In his last 100 cases of prostate cancer and benign hypertrophy after TUR there was no incontinence among cases of benign hypertrophy, but there was among the cancer cases. He uses TUR only when other

treatments have failed to relieve the obstruction and points out the theoretical risk of venous dissemination.

Blandy[10] states that when there is a suspicion of prostate cancer and the suspected area is in the posterior part of the gland, then resectoscope is not adequate for the removal of the tissue, and a needle biopsy has to be carried out. When resecting a carcinoma of the prostate certain difficulties can be expected: it may be hard to identify the verumontanum; the external sphincter may be stiff and invaded by the growth. During resection one should try enucleative resection as in benign hypertrophy and from time to time the rectal finger will be used to guide the resection. After resection in cases of prostate cancer, fibrinolysis may occur. Aminocaproic acid may help in this condition.

Newman et al[11] emphasize the importance of evaluating every chip in incidental prostate cancer. Incidental prostatic carcinoma has been classified as stage $A_1$ when there are fewer than three foci of well differentiated carcinoma and as stage $A_2$ when there are more than three. Involved pelvic nodes are found at exploration in 70% of the patients. Newman et al reviewed slides from 500 consecutive patients who had TUR over a period of 15 months in 1972 and 1973. They also studied a comparable series of 500 patients during 16 months in 1978 and 1979. The preoperative diagnosis in all cases was benign hypertrophy.

In the earlier series there were 43 cases of carcinoma, 10 in stage $A_1$ and 33 in stage $A_2$. The later series included 71 cases of adenocarcinoma, 17 in stage $A_1$ and 52 in stage $A_2$. A 65% increase in the incidental finding of adenocarcinoma occurred in the interval. About three fourths of the carcinoma in both periods was in stage $A_2$. A substantial increase in the number of cases is noted when all the chips are evaluated.

Cantrell[12] described a study of 117 men with stage A prostate cancer treated over a period of 15 years at the Johns Hopkins Hospital with simple prostatectomy. All patients were followed without any further treatment. Of the patients with less than 5% of the prostatic tissue involved, only 4% progressed; of the patients with stage $A_2$ 30% progressed and then required further treatment.

In our hospital there were 272 cases of carcinoma of the prostate between 1963 and 1984 in which transurethral prostate resection was performed. In 145 of the cases the preoperative diagnosis was of benign prostate hypertrophy, and the histopathological diagnosis was prostate adenocarcinoma. The other 127 cases had transurethal resection following diagnosis of prostate cancer. On histological investigation, 17 of these turned out to be cases of benign hypertrophy.

In our first ten years of practice, when a patient came with urinary obstruction we did resection and then treated him according to the pathological diagnosis. Now, if the preoperative diagnosis is prostate cancer with obstruction, we first try to relieve

the obstruction with endocrines or radiation therapy; if this treatment does not help then we do transurethral resection. In the incidental finding of adenocarcinoma, if there are fewer than three foci and/or few chips are positive, we do not go on to further treatment.

**Summary**

After prostatic cancer has been diagnosed, we do radical prostatectomy where appropriate. If it is too late, and there is urinary obstruction, we put in an indwelling catheter and start hormonal therapy, or we use orchidectomy or radiation (if there is no metastatic spread). If, after one of these treatments, we have got rid of the obstruction, we do not resect the prostate. On the other hand, if the obstruction continues, we do a transurethral prostate resection and continue with the cancer treatment.

Between 1963 and 1984 we did transurethral resection on 127 cases with the preoperative diagnosis of prostate cancer. In 145 cases with a preoperative diagnosis of benign hypertrophy pathological studies showed *in situ* cancer cells. In these cases we did not apply treatment for cancer.

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## DISCUSSION

**Çakmak:** Doctor Türkyılmaz have you had problems with urethral strictures following TUR?

**Türkyılmaz:** I have, but they are very rare. It has nothing to do with my resection. If they have an infection, and most patients do have in this part of the world, they're put on antibiotics. Stricture has never been a problem for me. For one reason, unless the resectoscope is moving very freely inside the urethra, I do my resection standing up; and as my vision is small, because the instruments are old, I have to move constantly to keep my landmarks in mind. If these movements are not free, I usually remove the resectoscope, and do an OTIS internal urethrotomy. In practically 90% of the cases I do an OTIS, because I use the 28 French resectoscope. This way, you're controlling the infection and not squeezing, or putting any pressure on the urethra. If you sit down and do your resection continuously on one point, pressuring the urethra on one point, you're bound to get some strictures. If you move around and let the urethra breathe while you're doing this and allow the blood to flow the incidence of stricture will go down. But I have patients who have strictures to start with. Then you have to do OTIS. They may have some problems later. But my patients don't usually come back. Either they're worse or they're better, and don't want any more help. So I really don't have any definite statistical data on this question; I don't regard it as a problem any more.

**Barlas:** Meatal strictures are very common, I think. I have patients who come back after transurethral resection with retention, and we find there is meatal stricture. For this some urologists are now using vibalax tips with cortisone. Do you use anything of this sort Professor Blandy?

**Blandy:** No I don't as a matter of fact. We used to have a higher incidence of strictures 10 or 15 years ago. I do the OTIS if the instrument is at all tight and as you know, they have almost eliminated strictures with OTIS.

**Khalifa:** What size of sheath do you use?

**Blandy:** Well I aim at OTIS'ing to 28 or 30 and I use a 24 sheath, unless I'm showing off when the irrigating sheath is 26, with an inside diameter of 24. I think we all do get strictures from time to time, however careful we are. Recently, in England, we've had an epidemic of strictures which were due to some poison in the catheter.

