Objectives: Transurethral prostatectomy (TURP) is the gold standard in surgical therapy of symptomatic bladder outlet obstruction. TURP is characterised by immediate treatment success, due to the removal of obstruction combined with a long–lasting improvement of symptoms and voiding parameters. In spite of good long–term results of TURP, intraoperative blood loss produces morbidity. We investigated a blood–sparing cut using a new high–frequency technology. Methods: (1) A standard high frequency generator was extended in its function by additional electronics. (2) The possibility of a blood–sparing cut using ‘coagulating intermittent cutting’ (CIC cocut BMP) was quantified ex vivo using a blood–perfused porcine kidney. Four cuts next to each other were performed through the parenchyma using a standard resectoscope with a standard loop. This was done with a commercially available generator and CIC cocut BMP. The blood loss was determined semiquantitatively. Results: (1) In a first step ‘coagulating cutting’ with coagulating and cutting periods (10/94–08/96) was developed. During each cut, phases with predominant cutting effect alternate with coagulating phases of defined duration. As a disadvantage, operation time increased due to lower cutting speed. In a second step cutting combined with coagulation effect with high voltage pulses – ‘coagulating intermittent cutting’ (08/96–06/97) – was developed. In this technique, the output signal consists of a pulse–modulated sinusoidal voltage with high amplitudes. But gas bubbles impaired
vision. This finally resulted in the ‘coagulating intermittent cutting’ with constant voltage pulses and control of pulse intervals (CIC cocut BMP, since 07/97 up to now). (2) Comparing the function of the high–frequency generators in vitro, the Wilcoxon test for paired samples revealed a significant reduction of the observed bleeding with the CIC cocut BMP ($p = 0.002$). Conclusions: ‘Coagulating intermittent cutting’ improves the gold standard of TURP with reduced blood loss. The procedure is feasible with a standard resection equipment. The already trained surgeon has no further learning cure, and teaching of classical TURP is maintained.

Stichworte: Benign prostatic hyperplasia; Transurethral prostatectomy; High–frequency surgery

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