

# A METHOD FOR RECORDING URINE OUTFLOW FROM THE URETER IN CONSCIOUS DOGS<sup>\*,\*\*</sup>

By

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In the present paper a method is described for collecting and recording urine outflow from the ureter in conscious dogs or bitches. A cutaneous ureterostomy is performed in the flank preliminarily to permit ureteric catheterisation. The procedure used is different from the technique of ureterostomy into a skin pedicle adopted by Hix (3) in dogs and by Waites and Stacy (4) in sheep.

## METHODS

*Ureterostomy* : Under intravenous pentobarbitone (30mg/kg) anaesthesia the ureter is approached retroperitoneally through a paravertebral incision extending from the costovertebral angle to the iliac crest. The muscles of the abdominal wall are cut along the line of incision. The ureter is identified in the retroperitoneal tissue and is drawn out without disturbing its blood supply. A longitudinal incision of about 1 cm is made into the lumen at the middle of the exposed ureter. This slit in the ureter is approximated subcutaneously to a stab wound of the same size made in the skin about 2 cm lateral to the main incision and a cutaneous ureterostomy is done by stitching the margins of the exposed mucous membrane of the ureter to the skin margins of the stab wound. Care is taken that there is no stretch or twist of the ureter and that its blood supply is least disturbed. The muscle layers are then closed with interrupted stitches leaving adequate gap for the ureter to pass to and from the ureterostomy site. The main skin incision is then closed.

The site of the ureterostomy now presents two openings—one leading to the kidney and the other to the bladder. A polythene tube is passed into these openings to keep continuous the flow of urine into the bladder and is left in position for 48 to 72 hours. This avoids wetting of the dressings with urine. The tube is later removed and the urine is allowed to dribble. After a time the ureteric stoma leading to the bladder gradually closes; but the one leading to the kidney remains patent. Whenever there is a tendency for this opening to become narrow, thus re-

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ducing or blocking the urine outflow, a polythene catheter is left in position for 24 hours. Infection, if it occurs, is treated with parenteral injections of penicillin and streptomycin. When the ureterostomy is well established it remains patent for some months.

*Recording of urine outflow.* At the time of recording, the animal is lightly restrained in a standing position in cloth slings. A sterile polythene tube of suitable size is passed for about 5 to 8 cm into the ureter through the ureterostomy opening. The tip of the tube should be very smooth to avoid injury to the mucous membrane of the ureter. To prevent urine leaking from the sides of the tube a bulb is blown a little away from the tip of the tube. The tube is kept in position in the ureter by a thread tied to it and passed round the belly of the animal. Urine from this tube is lead to a simple system of drop recording described previously by Haranath (2). Fig. 1 shows the diuretic effect of intravenous glucose at one such recording.

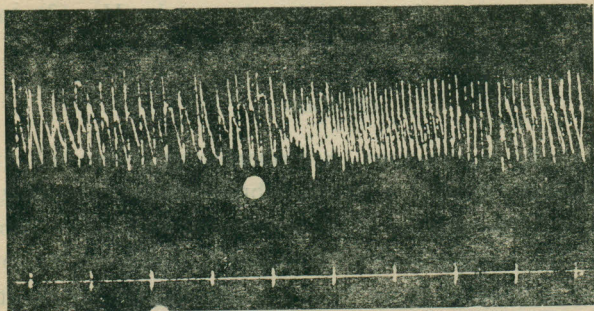


Fig. 1.

Record of urine outflow from the ureter in conscious dog. At the white dot  
Glucose 5gm (10 ml of 50% sol.) was given intravenously. Time 1 min.

#### DISCUSSION

Urine from conscious bitches is generally collected from the bladder with a self-retaining catheter (1). To pass the catheter into the bladder through the urethra, the perineal fold of skin over the urethral orifice is slit at a preliminary operation. With the method of collection of urine from the bladder it is not possible to record accurately the formation of each drop of urine. Some of its advantages are that it needs an easier preliminary operative procedure and that the bladder is more resistant to infection than the ureter or kidney. Though the method of collecting urine from the ureter carries with it a certain risk of infection, if due precautions are taken it has following advantages. (1) It reduces the dead space in the collecting system. (2) It permits both recording and collection of the urine at the same time. (3) The formation of each drop of urine can be recorded. (4) Animals of either sex can be used. In situations where accurate collection and record of urine formation from ureter, at least from one side, in conscious dogs is desired this method can be used.



REFERENCES

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