**Özen:** Sir, I wanted to point something out to my colleagues in Turkey, by emphasizing two figures in our study. One is the incidence of the TUR syndrome which is 2.60 and the other is the mortality rate of the TUR syndrome, which is 15%. I think these two figures clearly indicate that we have to change the irrigating fluid that we use here.

**Blandy:** It's certainly much higher than our TUR syndrome.

**Khalifa:** Did you find that the continuous irrigation resectoscope made a lot of difference?

**Blandy:** No, I think it makes it easier with a big bulky bladder tumor, and it makes it easier to show it on the television when you're teaching.

**Khalifa:** Is that all?

**Blandy:** Well, I think perhaps if it's an 80 gram prostate, it helps a bit, but I don't think it makes all that much of a difference.

**Harmankaya:** I think there is another contra-indication for the TUR prostate namely the pulmonary problem.

**Blandy:** You mean a bad chest?

**Harmankaya:** Yes.

**Blandy:** Well let me give you our contra-indications from the medical point of view; I think dementia is a contra-indication to any prostatectomy because they're just wet and miserable. You may just as well leave them with a catheter, and we have a good many demented poor old men kept alive by the doctors for some reason. The other one, a bad chest, well most of the people in London of the prostate generation have been inhaling soot for years and years and they have terrible chests. I asked the anesthetist, and sometimes they give them a spinal and sometimes an epidural, and sometimes I don't know what they give them. I don't actually tell my anesthetists what to do, but I do choose my anesthetists very carefully.

**Harmankaya:** What is your opinion Doctor Türkyılmaz about anesthesiology for these particular patients?

**Türkyılmaz:** Well, I have a very good anesthesiologist. I consult him, and I carry him everywhere I go. He hasn't ever refused to take on any case, not even ones with chronic obstructive lung disease. He has a very strong palm and can squeeze the balloon and inflate the alveoli with lots of pure oxygen. They seem to get better during surgery. I have had some blue patients come up to the cystoscope table, cardiac insufficiencies and all that. They tolerate TUR well really; if the anesthesiologist believes that the patients will tolerate the anesthesia, they tolerate the TUR.

**Remzi:** What kind of anesthesia would you prefer for your patients, spinal or general, Professor Blandy?

**Blandy:** Again, I don't have a choice. It's the person at the other end of the table who chooses. I simply hope the patient won't get an erection, that's what worries me. No one knows, really - perhaps Tim Hargreave will tell us about the physiology of erection — but, you know a spinal cat will get an erection if you put a Mrs. Cat in the room and I have a feeling that it may be something to do with our nursing staff or something.

**Türkyılmaz:** Do you have any experience with radical TUR for curing prostratic cancer?

**Blandy:** No. I've never done that.

**Khalifa:** How do you feel about pacemakers?

**Blandy:** Well, there's a lot of nonsense talked about pacemakers. The modern pacemakers that we now have, the third generation, have a little tiny man inside the machine who switches it off when he hears the diathermic current coming. Which I don't understand of course. But there was a risk with the early ones that if you had the pacemaker in the line of the current pathway, and there were some idiots who used to put the diathermy on the chest, and I can't think why you'd want to do that but they did, and that would burn out the little chit. But, I think the answer is no.

**Harmankaya:** Do you use a cold irrigation fluid?

**Blandy:** No I don't. I did try it actually, but my patients got hypothermic and my anesthetist asked me to stop.

**Wickham:** We had a control trial on this, and found that they bled less if you cooled the irrigant fluid; we still use it at Barts. I don't know whether it helps or not.

**Blandy:** But John, in your study where you showed it bled less, the difference in the bleeding was between about 1cc and 1/2cc.

**Wickham:** A little more than that.

**Türkyılmaz:** We've tried out cold irrigation. It seems to make very little difference. I would like to ask Professor Blandy a question. I remember at a meeting such as this when Doctor Barnes presented his paper explaining how well he did with TUR's on bladder cancer. Doctor Jewitt then presented his paper explaining how successful he was with the radical perineal prostatectomy. Somebody asked Doctor Barnes and Doctor Jewitt what they would do if they had carcinoma of the postate. Doctor Barnes replied, "I would find a good resectionist and have my prostate resected" and Docor Jewitt said, "I would find a good surgeon and have my prostate removed perineally". What would you do Doctor Blandy?

**Blandy:** I don't really think I know how to treat prostatic cancer at any stage or any grade. Why don't you ask Professor Chisholm?

**Chisholm:** It's really difficult to draw a conclusion, because they're really talking about different things, and Doctor Jewitt's material was well-documented in terms of pathology so he was able to give you the exact extent of the tumor, whereas Doctor Barnes put A's and B's together and he didn't know the difference, between them, because he didn't have the tissue to make the difference. This, I think, is the essential difference between the two series. They had virtually the same 15 years

survival, about 30%. But Doctor Jewitt made the big issue, that all of his were cancer free, whereas a good proportion of the Barnes' series, still had carcinoma of the prostate. Then you enter into the question of the quality of life between the two groups, and neither proponent had an answer for that. So far as I can see, there's not a lot in it. The only thing you can say, the same as Doctor Jewitt, is that his definition of disease extent was more precise, as you expect of anyone who cuts out tissue.

**Blandy:** But the answer we wanted from you, was what would you have done with yours?

**Chisholm:** TUR.

**Blandy:** I think that's what I would, too. As little trust in medication as possible.