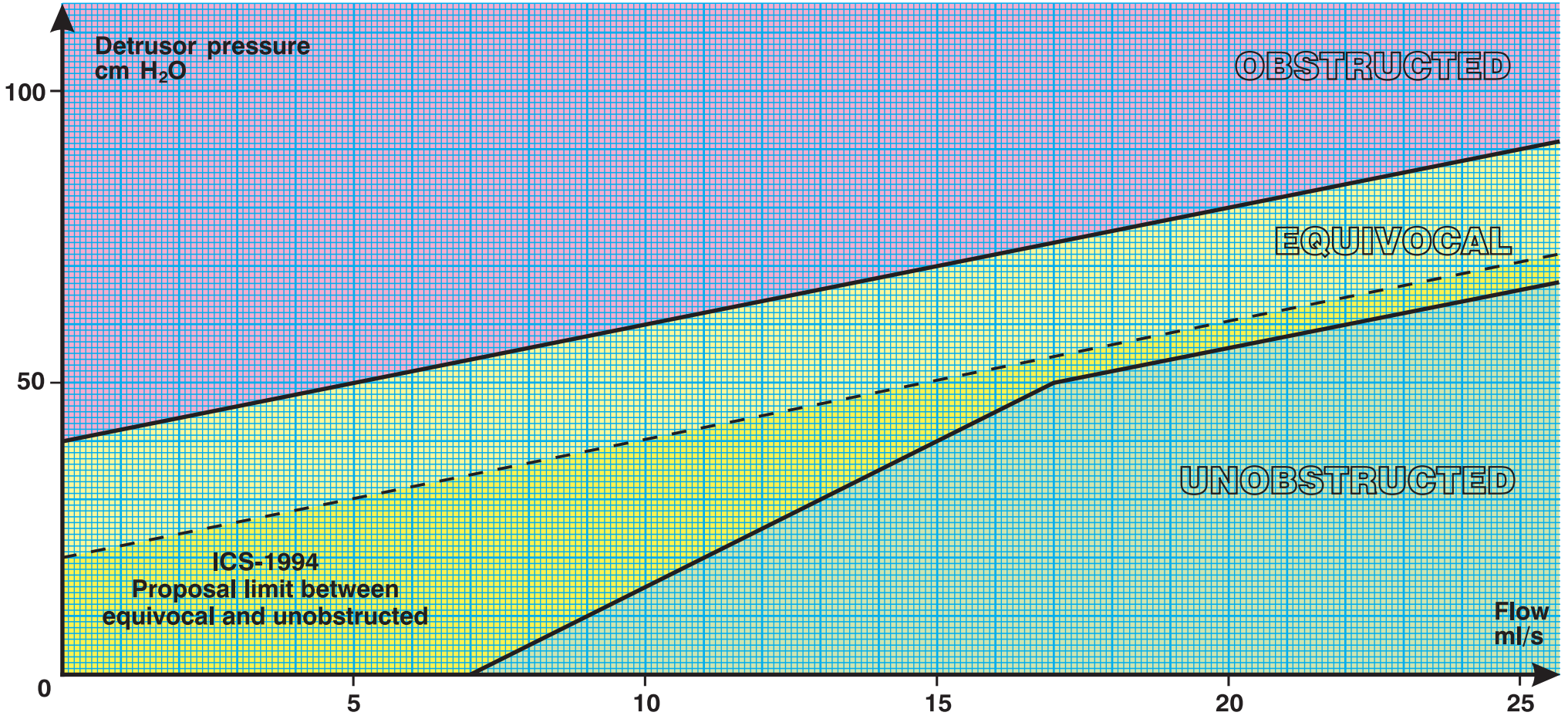
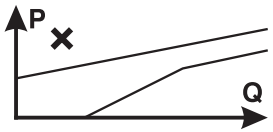
Interpretation of pressure/flow investigation in patient with BPH

Date:

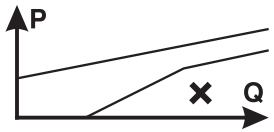
Patient:

Max. flow rate and corresponding detrusor pressure at max. flow is plotted into the nomogram

