Abstract:
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The number of transurethral resections of the prostate (TURP) performed each year is decreasing. The aim of this study was to assess a cohort of patients undergoing TURP and compare this to one twenty years earlier. In our 2010 cohort, 75% of men with a catheter in situ pre TURP had failed treatment with 5-α-reductase inhibitors. This is similar to that reported by Izard et al in 2010 who found that the majority of patients undergoing TURP had failed medical therapy and many (43%) had a urinary catheter in situ preoperatively. The indication for TURP has changed dramatically over a twenty year period. Over half of patients in the contemporary cohort required a repeat surgical procedure for bladder outlet obstruction within six months; one bladder neck incision for bladder neck stenosis and two repeat TURPs.

Methods
A retrospective comparative analysis of one hundred consecutive TURPs performed in a single university teaching hospital between September 2010 and June 2011 was undertaken. This was compared to one hundred cases performed twenty years earlier, between January and November 1990. Patient factors recorded included: age, whether surgery was elective or precipitated by urinary retention with a urinary catheter in situ, length of time the catheter was in situ, any use of a-blockers or 5-α-reductase inhibitors, and duration of hospital stay. The operating surgeon was recorded as consultant or urology trainee (either specialist registrar or registrar grade). The type of anaesthesia administered was noted as either spinal or general anaesthesia.

The mean weight of prostate tissue removed was recorded. Clinical information was available on 48 of these patients. Twenty-four patients (50%) were referred from outside institutions (a total of nine institutions) and their catheter was in situ for an average of 126 days (range 3-390 days). Nineteen patients (38%) were inpatients and these were from the emergency department and they had a UC in situ for a mean of 5.8 days pre-TURP. Five patients (10%) were catheterised in our outpatients department and underwent surgery with a UC in situ for a mean of 4.2 days pre-TURP. Nine of the men had a urinary catheter in situ preoperatively. In comparison 80% of men underwent elective surgery in 1990. Patient factors recorded included: age, whether surgery was elective or precipitated by urinary retention, whether the patient was taking 5-α-reductase inhibitors or 5-α-reductase inhibitors, and duration of hospital stay. All men were recorded as either consultant or trainee urologists.

Results
Patient characteristics are outlined in Table 1. Only 45% of men in 2010 underwent elective TURP surgery as over half (55%) of the men had a urinary catheter in situ preoperatively. In comparison 80% of men underwent elective surgery in 1990. The mean UC in situ preoperatively in the contemporary group was 65 days compared to 20 days in 1990. The length of catheterisation time was significantly longer in 2010 compared with 1990 (average 65 days vs 20 days). Infective complications occurred in six (6%) patients in 2010 and three (3%) in the 1990 cohort. Patients who had UCs in situ preoperatively for longer periods had a higher rate of infective complications and more serious complications. This highlights the importance of early specialist referral for patients diagnosed with urinary retention.

Conclusion
Clot retention requiring readmission in the post-operative period was seen in three patients (one in 2010 and two in 1990). The 1990 cohort required a repeat surgical procedure for bladder outlet obstruction within six months; one bladder neck incision for bladder neck stenosis and two repeat TURPs.

Discussion
The indication for TURP has changed dramatically over a twenty year period. Over half of patients in the contemporary cohort had a UC in situ prior to TURP. All of these patients had failed a trial of voiding prior to surgery. Following an episode of acute urinary retention, it is now standard practice to give a trial of voiding following al-blockade, allowing the patient to return to normal voiding in up to 60% of cases. In our 2010 cohort, 75% of men with a catheter in situ pre TURP had failed treatment with a-blocker medications. This is similar to that reported by Izard et al in 2011 who found that the majority of patients undergoing TURP had failed medical therapy and many (43%) had a urinary catheter in situ prior to surgery. They also demonstrated that the number of patients undergoing TURP in Canada decreased by 60% from 1988 to 1998. Due to emerging antibiotic resistance, sepsis post TURP is now a considerable concern. Many community acquired staphylococcal and staphylococcal strains are resistance to commonly prescribed antibiotics. Murphy et
al reported a septicemia rate of 1.2% in a series of 1,604 TURPs. They found that the absence of appropriate antibiotic cover and the presence of pre-operative urinary infection precipitated septicemia post TURP. Our institution had previously published a technique of direct antibiotic sensitivity testing (DST) of pre-operative urine samples and prior to catheter removal. Utilising this technique in a series of 162 TURPs resulted in septicemia in only six patients. Unfortunately due to budgetary constraints, such a practice is no longer possible. This, along with the increasing emergence of antibiotic resistance and length of catheterisation periods, likely explains why our observed rate of sepsis is higher compared to some published historical series.

A recent large multi-institutional publication demonstrated that an indwelling catheter, for longer than 3 days duration was associated with increased morbidity and prolonged hospital stay for adverse events. In a retrospective review of open prostatectomy patients, et al demonstrated a higher incidence of septicemia in patients who had AUR pre TURP than those without an episode of AUR. The length of catheterisation time prior to TURP in 1990 in our study was significantly shorter (20 days vs 65 days) compared to 2010. Patients referred from outside institutions had a significantly shorter catheterisation period than those patients catheterised in our emergency or outpatient department (126 days, 6 days and 27 days respectively). This may reflect delays in referral or waiting times for outpatient visits. Many of these patients were managed in the community with a catheter and underwent more than one failed trial of voiding prior to referral. This highlights the lack of urology resources in the Republic of Ireland. The rate of bladder neck stenosis post TURP in our series (9% in 2010 and 14% in 1990) is comparable to that previously published by Sikaki et al., who over an 11 year period reported a bladder neck stenosis rate after prostatectomy of 0.6%. The introduction of medical therapy for BPH has resulted in a decrease in the number of TURPs performed now compared to twenty years ago.

A total of 28,240 TURPs were performed in Ireland between 1995 and 2008. The number of TURPs performed during this period decreased annually by 1,494. As a consequence, urology trainees are performing less TURPs than those in the past. Given this, we sought to determine if this has had an impact on the procedure, outcomes and complications. In terms of prostate tissue resected, the procedure remains unchanged over twenty years. Given that the majority of patients who undergo TURP now have failed medical management, one may expect that these prostates would be larger. This was not in our case in the series. The increasing use of 5-ARI medications may have resulted in a decrease in the prostatic volume of those men undergoing TURP. Combined therapy has been shown to reduce the risk of BPH-related surgery in men with prostate volumes > 42 cc. The largest resection in our entire study was 100 grams which was in the 2010 cohort. No patient underwent conversion to open prostatectomy. The widespread use of prostate specific antigen (PSA) testing has resulted in a stage migration of prostate cancer in recent years. This is evident from our study results. In our 1990 cohort, 38% of the pathology reports demonstrated evidence of prostate cancer. At this time many of these patients subsequently underwent bilateral orchidectomy, either at the time of TURP or in the post-operative period. This, along with required staging investigations contributed to the longer length of patient stays in that era.

We conclude that despite maximum medical therapy for BPH, a significant cohort of men will still require a TURP. In our contemporary series, those patients who had urinary catheters in situ pre-operatively for longer periods had a higher rate of infective complications and more serious complications. This highlights the importance of early specialist referral for patients diagnosed with urinary retention in the community and we consider that acute urinary retention should be treated as an emergency.

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