

**WHERE ARE WE NOW IN THE TREATMENT OF HEMORRHOIDS**

Vladimir Čuk<sup>1,2</sup>, Milena Šćepanović<sup>1</sup>, Igor Krdžić<sup>1</sup>, Marko Kenić<sup>1</sup>,  
Bojan Kovačević<sup>1,2</sup>, Vladica Čuk<sup>1</sup>

Zvezdara University Medical Center, Surgical Clinic „Nikola Spasić“, Belgrade, Serbia<sup>1</sup>  
University of Belgrade, School of Dental Medicine - Belgrade, Serbia<sup>2</sup>

Hemorrhoids are a very common and often chronic anorectal condition defined as the symptomatic enlargement and distal displacement of the normal anal cushions. Hemorrhoidal disease is as old as the human race.

From the ancient times to the present days many treatment modalities, non-surgical and surgical, have been introduced searching for a balance between patient satisfaction after symptoms are resolved and acceptable complications, with better or worse results. The discussion about the most appropriate method of treatment continues till today.

This article presents different modalities of hemorrhoidal treatment over time, reviewing on the efficacy and complications of each treatment modality as well as the current recommendations. *Acta Medica Medianae 2015;54(1): 97-106.*

**Key words:** hemorrhoids, ambulatory treatment, surgical approach

---

Contact: Vladimir Čuk,  
Surgical Clinic „Nikola Spasić“ – Zvezdara  
D. Tucovica st. 161 Belgrade, Serbia.  
E-mail: cuk\_cusa@yahoo.com

**Introduction**

Hemorrhoids are very common and often chronic anorectal condition defined as the symptomatic enlargement and distal displacement of the normal anal cushions. Hemorrhoidal disease is as old as the human race. It affects millions of people around the world, and represents a major medical and socioeconomic problem. Multiple factors have been claimed to be in the etiology of hemorrhoidal development, including constipation and prolonged straining. The true epidemiology is unknown because patients rather treat themselves than seek proper medical treatment. It is assumed that symptomatic hemorrhoids are present in about 50% of the population for a certain period of life. The prevalence rate is estimated up to 40% in US, and in the UK hemorrhoids were reported to affect up to 36% of the general population. In both sexes, the peak prevalence is between the age of 45-65 (1,2).

From the ancient times to the present days many treatment modalities, non-surgical and surgical, have been applied and described in searching of a balance between patient satisfaction and acceptable postoperative complications, first of all pain, and low recurrence rates. Additionally,

confusion is made by using many different terms to describe essentially the same procedure (THD, DGHAL, "mucopexy," "anopexy," "suture mucosal pexy," "rectoanal repair") and the existence of several modifications of one method.

The discussion about the best method of treatment continues till today. For patients, the most important thing is to resolve symptoms in the easiest possible way, and not to completely eradicate hemorrhoids.

**Conservative treatment**

Dietary modifications consisting of adequate fluid and fiber intake always was the first-line therapy for patients with symptomatic hemorrhoidal disease, resolving constipation and prolonged straining.

Fiber supplements are safe and cheap and should be used both as initial treatment and together with other therapeutic modalities. A diet rich in fiber reduces symptoms and bleeding by approximately 50%, but did not improve symptoms of prolapse, pain and itching (3,4).

Topical treatment doesn't cure the disease but controls the symptoms. A number of topical preparations are available including creams and suppositories. Active substances are either local anesthetic, astringents, corticosteroids, antibiotics or anti-inflammatory drugs.

Oral flavonoids (mixture of 90% diosmin and 10% hesperidin) and oral calcium dobesilate were first described in the treatment of chronic

venous insufficiency. Diosmin was isolated in 1925 from a plant *Scrophularia nodosa*, and first introduced as a therapeutic agent in 1969. They increase vascular tone, reduce venous capacity, decrease capillar permeability, inhibit platelet aggregation and improve blood viscosity, facilitate lymphatic drainage and also inhibit anti-inflammatory response (5,6). Results of 14 randomized trials and 1.514 patients, suggest that flavonoids decrease the risk of bleeding by 67%, persistent pain by 65% and itching by 35%, and also reduce the recurrence rate by 47% (7, 8).

Although there are doubts about the benefits of these agents because of limitations in methodological quality of studies, heterogeneity and potential publication bias, they are still widely used in patients with symptomatic hemorrhoidal disease (4).

