



Our Clinic's Experience with Laser Hemorrhoidoplasty

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Research Article

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ABSTRACT

Objective: We aim to present the outcomes of the Laser Hemorrhoidoplasty (LHP) procedure performed in our clinic.

Methods: In this retrospective study, we analyzed the outcomes of LHP performed on 112 patients in our clinic over a 24-month period. Patients were scheduled for follow-up visits at three weeks post-surgery, followed by subsequent follow-ups at three and six-month intervals.

Results: Of the 112 patients, 73 (65.17%) were male, and 39 (34.82%) were female. The mean age was 52.6 years (range: 20-65). The mean operation duration was 18.3 minutes (range: 12-25). Seventy patients were classified as grade 2, while 42 patients were classified as grade 3. The mean hospital stay was 1.16 days. While 5 of 70 patients with Grade 2 hemorrhoids could not be followed up after surgery, 24 were followed for 6 months and 41 for 1 year. One (1.42%) patient who attended the 1-year follow-up showed recurrence. Four patients (9.52%) showed recurrence. One patient with grade 3 hemorrhoids experienced postoperative bleeding lasting one week, requiring erythrocyte suspension transfusion. Another patient with grade 3 hemorrhoids developed a hematoma, which resolved with conservative treatment. Eight patients (7.14%) with grade 3 hemorrhoids developed postoperative edema, all of whom improved with conservative treatment. Pain, evaluated by the Visual Analog Scale, was measured as 2.03 on the first postoperative day and 1.49 on the second postoperative day.

Conclusion: LH treatment has been found to be a successful alternative treatment option for Grade 2 and Grade 3 diseases. It is emphasized that patient selection is crucial in LH treatment.

Keywords: Minimally invasive surgery, Hemorrhoid, Laser hemorrhoidoplasty

Lazer Hemoroidopeksi Klinik Deneyimimiz

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ÖZET

Amaç: Kliniğimizde uygulanan Lazer Hemoroidoplasti (LHP) işleminin sonuçlarını sunmayı amaçladık

Yöntem: Bu retrospektif çalışmada, kliniğimizde 24 aylık bir dönemde yapılan LHP'nin sonuçlarını analiz ettik. Hastalar, ameliyat sonrası üç haftalık takip ziyaretleri planlandı, ardından üç ve altı aylık aralıklarla takip edildi.

Bulgular: 112 hastanın 73'ü (%65.17) erkek, 39'u (%34.82) kadındı. Ortalama yaş 52.6 idi (aralık: 20-65). Ortalama operasyon süresi 18.3 dakika idi (aralık: 12-25). Yetmiş hasta grade 2 olarak sınıflandırılırken, 42 hasta grade 3 olarak sınıflandırıldı. Ortalama hastanede kalış süresi 1.16 gün idi. Grade 2 hemoroidli 70 hastanın 5'i takipten çıkarıldı, 24'ü 6 ay ve 41'i 1 yıl boyunca takip edildi. Bir (1.42%) hasta 1 yıl sonundaki takipte nüks gösterdi. Dört hasta (%9.52) nüks gösterdi. Grade 3 hemoroidli bir hasta, bir hafta süren postoperatif kanama yaşadı ve eritrosit süspansiyonu transfüzyon ihtiyacı oldu. Grade 3 hemoroidli bir başka hasta, konservatif tedavi ile çözülen bir hematoma geliştirdi. Grade 3 hemoroidli sekiz hastada (%7.14) postoperatif ödem gelişti, hepsi konservatif tedavi ile iyileşti. Görsel Analog Skala (VAS) kullanılarak ölçülen ağrı değerleri, birinci postoperatif günün 2.03, ikinci postoperatif günün ise 1.49 olarak ölçüldü.

Sonuç: LH tedavisi, Grade 2 ve Grade 3 hastalıklar için başarılı bir alternatif tedavi seçeneği olduğu düşünülmektedir ve LH tedavisinde hasta seçiminin kritik önem taşıdığı vurgulanmaktadır.

