

Immediate complications of transurethral prostatic resection.

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A prospective study of the immediate complications of transurethral prostatic resection was carried out for three months from June to August 1991 at the Department of Urology, Southmead general Hospital, Bristol, U.K. There were forty-five patients eligible for the study. The incidence of post-operative urinary tract infection was 27.3 percent. 71.7% of the patients had catheter problems which included catheter blockage and washout, catheter change and catheter traction. Nearly 30% of patients required blood transfusion. The amount of perioperative blood loss, blood loss per gram of tissue resected and blood loss per minute of resection time were comparable with previous reports.

Key words : *Immediate complications, Transurethral prostatic resection.*

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การศึกษาถึงภาวะแทรกซ้อนระยะแรกของการทำผ่าตัด TUR-P สำหรับภาวะต่อมลูกหมากโต ได้กระทำในผู้ป่วยจำนวน 45 ราย ที่รับไว้ในโรงพยาบาล Southmead เมืองบริสตอล ประเทศสหราชอาณาจักร ในช่วงระหว่างเดือนมิถุนายน ถึงสิงหาคม พ.ศ.2534 โดยเน้นใน 3 ประเด็นใหญ่คือ การติดเชื้อของทางเดินปัสสาวะ, ปัญหาของสายสวน (catheter) และภาวะเลือดออกทั้งระหว่างและหลังผ่าตัด 4 ชั่วโมง พบว่ามีการติดเชื้อของทางเดินปัสสาวะหลังผ่าตัด 27.3% โดยส่วนใหญ่จะพบในผู้ป่วยที่มีปัญหาของสายสวน (catheter) และ เกือบ 3/4 ของผู้ป่วยทั้งหมด (71.7%) มีปัญหาของสายสวนหลังผ่าตัด เช่น สายสวนอุดตันต้องเปลี่ยนสายสวนและการทำ catheter traction เพื่อหยุดเลือด เป็นต้น ประมาณ 30% ของผู้ป่วยต้องได้รับเลือดในระหว่าง และ/ หรือหลังผ่าตัด การศึกษาถึงปริมาณเลือดที่ออกระหว่างและหลังผ่าตัดพบว่าทั้งปริมาณเลือดที่ออกมาทั้งหมด, ปริมาณเลือดที่ออกต่อน้ำหนักเป็นกรัมของต่อมลูกหมากที่ตัดออกมา และ ต่อมาที่ทำการผ่าตัด มีปริมาณใกล้เคียงกับรายงานของผู้อื่นที่ได้รายงานไว้แล้ว

Benign prostatic hyperplasia (BPH) is found in 70% of men in their seventies and up to 90% of men in their eighties. The chance of a 40-year-old man undergoing a prostatectomy during his lifetime is 29% (Glynn et al 1985). About 90% of patients undergoing prostatectomy will have a transurethral resection (TUR-P) (Mebust 1988). However the results of transurethral prostatectomy are not perfect. It has a significant morbidity rate and some patients remain symptomatic (Malone et al 1988). Our study assesses the immediate complications that occurred in the patients undergoing transurethral prostatic resection. we focus in three main categories that are infection, catheter problems, and haemorrhage.

Materials and Methods

The series composed of consecutive patients undergoing transurethral prostatectomy (TUR-P) in the Department of Urology, Southmead General Hospital, Bristol during June and August 1991 (3 months conclusively). The patients who had known carcinoma of prostate gland, used of anticoagulant drugs (including Aspirin) and underwent bladder neck incision (BNI) were excluded from the study.

Forty-five patients remained eligible for the study. In the pre-operative period, urinary culture and sensitivity was done and the number of patients who had indwelling catheter were noted. All resections were performed with continuous flow resectoscopes. The irrigant was 1.5% glycine. Resection time was measured from the insertion to the removal of the operating sheath. The prostatic chips were weighted wet in the theatre and also rechecked at the Pathology Department.

For blood loss study, the irrigation fluid was collected in buckets which contained heparin to prevent coagulation of the blood. After stirring the fluid, a sample of

fluid was taken for photometric determination of the haemoglobin concentration by Hemocue metre (Hemocue AB[†], Helsingborg, Sweden). Knowing the patients haemoglobin and the volume of the irrigant, the exact blood loss could be calculated from the formula

$$\text{Blood loss (ml.)} = \frac{\text{measured Hb (g/L)} \times \text{volume (L)} \times 1000}{\text{Blood Hb (g/L)} \times 5.2}$$

Due to technical problems, only 20 patients (44.4%) were included in the blood loss study.

