

## K-04

### Nd:Yag laser focal effect of localized kidney tumor

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**Purpose.** To study the possibility of treatment of localized renal cell carcinoma using Nd:YAG interstitial laser coagulation (ILC).

**Materials and methods.** Nd:YAG laser in the free running mode, delivered through a bare fiber was used for in patients with T1N0M0 renal cell carcinoma (tumor size not more 35mm) in cases where it was impossible to perform resection or patients refused surgery. The laser radiation was delivered through a 600 micron bare fiber, instead of usual ITT catheter. The fiber was held at the puncture needle clear space. The puncture needles were positioned with stereotactic targeting with a help of ultrasound imaging or/and computer tomography. The laser operated at the output power 21W, exposure time 20s and repetition rate 100Hz. A single time laser exposure was used to coagulate only a small fraction of tissue which we called "elementary volume" of coagulation, while the required volume of coagulation was achieved by repetitive laser exposure. During 2007-2011 ILC of kidney tumors was performed on 8 patients (5 men and 3 women). Tumor size varied from 5 till 35mm.

**Results.** One year post procedure in 2 patients tumor was fully replaced by scar tissue, in other 4 patient size and perfusion of tumor were substantially decreased but not fully disappeared, so later patients underwent recurring ILC. Then no tumor growth was found for 3 years (up to now). In the last two cases, the observation time is too small to assess treatment outcomes.

**Conclusion.** ILC of localized kidney tumors is safe and efficient, it can be used as an independent method of treatment when radical treatment is not feasible; or in combination with targeted therapy.