Anahtar Kelimeler: Minimal invazif cerrahi, Hemoroid, Lazer hemoroidoplasti

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Introduction

In today's surgical landscape, as with all surgical procedures, minimally invasive techniques have gained importance in the management of benign anorectal diseases. Due to high postoperative pain, high recurrence rates, and life-threatening complications such as bleeding and infection associated with traditional surgeries for benign anal conditions, there is ongoing exploration of new techniques. The incidence of symptomatic hemorrhoids is around 4%. It is a common health problem encountered in every society.^{1,2} While conservative or medical treatment is the first-line approach in the management of early-stage hemorrhoids, surgical procedures may be necessary in case of treatment failure. Numerous surgical treatment options for hemorrhoids have been described, but none have been universally accepted as the gold standard.

Laser therapy is commonly used in surgery for conditions such as liver cancer, prostate cancer, and gynecological conditions.^{3,4} Laser Hemorrhoidoplasty (LHP) is one of the minimally invasive surgical options for hemorrhoids, aiming to reduce and eliminate vascularity in the target hemorrhoid using a "laser beam." In recent years, Laser Hemorrhoidoplasty (LH) has been utilized as a novel treatment option. Initially described by Safli,⁵ and Plapher,⁶ this method has shown early postoperative benefits compared to other surgical methods.⁷⁻¹⁰ Two randomized controlled trials reported less postoperative pain, quicker return to daily activities, and similar recurrence rates over a one-year follow-up period.^{11,12}

Laser Hemorrhoidoplasty in our clinic has been performed only in patients with grade 2-3 hemorrhoids who do not have complaints such as thrombosis and active bleeding. In this report, we aim to present the outcomes of this procedure performed in our clinic and compare them with the literature.

Materials and Methods

This study was approved by the ethics committee of Sivas Cumhuriyet University Faculty of Medicine with decision number 2024-02/70. During the 24 months from September 2020 to December 2022, medical records of 112 patients who underwent LH for grade 2-3 hemorrhoidal disease at our clinic were retrospectively reviewed. Demographic characteristics, duration of follow-up, grades of hemorrhoids, complications, operative and hospital stay durations, pain scores, and recurrence data were recorded.

Surgical technique

All patients underwent LH performed by a single surgeon with prior experience in LH. Procedures were conducted under general anesthesia. The neoV1470 system (G.N.S neo-Laser Ltd., Israel), equipped with a 1470 nm laser probe, was utilized. After grasping the enlarged hemorrhoid with a hemostat, the tip of the laser probe was inserted into the hemorrhoid pad, and the probe was positioned submucosally, reaching the apex of the hemorrhoid pad for the initial shot, followed by 4-6 shots around and into the pad. Manual pressure was applied to the pad after the

removal of the laser probe. In cases of persistent bleeding, 3-0 Vicryl sutures were placed at the base of the hemorrhoid. Ice was applied to the anal canal with a sterile glove to reduce postoperative bleeding risk. Pressure dressings were applied postoperatively to minimize bleeding. At the end of the operation, a pudendal block was administered using 10 cc of bupivacaine. Post-operative analgesia was provided for 14 days with a non-steroidal anti-inflammatory drug (Ibuprofen, 400 mg twice Daily)

Follow-up

Patients were scheduled for follow-up visits at three weeks post-surgery, followed by subsequent follow-ups at three and six-month intervals. The outcomes of the patients were reported as complete resolution of all symptoms or partial improvement.