### Non-operative treatment

There have been a lot of ambulatory methods used in the treatment of hemorrhoidal disease.

Manual anal dilatation - Lord procedure used from 1968 is abandoned due to high recurrence and incontinence rate, 51% (especially in older ones) (9).

Direct current electrotherapy (Ultroid) described by Norman in 1989, is no longer in use due to the pain that occurs in up to 20% of patients, poor control of prolapse, the duration and cost of the procedure (10,11).

Bipolar diathermy BD (BICAP) originally developed for the treatment of bleeding peptic ulcers, described by Griffith in 1987, is similar to infrared coagulation and direct current electrocoagulation (12). Success rates in randomized trials are between 88–100%, but the complication rate such as bleeding, fissure, or the internal sphincter spasm is relatively high (13,14).

Infrared photocoagulation (IRC) was described by Neiger in 1979 (15). The method is most applicable for grade I and II hemorrhoids. Reported success rates for these grades are 67–96% (16,17). The disadvantage of the method is a lot of moistening after treatment, the cost of equipment, need to repeat the treatment and a high percentage of recurrence (18). Infrared coagulation may be considered in patients who are on anticoagulant therapy (19).

Cryotherapy-Cryosurgery (Lewis 1969) and modification, cryosurgery and ligation - cryoplication (20) has about 90% success rate, but is rarely used because of prolonged postoperative pain and moistening after the treatment (21).

Radiofrequency ablation (RFA) was introduced in 1998 by Gupta for grade III and IV hemorrhoids (22). Its complications include acute urinary retention, wound infection, and perianal thrombosis. It is associated with a higher rate of recurrent bleeding and prolapse. Modification, Combined Hemorrhoidal Radiocoagulation (CHR) uses "HF radioscalpel" to cut and coagulate

tissues, after which more satisfactory results were reported (23).

Sclerotherapy (IS) - Mitchell technique. First injection therapy was used by John Morgan in 1869, with iron persulfate. Mitchell in 1871 used carbolic acid for this purpose. Later, 5% solution of phenol in almond or peanut oil and liquid polidocanol - AethoxysklerolR 3% and 4% were used. Shi et al. in China, developed Xiaozhiling from plant *Galla Chinensis* in 1971 as an injection agent, and later, in 2005, in Japan ALTA (aluminum potassium sulphate and tannic acid) was presented as novel sclerotherapy that has positive outcomes even for grade III and IV hemorrhoids (24,25).

Sclerotherapy is recommended as a treatment option for I and II degree hemorrhoids with bleeding as a major symptom, but not for protruding hemorrhoids. It is effective in 75-89% of patients with hemorrhoids grades I, II and III but long-term follow up shows recurrence rate in about 80% of patients (18, 26). Complications are about 1% and include pain (significantly less pain compared to RBL), urinary retention, abscess and paraffinoma, haematuria, oleuria and haematospermia (27,28). They are most often iatrogenic, owing to misplaced injections, mucosal ulceration or necrosis, rare septic complications and impotence (29,30).

Rubber band ligation (RBL) - Blaisdell described the ligation technique in 1958 using a silk suture, and in 1962 Barron modified the technique and replaced silk with rubber bands (31,32).

RBL is safe and successful method in about 90% of treated patients. According to ASCRS guidelines, it is superior to injection sclerotherapy and infrared coagulation in the treatment of grades I, II, and III hemorrhoids. It is the most effective of the office procedures, to eliminate pain and bleeding symptoms of grade II and III hemorrhoids (4,18,33,34). Complications after RBL are uncommon (1-3%). The most common complication is pain. Up to 90% of patients experience some pain. Proportion diminished to 38%, 21%, 13% and 7% on days 1, 2, 3 and 7. If the placement of rubber band is too close to the dentate line or if multiple ligations are done, pain can be severe (35-37). Other complications include minor bleeding from mucosal ulceration (65% on the day after the procedure), or delayed bleeding, 1-2 weeks after treatment (1-2%), thrombosis of corresponding external hemorrhoids distal to the band (2-3%), urinary retention, vasovagal reaction (up to 30%), fall off rubber bands usually occurs in larger piles, and after the first or second discharge, infection (0.05-0.09%) and extremely rarely, intraabdominal bleeding and pelvic sepsis. The recurrence rates are between 11-50% and are higher when the follow-up is longer (38-40). Two separate cases of meningitis have also been reported, as well as pyelphlebitis and multiple cases of pyogenic liver abscesses, and a case of endocarditis following hemorrhoidal banding (29,41-43). Extremely rarely, cases of

tetanus and necrotizing perineal soft tissue infections are described after RBL. Six deaths due to septic complications are described, with *Escherichia coli* and *Clostridium* bacteria isolated at autopsy (29).