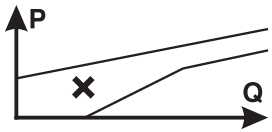




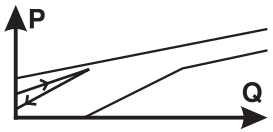
Positioned in red area:
OBSTRUCTED



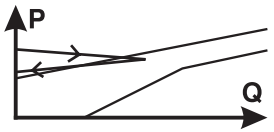
Positioned in green area:
UNOBSTRUCTED



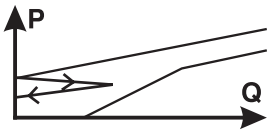
Positioned in yellow area:
DRAW PRESSURE/FLOW
PLOT



Slope > 2 cm H_2O per ml/s:
OBSTRUCTED



Slope <= 2 cm H_2O per ml/s
and minimum voiding detrusor
pressure > 40 cm H_2O:
OBSTRUCTED



Slope <= 2 cm H_2O per ml/s
and minimum voiding detrusor
pressure <= 40 cm H_2O:
UNOBSTRUCTED

Ref: Abrams PH, Griffiths DJ:
The assessement of prostatic obstruction from urodynamic measurements and residual urine.
Br J Urol 1979; 51: 129-134.

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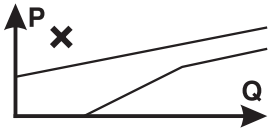
P.O. Box 18 - DK-2730 Herlev

SUM - 3156/2593

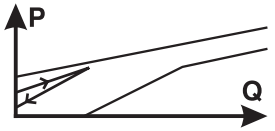
Interpretation of the simultaneus recording of intravesical pressure, intraabdominal pressure, calculated detrusor pressure and urinary flow rate is often difficult or impossible from the raw tracings.
It is necessary to plot corresponding values of detrusor pressure (intravesical pressure minus intraabdominal pressure) and flow rate into a nomogram like that of Abrams and Griffiths. If the point of maximum flow rate and corresponding detrusor pressure at maximum flow rate is located in the “OBSTRUCTED” or in the “UNOBSTRUCTED” area, the patient can be classified straight away. If the point is located in the “EQUIVOCAL” area, it is necessary to plot the pressure/flow relationship into the nomogram. This is done by plotting several points of corresponding detrusor pressures and flow rates into the nomogram and draw lines between them. Of special importance is the *minimum voiding detrusor pressure*; which is the minimum detrusor pressure needed to keep the urethra open and normally attained as the urethra closes at the end of micturition, since it is the mean slope of the line from maximum flow rate to the minimum voiding detrusor pressure together with the value of the minimum voiding detrusor pressure, that determines how the patient is classified.

Normally there is a time lag in the flow registration of 0.5-1 second, since it takes some time for the urine to travel from the urethra to the flowmeter. This time lag must be taken into account, when producing the pressure/flow relationship. It is normally rather constant in the individual clinical setup and can be measured once and for all. In some urodynamic equipment, it is built into the system so tracings are really simultaneus. Time lag can be measured e.g. by compressing the urethra completely during voiding, recording when compression is done and when it is seen on the flow tracing.

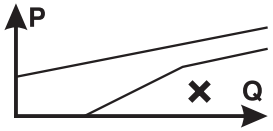
Ref: Abrams PH, Griffiths DJ:
The assessment of prostatic obstruction from urodynamic measurements and residual urine.
Br J Urol 1979; 51: 129-134.



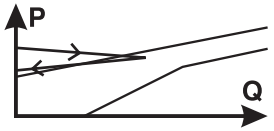
Positioned in red area:
OBSTRUCTED



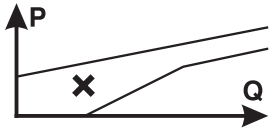
Slope > 2 cm H_2O per ml/s:
OBSTRUCTED



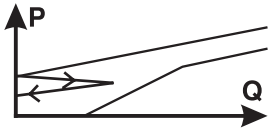
Positioned in green area:
UNOBSTRUCTED



Slope <= 2 cm H_2O per ml/s and minimum voiding detrusor pressure > 40 cm H_2O:
OBSTRUCTED



Positioned in yellow area:
DRAW PRESSURE/FLOW PLOT



Slope <= 2 cm H_2O per ml/s and minimum voiding detrusor pressure <= 40 cm H_2O:
UNOBSTRUCTED