

## EFFECT OF INTRA - VESICAL INSTILLATION OF PROSTAGLANDINS ON POST-OPERATIVE EMPTYING OF THE URINARY BLADDER

USHA R. KRISHNA and MONESH H. SHAH

### SUMMARY

The effect of intra vesical instillation of prostaglandins on postoperative bladder voiding after vaginal hysterectomy operation was studied.

10 cases had intravesical instillation of Prostaglandins in 200 ml of saline, 10 received only 200 ml of saline and 10 patients were not given any treatment after removal of Foley catheter. The patients with Prostaglandins instillation had urgency of voiding the urine immediately. However, the patients with only saline instillation also voided urine within one hour. The untreated patients also did not develop postoperative retention of urine. 13 cases who developed retention of urine after gynaecology and obstetric surgery when treated with intravesical instillation of Prostaglandins showed satisfactory results. Prophylactic instillation of Prostaglandins after retention of urine is not necessary but its therapeutic use seems promising.

### INTRODUCTION

Post-operative urinary, retention occurs in about 20% of patients after gynaecological surgery. This is due to the close proximity of the genito urinary tracts. Following vaginal surgery, the spasm, edema and inflammatory reaction of tissues in the region of the urethro vesical junction, coupled with pain, impair the physiology of micturition. Various other fac-

tors influencing post-operative retention include the general condition of patient, age, pre-operative status of the urinary tract, the type of surgery performed and use of sedation postoperatively. Post-operative bladder atony also occurs due to overdistension of the bladder as a result of the patient's reluctance to voluntarily initiate micturition. The delay in restoration of normal micturition leads to the need for catheterization, thereby increasing the chances of urinary tract infection and prolonging hospitalization. Drugs such as parasympathomimetics and adrenergic blockers, striated muscle relaxants and even

---

*Deptt. of Obstet. Gynec. K.E.M. Hospital, Bombay.*

*Accepted for publication : 25-10-90*

narcotic antagonists have been used to facilitate bladder voiding. Most of them are not very effective and some have unacceptable side-effects.

Prostaglandins are known to have a powerful contractile action on the smooth musculature of the uterus. However, there are only limited studies on their effects on the detrusor muscle of the urinary bladder. This study was carried out to understand the effects of prostaglandins on the detrusor muscle, in a teaching hospital between 1987-1989. 15(S) 15 methyl PGF<sub>2</sub> methyl ester was instilled intravesically to facilitate bladder emptying in post-operative cases and the effect of this was studied.

#### MATERIALS AND METHODS

30 patients who underwent vaginal hysterectomy were selected. Of these, 20 cases also had an anterior colporrhaphy. Details of the operation and difficulties during surgery if any as well as post-operative use of vaginal pack was specifically noted. The self-retaining Foley catheter which was introduced immediately after the operation was removed 24 hours later in cases with plain hysterectomy and after 48 hours when anterior colporrhaphy was also carried out. A sample of urine was collected just before removal of the catheter for routine examination as well as for culture and antibiotic sensitivity.

The patients were divided into 3 equal groups. In the first group of 10 cases, 1 ml of PGF<sub>2</sub> analogue, diluted in 200 ml of normal saline was instilled just before removal of the catheter. In 10 other patients only 200 ml of normal saline was instilled. The remaining 10 patients received no treatment. The interval between this procedure and the first voluntary voiding of urine was noted. The residual urine

was measured for cases who had started voiding satisfactorily, 24 hours after catheter removal. Side-effects if any were also reported.

#### RESULTS

All the 20 cases who had intravesical instillations of either saline or saline with prostaglandin, voided urine within 1 hour. Of the other 10 cases who did not receive any treatment, only one patient voided urine within an hour of catheter removal and the rest voided within 6 hours. When the prostaglandin analogue was used, there was urgency in voiding and 8 out of 10 patients voided urine within the first 10 minutes. However, instillation of normal saline too, was effective in initiating the urge to void within an hour.

There was no significant voiding problem in patients having vaginal packs or those with prolonged surgery when compared with the rest. None of the 30 patients required recatheterization and there was no significant difference in the residual urine volumes. 11 out of the 30 patients showed positive urinary cultures (36.67%) and the incidence was about the same in all the three groups. Thus prostaglandins do not seem to be useful in a prophylactic manner as used above. However, it certainly increased the urge of voiding and therefore seems to work on the detrusor muscle.

Over a period of 3 years, the author has used intravesical instillation of the Prostaglandin analogue in 13 cases which developed retention of urine after some obstetric or gynaecologic procedure. In 10 of these, the patients could void urine within 1-6 hours. The rest had to be recatheterized for 48-72 hours after which they voided satisfactorily

after the second instillation of Prostaglandins. As this was not a systematic study with control cases, we can only consider this as a favourable impression and plan to collect more data to further study the effects of Prostaglandins on the detrusor muscle.

### DISCUSSION

Various clinical and experimental studies have been carried out on the effects of intravesical prostaglandins on the detrusor. Anderson and Abrams have studied invitro, the effects of Prostaglandins on the smooth muscle of the human urinary tract. Multitude has also studied the contractile actions of Prostaglandins and their synthesist inhibitors on the detrusor. Desmond used 1.5 mg. PGE<sub>2</sub> in neomycin solution in 36 patients with urinary symptoms associated with poor detrusor function. 72% showed immediate improvement while 39% had a prolonged benefit. Jaschevatzky instilled 16 mg PGF<sub>2a</sub> in saline in 102 patients with vaginal hysterectomy. The frequency of urinary retention was decreased and the intravesical pressure was shown to increase by 40%. 073.

This study does not show any special advantage of using a Prostaglandin analogue prophylactically, to initiate early voluntary voiding of the bladder postoperatively. As Foley catheter has been routinely used in all cases of vaginal hysterectomy in this study,

we are unable to assess the true incidence of post-operative retention of urine. The need for Prostaglandins does not seem to arise after routine post-operative catheterization. The intra vesical instillation of Prostaglandin analogues would be indicated rather, in cases with urinary retention where routine postoperative catheterization has not been done or in patients developing retention after the catheter is removed a few days post-operatively. This would help in reducing the rate of urinary tract infection associated with prolonged catheterization. Such a study needs to be carried out to establish its usefulness.

### ACKNOWLEDGEMENT

We wish to thank the Dean of Seth G.S. Medical College and K.E.M. Hospital, Dr. Mrs. P.M. Pai, and the Head of the Department, of Obstetrics & Gynaecology, Dr. M.S. Bhattacharyya, for allowing us to publish the hospital data.

### REFERENCES

1. Multitude M.J., Hills N.H., Shuttleworth K.F.D. *Brit. J. of Urol.* 48:631, 1976.
2. Desmond A. D., Bultitude M.J., Hills N.H., Shuttleworth K.F.D.
3. Jaschevatzky O.E., Anderman S., Shalit A., Ellenbogen A., Grunstein S. *Obstet. Gynec.* 66:244, 1985.