

Abstract number: 18-2445

Thulium laser conservative treatment of upper tract urinary cancer (UTUC): 10 year-experience of a referral center

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Objectives

- To evaluate the safety and efficacy of retrograde intrarenal Thulium-Holmium:YAG laser treatment of UTUC.

Materials and Methods

From 2005 to 2016 we enrolled 146 consecutive patients with new diagnosis of UTUC undergoing diagnostic uretero-rensoscopy and thulium laser treatment at one referral institution.

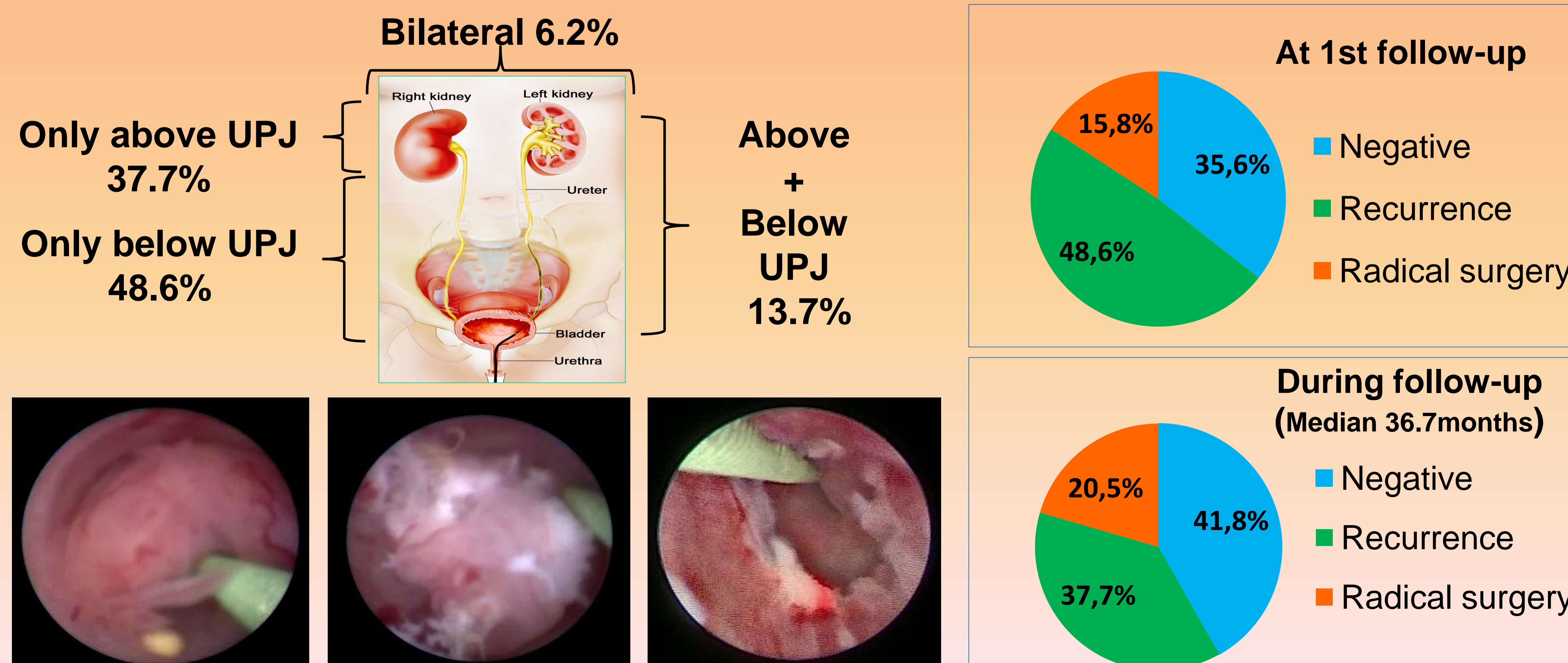
The instruments utilized were the Semirigid Ureteroscope 7Fr and Flexible Uretero-rensoscopy 7.5Fr (KSE).

The Laser source was the Thulium-Holmium YAG (Revolix Duo) at 10 watts, with 270 micron fibers. Biopsies were made with nitinol basket 2.2Fr + 3Fr flexible cup forceps.

The EAU guidelines follow-up scheme was applied: endoscopic control + cytology initially every 3 months, then every 6 months for 2 years, and then annually; with yearly Uro-CT.

Results

- Mean age at surgery was 70.7 years old (range 19-91, SD 8.49).
- Median follow-up was 36.7 (range 12-120) months.
- Imperative cases consisted of 21 (14.4%) solitary kidney patients. Bilateral UTUC was reported in 9 (6.2%) patients.
- Solitary tumours were reported in 91 patients (62.3%), multiple in 55 patients (37.7%).
- Tumors were > 1 cm in dimension in 83 (56.9%) patients, ≤1cm in 63 patients (43.1%).
- Tumors at diagnosis, were only above the uretero-pelvic junction (UPJ) in 55 patients (37.7%), and only below the UPJ in 71 patients (48.6%), with 20 patients (13.7%) having synchronous lesions above and below the UPJ.
- Biopsies revealed the presence of low-grade disease in 98 (67.2%) patients, high-grade in 44 (30.1%) patients, and 4 patients (2.7%) had tumor where grading was not possible (single small initial tumor), but cytology was negative with low grade recurrences during follow-up.
- Final stage was pTa in 120 (82.2%), with higher stage lesions (≥T1) in the rest.
- At first follow up, 52 patients (35.6%) were recurrence-free, 71 patients (48.6%) had recurrences, and 23 patients (15.8%) underwent nephro-ureterectomy (21 for >pT1-HG disease + 2 for extensive LG-UTUC not amenable to RIRS).
- During follow-up, a total 61 patients (41.8%) were continuously recurrence-free, 55 patients (37.7%) had multiple recurrences treated conservatively, and a total of 30 patients (20.5%) had undergone nephro-ureterectomy.
- The Kidney Preserving Rate in patients with solitary kidney or bilateral tumors (Imperative indications) was 91.8%.
- No major complication was registered intra- or post-operatively and 90.4% were discharged on the 1st post-op day.



Conclusions

- The conservative treatment of UTUC with Thulium-Holmium:YAG Duo laser was safe and oncologically effective over a ten year period.
- Complete UTUC Grading, and if possible, Staging, coupled with regular endo-surveillance, are mandatory in order to optimize an individualized therapeutic strategy for each patient, and to have good timely disease control.