Clinical use of the holmium:YAG laser in laparoscopic partial nephrectomy.

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Abstract:

Purpose: To report on the technique and utility of the holmium:YAG laser in performing laparoscopic partial nephrectomy (LPN). Patients and Methods: Three patients with indications for LPN (complex cyst, nonfunctioning lower pole, renal mass) underwent parenchymal-sparing procedures with the Ho:YAG laser. The kidney was identified using a transperitoneal laparoscopic technique. Gerota's fascia was opened, and the renal mass/nonfunctioning lower pole was resected using the laser. Settings of 0.2 J/pulse at 60 pulses/sec and 0.8 J/pulse at 40 pulses/sec were used. Results: All three procedures were performed successfully with minimal blood loss and without the need for hilar occlusion. Although the laser alone was hemostatic, fibrin glue was applied in two cases and oxidized cellulose in one case to reinforce the tissue against delayed bleeding. There were no perioperative complications, and all patients left the hospital within 3 days. Conclusions: At high power settings, the Ho:YAG laser is an effective tool for LPN. It results in good hemostasis without the need for hilar occlusion. This technique promises to facilitate the laparoscopic management of renal tumors and nonfunctioning moieties of duplicated systems.