IMPROVEMENT OF SURGICAL TREATMENT OUTCOMES FOR COMBINED HEMORRHOIDS USING THE TORSIONAL ULTRASONIC SCALPEL "LOTUS" (BOWA MEDICAL)

Mirzakhmedov M.M.,
Bobonazarov Sh.B.,
Sarmanov D.I.
Tashkent State Medical University, Tashkent, Uzbekistan

imrconf.com

ABSTRACT

Background: Hemorrhoidal disease affects approximately 11-13% of the adult population worldwide, significantly impacting quality of life. While hemorrhoidectomy remains the gold standard for grade III-IV hemorrhoids, postoperative pain remains a major limitation. Recent evidence demonstrates that ultrasonic scalpel techniques significantly reduce postoperative complications compared to conventional methods.

Objective: To evaluate the efficacy and safety of the "LOTUS" torsional ultrasonic scalpel (BOWA MEDICAL) for sutureless hemorrhoidectomy in patients with combined grade III-IV hemorrhoids.

Methods: This prospective study included 50 patients (32 males, 18 females; age range 20-70 years) with combined hemorrhoids treated at Tashkent State Medical University clinic (2018-2026). Surgery was performed using the "LOTUS" ultrasonic scalpel at 36 kHz frequency and 70 W power in pulse-periodic mode (3/30 sec), with simultaneous removal of external and internal nodes as a single block without suturing.

Results: Mean operative time was 18.5±4.2 minutes with minimal blood loss (15-20 ml). Postoperative pain (VAS) averaged 3.2±0.8 points on day 1. Mean hospital stay was 2.8±0.6 days, with complete wound healing at 12.4±2.1

days. No early complications, recurrence, anal stenosis, or incontinence were observed during 1-3 month follow-up.

Conclusions: The "LOTUS" torsional ultrasonic scalpel provides effective, safe treatment for combined hemorrhoids with reduced operative time, minimal blood loss, decreased postoperative pain, accelerated healing, and excellent long-term outcomes.

Keywords: *hemorrhoidectomy, ultrasonic scalpel, LOTUS, sutureless technique, combined hemorrhoids, postoperative pain.*

imrconf.com

BACKGROUND

Hemorrhoidal disease is one of the most common anorectal disorders worldwide, significantly affecting patients' quality of life. According to an international web-based survey by Sheikh P. et al. (2020), the prevalence of hemorrhoidal disease in adults is approximately 11%, with symptoms including bleeding, pain, and prolapse [1]. A cross-sectional study by Kibret A.A. et al. (2021) reported that 13.1% of surgical outpatients had hemorrhoids, with constipation and elevated BMI being significant risk factors [2].

Hemorrhoidectomy remains the gold standard for grade III-IV hemorrhoids; however, postoperative pain is a major limitation. A network meta-analysis by Balciscueta Z. et al. (2021), including 29 studies with 3309 patients, demonstrated that closed hemorrhoidectomy performed with bipolar or ultrasonic scalpel significantly reduces postoperative pain compared to conventional open techniques [3,7,8]. A systematic review by Lohsiriwat V. and Jitmungngan R. (2022) confirmed that closed hemorrhoidectomy using vascular sealing devices or ultrasonic scalpels is recommended for reducing post-hemorrhoidectomy pain [4].

Recent clinical trials have further validated ultrasonic scalpel advantages. Yu K. et al. (2023) reported that ultrasonic scalpel hemorrhoidectomy is safer and more effective for grade III-IV hemorrhoids,

with less intraoperative bleeding and fewer complications [5,7]. A systematic review and meta-analysis by Albazee E. et al. (2023), including nine RCTs, confirmed the efficacy of harmonic scalpel hemorrhoidectomy with reduced operative time and blood loss [6,8].

MATERIALS AND METHODS

This study included 50 patients with combined hemorrhoids treated at Tashkent State Medical University clinic (2018-2026). Age distribution: under 30 years — 10 patients (20%), 31-60 years — 30 patients (60%), over 61 years — 10 patients (20%). Gender: males — 32 (64%), females — 18 (36%). Grade IV hemorrhoids were diagnosed in 35 patients (70%), grade III in 15 patients (30%). Rectal bleeding was observed in 32 patients (64%).