In the post-operative period, normal saline was used as the irrigation fluid for 24 hours. The catheter was then removed 24 hours later. Until the catheter was removed, the numbers of catheter problems were noted. They included catheter blockage, catheter washout, catheter change and catheter traction. Up to 4 hours after the operation, the samples of the drainage fluid were collected. The amount of blood loss was again calculated using Hemocue metre.

Results

The patients' age ranged from 51 to 87 years, with an average of 70 years. The average amount of tissue resected was 27.8 grams (range 5.0-105.0 grams). The resection times averaged 46 minutes. The occult carcinoma was found in 11.1%.

Infection

The incidence of pre-operative urinary tract infection was 26.2% (11/42). This occurred mostly in the patients who had indwelling catheter (10/11). Nearly half of the patients (46.7%) had pre-operative indwelling catheter due to acute or chronic urinary retention and around half of them (10/21) had pre-operative UTI.(Fig. 1).

Pre-operative antibiotics were used in 53.3 percent (24/45) of the patients. Around 24 percent were prophylactic and 28.9 percent were given for known pre-operative infection. (Fig. 2)

Only 48.9 percent (22/45) of patients had urine culture done in the post-operative period. In this group, 27.3 percent (6/22) had positive urine culture. (Fig. 3).

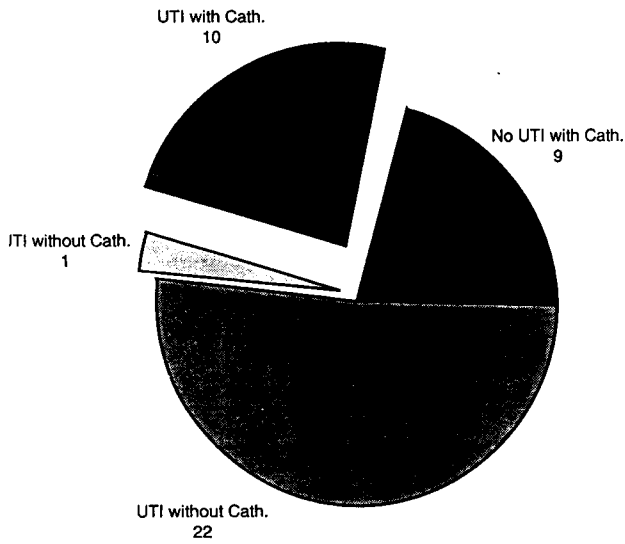


Figure 1. Preoperative urinary tract infection.

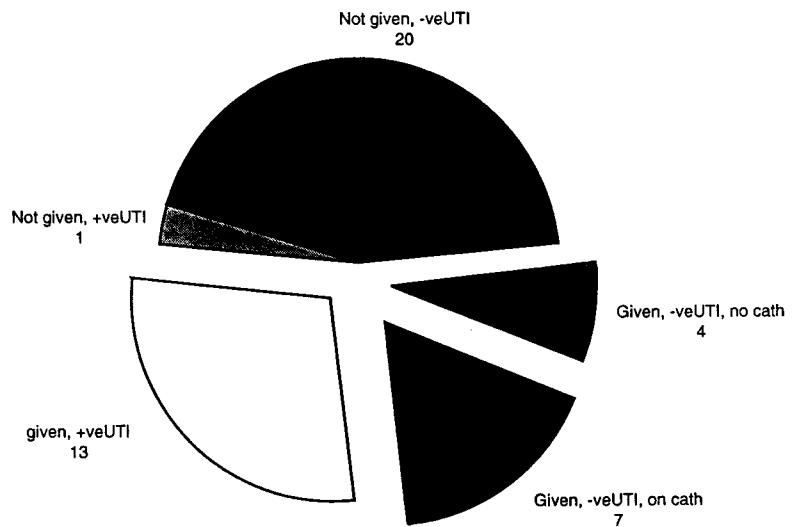


Figure 2. Pre-operative antibiotics.

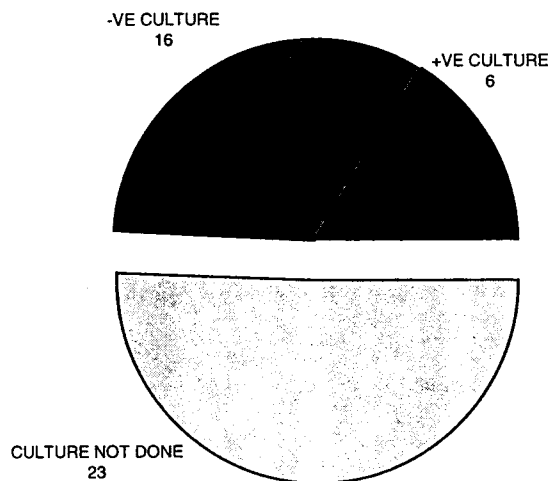


Figure 3. Post-operative urinary tract infection.

