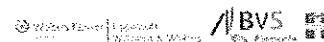


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## The Hemorrhoid Laser Procedure Technique vs Rubber Band Ligation: A Randomized Trial Comparing 2 Mini-invasive Treatments for Second- and Third-degree Hemorrhoids.

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### Abstract

**BACKGROUND:** Hemorrhoid laser procedure is a new laser procedure for outpatient treatment of hemorrhoids in which hemorrhoidal arterial flow feeding the hemorrhoidal plexus is stopped by means of Doppler-guided laser coagulation.

**OBJECTIVE:** Our aim was to compare the hemorrhoid laser procedure with rubber band ligation for outpatient treatment of symptomatic hemorrhoids with moderate mucosal prolapse.

**DESIGN:** This was a randomized controlled trial with balanced allocation to hemorrhoid laser procedure or rubber band ligation, with stratification by study center.

**SETTING:** This study was conducted at 2 teaching hospitals in Italy.

**PATIENTS:** Patients with symptomatic grade II or grade III hemorrhoids with minimal mucosal prolapse were eligible for the study.

**INTERVENTIONS:** In the hemorrhoid laser procedure operation, a Doppler probe was inserted into the anal canal through a dedicated disposable proctoscope to identify the terminal branches of superior hemorrhoidal arteries approximately 3 cm above the dentate line. Five pulsed laser shots were delivered to each identified artery through the proctoscope to close the terminal branches. The procedure was repeated for each artery through clockwise rotation of the proctoscope. Absence of a Doppler signal after treatment confirmed arterial coagulation. Rubber band ligation was performed by positioning rubber bands at the base of left lateral, right anterior, and right posterior piles. No anesthesia was given for either technique.

**MAIN OUTCOME MEASURES:** Operative time, complications, postoperative pain (visual analog scale), postoperative downgrading of hemorrhoids, resolution of symptoms, and quality of life were evaluated.

**RESULTS:** A total of 60 patients (35 women, 25 men; mean age, 46 years) entered the trial and were analyzed. No significant differences between rubber band ligation and hemorrhoid laser procedure were observed in operative time or intraoperative morbidity. The median postoperative pain score was 2.9 (range, 1-5) with rubber band ligation vs 1.1 (range, 0-2) for hemorrhoid laser procedure ( $P < .001$ ). At 6 months, resolution of symptoms was observed in 16 patients (53%) with ligation vs 27 (90%) with hemorrhoid laser procedure ( $P < .001$ ), and reduction of hemorrhoids by at least 1 grade was observed in 12 patients (40%) with ligation vs 24 (80%) with hemorrhoid laser procedure ( $P < .001$ ). Significantly higher quality of life was seen in the hemorrhoid laser procedure group ( $P = .002$ ).

**LIMITATIONS:** Follow-up was not longer than 1 year (median, 6 mo).

**CONCLUSIONS:** Despite higher cost, the hemorrhoid laser procedure technique was more effective than rubber band ligation in reducing postoperative pain, resolving symptoms, and improving quality of life in patients with grade II or III hemorrhoids with incomplete mucosal prolapse.

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