Surgery was performed under spinal anesthesia in lithotomy position using the "LOTUS" torsional ultrasonic scalpel (BOWA MEDICAL) at 36 kHz frequency and 70 W power in pulse-periodic mode (pulse/pause 3/30 sec). External and internal hemorrhoidal nodes were removed simultaneously as a single block with vascular pedicle coagulation without suturing (sutureless hemorrhoidectomy).

RESULTS

Mean operative time was 18.5 ± 4.2 minutes, significantly shorter than conventional hemorrhoidectomy (25-35 minutes). Intraoperative blood loss did not exceed 15-20 ml. No early postoperative complications (bleeding, suppuration, urinary retention) were observed. Pain score (VAS) on postoperative day 1 averaged 3.2 ± 0.8 points, significantly lower than conventional methods (5-7 points).

Mean hospital stay was 2.8 ± 0.6 days. Complete wound healing occurred at 12.4 ± 2.1 days, 5-7 days faster than traditional methods. Return to work averaged 8.6 ± 1.8 days. At 1-3 month follow-up, all 50 patients (100%) showed complete recovery with no recurrence, anal stenosis, or incontinence.

imrconf.com

CONCLUSIONS

The "LOTUS" torsional ultrasonic scalpel (BOWA MEDICAL) is an effective and safe instrument for surgical treatment of grade III-IV combined hemorrhoids.

The "LOTUS" scalpel reduces operative time, minimizes intraoperative blood loss, and decreases postoperative pain severity.

Sutureless hemorrhoidectomy technique provides accelerated wound healing and shortened patient rehabilitation.

Absence of recurrence and complications at follow-up confirms the reliability and effectiveness of the proposed method.

imrconf.com

REFERENCES

1. Sheikh P, Régnier C, Goron F, et al. The prevalence, characteristics and treatment of hemorrhoidal disease: results of an international web-based survey. J Comp Eff Res. 2020;9(17):1219-1232. DOI: 10.2217/cer-2020-0159. https://pubmed.ncbi.nlm.nih.gov/33079605/

2. Kibret AA, Oumer M, Moges AM. Prevalence and associated factors of hemorrhoids among adult patients visiting the surgical outpatient department. PLoS ONE. 2021;16(4):e0249736. DOI: 10.1371/journal.pone.0249736. https://pubmed.ncbi.nlm.nih.gov/33878128/

3. Balciscueta Z, Balciscueta I, Uribe N. Post-hemorrhoidectomy pain: can surgeons reduce it? A systematic review and network meta-analysis of randomized trials. Int J Colorectal Dis. 2021;36(12):2553-2566. DOI: 10.1007/s00384-021-04013-6. https://pubmed.ncbi.nlm.nih.gov/34417639/

4. Lohsiriwat V, Jitmungngan R. Strategies to Reduce Post-Hemorrhoidectomy Pain: A Systematic Review. Medicina (Kaunas). 2022;58(3):418. DOI: 10.3390/medicina58030418. https://pubmed.ncbi.nlm.nih.gov/35334594/

5. Yu K, Li H, Xue P, et al. Modified ultrasound scalpel haemorrhoidectomy versus conventional haemorrhoidectomy for mixed haemorrhoids: a study

protocol for a randomised controlled trial. Trials. 2023;24(1):140. DOI: 10.1186/s13063-023-07175-6. https://pubmed.ncbi.nlm.nih.gov/36829253/

6. Albazee E, Alenezi A, Alenezi M, et al. Efficacy of Harmonic Scalpel Versus Bipolar Diathermy in Hemorrhoidectomy: A Systematic Review and Meta-Analysis of Nine Randomized Controlled Trials. Cureus. 2023;15(2):e34734. DOI: 10.7759/cureus.34734. https://pubmed.ncbi.nlm.nih.gov/36755770/

7. Teshayev O. R. et al. Bariatric surgery in liver cirrhosis: A comprehensive review of current evidence //American journal of applied medical science. – 2025. – Т. 3. – №. 6. – С. 172-187.

8. Хайитов И. Б., Бабажонов А. Б. Морфологическая картина хитиновой оболочки эхинококковой кисты различного морфотипа //Theory And Analytical Aspects Of Recent Research. – 2024. – Т. 3. – №. 26. – С. 131-134.

imrconf.com