The factor that enhanced post-operative infection seemed to be the catheter problems. Fifty percent of patients who had positive urine culture had catheter problems compared to only 6.25 percent in the group who had negative culture. There was no difference in the mean operative time between positive and negative culture groups. Because routine prophylactic antibiotics were given to the patients with pre-operative indwelling catheter, there was no case of positive post-operative urine culture in this group. (Fig. 4).

Catheter problems

Nearly three-quarters of the patients (32/45-71.1%) had catheter problems in the post-operative period. (Fig. 5) 66.4% and 62.2% had catheter blockage and catheter washout respectively. Catheter changes were needed in 22.2% of patients and 13.3% needed traction to stop bleeding (Fig. 6). Most of these problems occurred in the ward rather than in the recovery room. (Fig. 7)

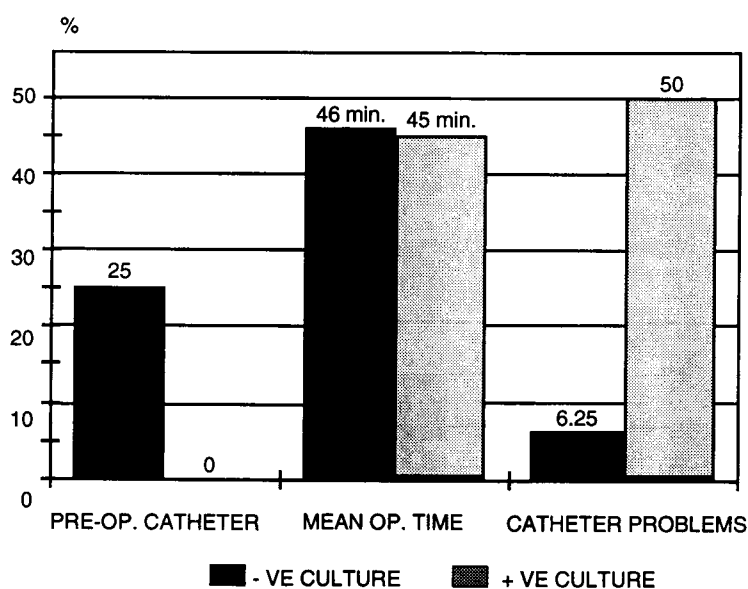


Figure 4. Post-operative urinary tract infection.

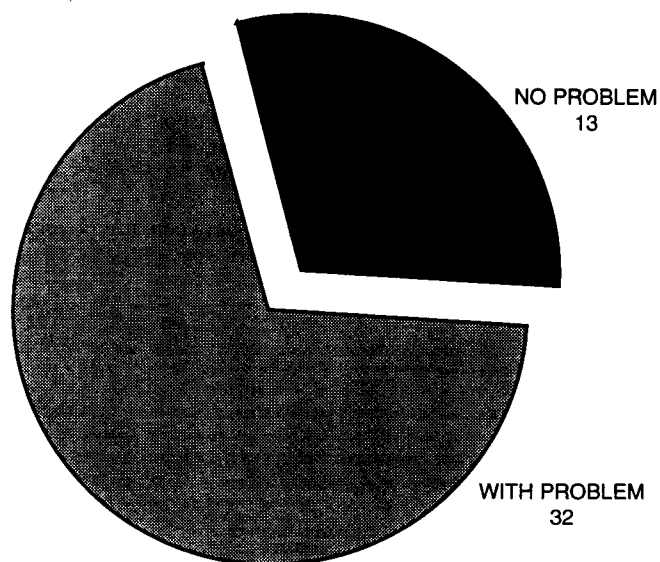


Figure 5. Percentage of catheter problems.

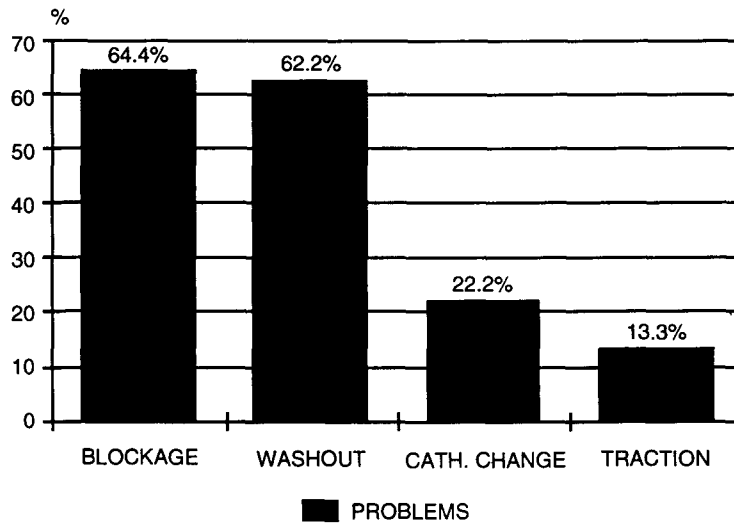


Figure 6. Type of catheter problems.