Results

Of the 112 patients, 73 (65.17%) were male, and 39 (34.82%) were female. The mean age was 52.6 years (range: 20-65). The mean operation duration was 18.3 minutes (range: 12-25). Seventy patients were classified as grade 2, while 42 patients were classified as grade 3. The mean hospital stay was 1.16 days. Among the 70 patients with grade 2 hemorrhoids, 5 were lost to follow-up, while 24 were followed up at 6 months and 41 at 1 year. One (1.42%) patient who attended the 1-year follow-up showed recurrence. Among the 42 patients with grade 3 hemorrhoids, 3 were lost to follow-up, while 13 were followed up at 6 months and 26 at 1 year. Four patients (9.52%) showed recurrence, with 1 at the 6-month follow-up and 3 at the 1-year follow-up. One patient with grade 3 hemorrhoids experienced postoperative bleeding lasting one week, requiring erythrocyte suspension replacement. Another patient with grade 3 hemorrhoids developed a hematoma, which resolved with conservative treatment. Eight patients (7.14%) with grade 3 hemorrhoids developed postoperative edema, all of whom improved with conservative treatment. Pain, evaluated using the Visual Analog Scale, was measured as 2.03 on the first postoperative day and 1.49 on the second postoperative day.

Discussion

When all patients undergoing LH were evaluated, the most significant advantages consistent with the literature were found to be reduced postoperative pain levels and shorter hospital stays. Additionally, it was observed that early complications such as bleeding, urinary retention, and infection were very rare, except for edema in the perianal area, which could be resolved with conservative treatment.

The first significant study evaluating the efficacy of LH was published in 2007, reporting a success rate of 88% in post-procedural follow-up.¹³ Subsequent studies have reported similar success rates.¹⁴⁻¹⁶

In LH treatment, the laser probe is inserted into the submucosal layer of the hemorrhoid pad, emitting the laser beam for approximately 2 seconds to induce shrinkage of the hemorrhoid tissue. Tissue damage to surrounding areas is

limited to only 2 mm. After the hemorrhoid tissue shrinks, it is tightened with ice applied after the probe is removed.^{17,18} In contrast, the classic Milligan Morgan (MM) operation may take more time for the surgeon to identify and preserve the sphincter muscles to protect normal anoderm and control bleeding.^{19,20} With MM, the hemorrhoid pad, along with the overlying mucosa, is excised, resulting in a much larger wound size. As the wound size increases, it becomes more challenging to control bleeding, and postoperative pain is likely to be more severe, proportional to the size of the excised tissue.^{21,22} We believe that one of the main reasons for the low VAS scores in the first 24 hours postoperatively in patients undergoing LH is this factor. LH specifically targets only the submucosal layer of the hemorrhoid pads, preserving muscles and nerve bundles, thus believed to be associated with a lower risk of urinary retention. None of our patients experienced urinary retention. It is believed that all these advantages of LHP, by shortening hospital stays, enable patients to return to their daily activities earlier.¹⁵

In hemorrhoid surgery, it is essential to avoid excessive damage to the normal anoderm and to preserve the sphincters.²³ One of the most important late complications seen in open surgery is the risk of anal stenosis. The more surgical damage is created, the more fibrous scar tissue will form. The risk of anal stenosis is lower in LH procedures because there is no tissue removal, sphincters are well preserved, and the wound is very small. We believe that the main reason for the low postoperative pain, absence of anal spasm, and minimal risk of late stenosis in the postoperative period is minimal surgical damage. In this group, patients had very little postoperative pain and were not encountered with anal stenosis during their follow-up. Anal incontinence was not observed in any patient.

When evaluated in terms of recurrence, Lie H et al.²⁴ stated in their study that there was no significant difference in recurrence between LH and classic hemorrhoid surgery. In our study group, a recurrence rate of 21.4% was determined, consistent with the literature. It was concluded that the size of the hemorrhoid pad and the stage of hemorrhoidal disease were the most significant factors determining recurrence.

In conclusion, LH treatment is a successful alternative treatment option for Grade 2 and Grade 3 diseases. It is emphasized that patient selection is crucial in LH treatment. Postoperative bleeding, edema, and possible late recurrences are more common when LH is performed in advanced-stage hemorrhoids. We think that LH treatment should not be preferred for complicated hemorrhoid patients and Grade 4 diseases.

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