Percutaneous Introduction of Suprapubic Double Lumen Catheter into Bladder for Urodynamic Examination

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NISHIZAWA, O., OHYA, A., KIN, N., NAKAMURA, H., SATOH, S., MORIYA, I., HARADA, T. and TSUCHIDA, S. *Percutaneous Introduction of Suprapubic Double Lumen Catheter into Bladder for Urodynamic Examination*. Tohoku J. exp. Med., 1983, **141** (3), 371-372 — A modified method of percutaneous introduction of a suprapubic double lumen catheter (8 Fr) into the bladder for urodynamic examination is described. This method permits to fill the bladder at the filling rate about 50-60 ml/min from the standard drip set, and the catheter can be percutaneously introduced into the bladder with safety. ——— suprapubic double lumen catheter; urodynamic examination

The catheters are commonly introduced through the urethra into the bladder for urodynamic examinations. Recently it became clear that continuous monitoring of detrusor pressure and urine flow rate during voiding was reliable for the evaluation of the presence of the bladder outlet obstruction (Griffiths 1973). The suprapubic double lumen catheter for measuring bladder pressure and filling bladder is considered to be useful for monitoring both parameters. The 12- or 14-gauge suprapubic double lumen catheter permits about 10 ml/min of the maximum rate of filling fluid into the bladder using the standard drip set (Nishizawa et al. 1982). Therefore a peristaltic pump has been employed for filling the bladder via that catheter in order to get the filling rate of 50-60 ml/min. Furthermore, introducing the 10- or 12-gauge double lumen catheter into the bladder, we have to puncture with the 10- or 12-gauge Medicut needle of which size is considered to be slightly thick. The present paper describes the modified method of percutaneous introduction of the 8 Fr. double lumen catheter capable of filling the bladder at about 50-60 ml/min from the standard drip set into the bladder, using the 18-gauge needle for the puncture.

Fig. 1 demonstrates the 8 Fr. double lumen catheter and necessary materials for introduction of this catheter into the bladder. The procedure is as follows: The suprapubic midline region is infiltrated with 1% procaine hydrochloride solution. The bladder is filled with normal sodium chloride solution through the urethral catheter until it is palpable. Next, with a scalpel blade a small slit is made in the skin of the suprapubic midline region. An 18-gauge needle is suprapubically punctured through the skin slit into the bladder. A J-guide wire is passed through the needle into the bladder. The needle is then removed around the guide wire and the 10.5 Fr. sheath introducer and 9 Fr. dilator as a unit are fed over the guide wire. The guide wire and dilator are withdrawn, and sheath introducer remains in the bladder. The 8 Fr. catheter is inserted through the

lumen of the sheath introducer. The sheath introducer is withdrawn from the bladder, leaving the 8 Fr. catheter. Main channel of this catheter is used for filling the bladder and subchannel is used for measuring the bladder pressure.

Fig. 2 shows the actual tracing of total bladder pressure, subtracted bladder pressure, rectal pressure, urine flow rate and external sphincter EMG. The bladder is filled at about 50–60 ml/min using the standard drip set. The bladder pressure is continuously recorded during voiding.

Fig. 1

Fig. 1. 8 Fr. double lumen catheter and necessary materials for its introduction into the bladder.

a, 18-gauge needle; b, J-guide wire; c, 10.5 Fr. sheath introducer; d, 9 Fr. dilator; e, 8 Fr. double lumen catheter.

Fig. 2. Urodynamic tracing.

Fig. 2

We feel that this modified method of percutaneous introduction of suprapubic double lumen catheter is quite useful for urodynamic evaluation at voiding and it is easily performed.

References

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