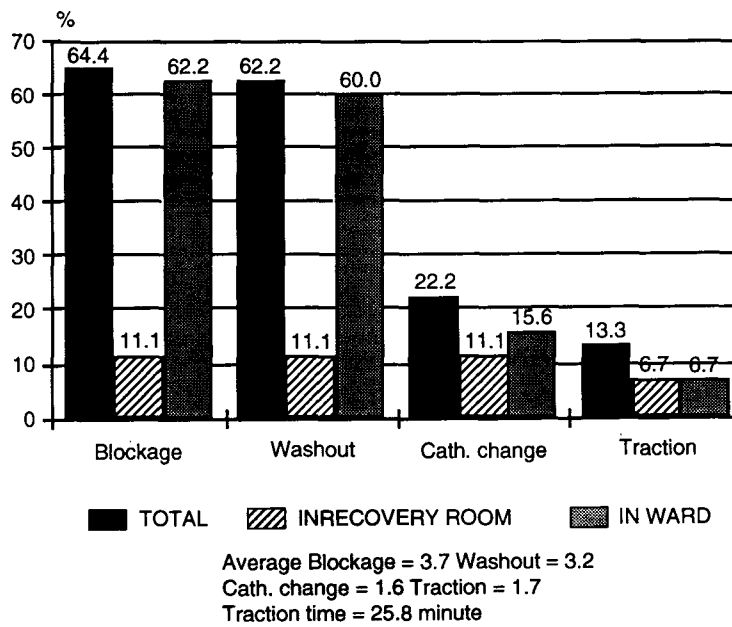


Figure 7. Incidence of catheter problems compare between at recovery room and at ward.

Haemorrhage

28.9% (13/45) of patients had peri-operative bleeding that required blood transfusion. The amount of transfused blood ranged from 1 to 12 units, with an average of 3 units (Fig. 8). All the patients were transfused when post-operative haemoglobin was lower than 12.0 gram%. Most of them were transfused when haemoglobin was lower than 10.0 gm%. (Fig. 9)

In twenty patients whom blood loss study were performed, the average amount of tissue resected was 31.8 grams. The resection time averaged 45 minutes. The operative blood loss ranged from 10.2 ml. to 1527.8 ml. with the average of 485.2 ml. The operative blood loss per gram of tissue resected and per minute of resection time were 15.3 ml/g and 10.8 ml/min respectively. Four-hour post-operative blood loss averaged 191.4 ml. (range 11.5 ml. to 1304.1 ml.)

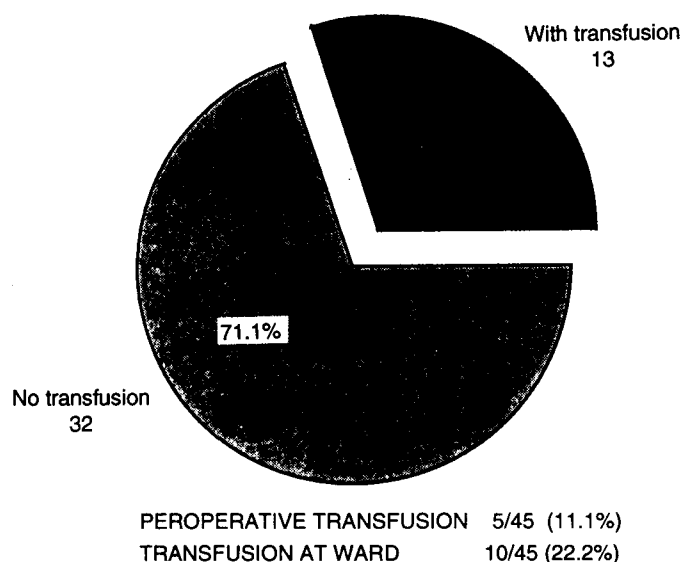


Figure 8. Incidence of peroperative blood transfusion, (average 3 units).

