Histological evaluation of prostatic tissue following transurethral laser resection (TULaR) using the 980 nm diode laser.

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Abstract

OBJECTIVES:

In the present study, we performed for the first time an histological evaluation after 980 nm diode laser treatment of bladder outlet obstruction secondary to benign prostatic hypertrophy (BPH). The aim was to demonstrate the possibility of obtaining sufficient tissue for histological examination and the possibility of obtaining an histological diagnosis on the specimen obtained by laser resection.

MATERIALS AND METHODS:

86 patients with BPH were selected for laser surgery and 10 patients for transurethral prostate resection. The prostate tissue samples collected from laser surgery and transurethral resection of the prostate (TURP) were fixed in 10% formalin and serial sections with a slice thickness of 5-7 micron embedded in paraffin and stained with haematoxylin and eosin.

RESULTS:

Samples obtained using the 980 nm diode laser ranged in size from 4 mm to 30 mm and showed brownish, smooth margins. Lasered tissue showed a coagulation rim of 0.5 mm (range: 0.2-1 mm) and adjacent to the vaporized tissue, coagulated connective tissue and glandular epithelia were seen. Beyond this zone a complete detachment of glandular epithelia from the connective tissue was observed. Stromal oedema associated with ectasic vessels but without extravasation of red blood cells, haemosiderin deposition and haemorrhagic areas were also retrieved. All cases showed occlusion of small vessels beyond the zone of coagulated tissue. Unlike laser treatment, samples obtained from TURP showed extravasation of red blood cells, haemosiderin deposition and haemorrhagic areas.

CONCLUSIONS:

The 980 nm diode laser provides high rates of tissue ablation, associated with excellent haemostasis. It has been shown that tissue samples can be obtained with this technique, which allow a histological diagnosis of BPH to be made. The current method involving the 980 nm diode laser induces a vapoablation of prostate tissue and the acronym of TULaR (transurethral laser resection) has therefore been created to describe this technique.