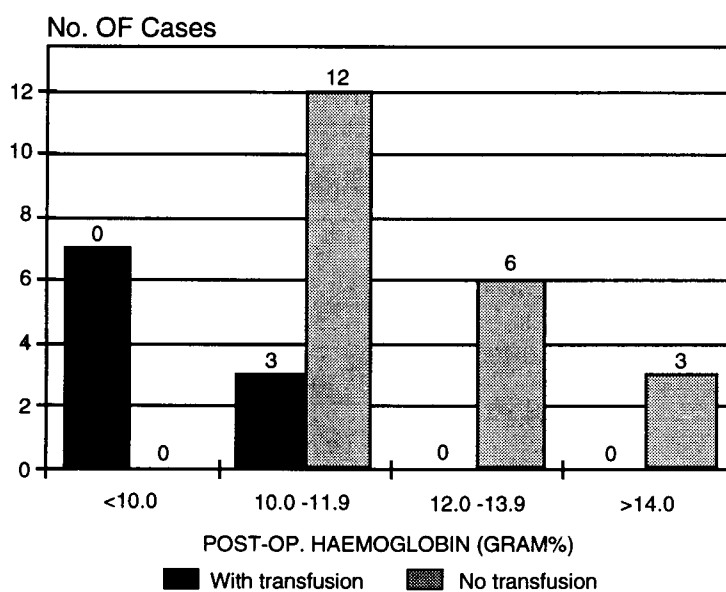


Figure 9. Haemoglobin level and blood transfusion.

Discussion

To put this study into perspective, we should compare it to two previous large-sized studies. One was reported by T. Kolmert et al in the International Urology and Nephrology Journal (1989) and the other by W.K. Mebust et al in the Journal of Urology (1981). Kolmert et al studied the post-operative complications of 1,111 cases of transurethral prostatectomy. These were undertaken in St. Erik's Hospital in Stockholm, Sweden from 1977 to 1980. This study can be used as the European representative.

In the Mebust report, it was a cooperative study of transurethral prostatectomy complications of 13 participating institutions in the United States. This study was initiated by the American Urological Association evaluating 3,885 patients. This, therefore, can represent the American side.

The comparison is shown in Table 1. The incidence of occult carcinoma (clinically diagnosed of BPH) are similar (11.1, 18 and 12% respectively). A striking feature in our study is the high incidence of pre-operative indwelling catheter, that is 46.7% compared to 25% in

Kolmert's study. This may account for the high incidence of pre-operative UTI. We should note that the duration of catheterisation is longer, too.

The incidence of peri-operative blood transfusion is comparable between our study and Kolmert's study. However, the incidence is higher than in the American study. The reasons for this should be identified.

Post-operative urinary tract infection is also significantly higher in this series compared to Mebust's. Nevertheless, it was unclear in Mebust's report whether all patients had urine culture in the post-operative period.

In this series, the patients were discharged from the hospital after an average of 4.8 days (ranged from 3-10 days). This is shorter than in Kolmert's report

For blood loss study, our study is compared with other five similar studies. They were reported by K. Nielsen (Denmark in Int. Urol. Nephrol 1987). R Wilson (U.K. in Brit J Urol 1988). H. Nielsen (Denmark in Brit J Urol 1988) and T. Kolmert (Sweden in Int Urol Nephrol 1989). The operative blood loss, blood loss per gram of tissue resected and blood loss per minute of resection time were comparable in all studies. (Table 2)

Table 1.

	This study (1991)	T.Kolmert (1989)	W.K.Mebust (1989)
Number of cases	45	1,111	3,885
Mortality	0%	0.5%	0.1%
Cancer incidence	11.1%	18%	12%(occ.)
Pre-op catheter	46.7%	25%	-
Duration of cath	1-240d	1-3m	-
Prostatic weight(g)	27.8 (5.0-105)	25 (4-115)	22 -
Operation time(min)	46	70	57
Op.blood loss (ml)	485.2	1,266	-
Op.blood loss<600ml	75%	77%	-
Op.blood loss/g	15.3	25.3	-
Blood transfusion	28.1%	20%	2.5+3.9%
Post-op UTI	27.3%	-	2.3%
Post-op hosp.stay(d)	4.8	7.2	-

Table 2.

	This Study	K.Nielsen (1987)	R.Wilson (1988)	H.Nielsen (1988)	T.Kolmert (1989)
No.of cases	20	17	30	25	1,111
Prost.weight	31.8	18	14.2	17	50
Op.time(min)	45	45	26.4	45	70
Op.bleed(ml)	485.2	238	269	170	1,266
Op.bleed/g	15.3	9.9	19.0	10.0	25.3
Op.bleed/min	10.8	8.2	9.94	3.8	18.1

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