Doppler-guided hemorrhoidal artery ligation or Transanal Hemorrhoidal Dearterialisation (THD) or DG HAL or Hemorrhoidal Artery Ligation (HALO). This technique was introduced in 1995 by the Japanese surgeon Morinaga (44,45). The method was successful in 75% with minor complications such as bleeding (9-11%), urinary retention (10%), rectal pain, tenesmus (usually transient), and rarely constipation and fissure (<2%). A case of a brain abscess caused by *Streptococcus milleri* was also reported (46). Reported recurrence is rather high, 12-16.7% for grade II, without significant difference in patients with grade III hemorrhoids and higher for grade IV hemorrhoids (11,1-59,3%) (47-49). The recurrence rate in one year or longer follow-up was 10,8% for prolapse, 9.7% for bleeding and 8.7% for pain at defecation (50). The method is most effective for II or III degree of hemorrhoids. It is not recommended for external hemorrhoids. For prolapsing component plication of the prolapsing mucosa was proposed in order to avoid recurrence (THD target mucopexy) (51,52). Modification of this method for the treatment of III and IV grade of hemorrhoids combines DGHAL with plication of the prolapsed rectal mucosa - DGHAL with Recto-Anal-Repair (53).

Vascular Z-shaped ligation is another modification which implies fixation and mucopexy. It is ensured by a single suture without making tissue excision and can be applied on all grades of internal hemorrhoids. Depending on the tissue necrosis severe septic complications can appear (54).

Emorrhoid is a new technique described last year by Vidal. Superior rectal arteries are occluded with embolization coils through an arterial catheter by endovascular route. Vascular approach is quite aggressive but avoids anal and rectal trauma, leading to a reduction in this morbidity. Few case reports have demonstrated the efficacy of embolization of the superior rectal arteries for grade II hemorrhoids with rectal bleeding. The possible complications are bleeding due to partial embolization, rectal ischemia and those related to the femoral puncture (55,56).

The disadvantage of all nonexcisional methods is the lack of histological specimens. Rates of 1-2% of hemorrhoidal specimens are quoted to contain occult malignancy, but without the support of objective data. In 20 years period in 21.257 hemorrhoidectomies which have been performed at Ferguson Hospital, only one instance of unsuspected carcinoma of the anus was diagnosed solely by microscopic analysis of a specimen that was taken at hemorrhoidectomy. Based on this information, it is recommended to perform selective rather than routine pathologic evaluation of hemorrhoidectomy specimens (57, 58).

## Operative treatment

First surgical procedure for treatment of hemorrhoids in modern surgical era was described by Frederic Salmon, the founder of St. Marks' Hospital, in 1871.

Some techniques are not in use any more, like Clamp and cautery hemorrhoidectomy (59), Pile 'suture' method, described in 1978 by Faraq (60,61) and Internal Anal Sphincterotomy (62).

Having in mind the extensity of mucosal resection, operative treatment can be with segmental resection: Open hemorrhoidectomy - Milligan-Morgan, Closed hemorrhoidectomy - Ferguson, Submucosal hemorrhoidectomy - Parks, and with circular resection: Reconstructive hemorrhoidectomy - Fansler-Anderson-Arnold, Supra-anodermal hemorrhoidectomy - Whitehead, Stapled hemorrhoidopexy - Longo.

Open hemorrhoidectomy - Milligan-Morgan is the most commonly used technique and widely considered to be the most effective surgical technique, very often called conventional hemorrhoidectomy. It is the „gold standard“ for the treatment of symptomatic hemorrhoids grades III and IV. The method was developed in the UK, in 1937, by surgeons Milligan and Morgan (63,64). Pain is the most important complaint after this technique. Possible surgical complications include early or delayed postoperative hemorrhage, urinary retention, recurrence of hemorrhoids, and passive or urge incontinence, anal stenosis, infection and even Fournier's gangrene, with an average complication rate of <10% (65 ,66).

Closed hemorrhoidectomy - Ferguson, technique is developed in the USA by Ferguson and Heaton in 1952, where it is the „gold standard“ for hemorrhoidal operative treatment. The method is a modification of Milligan-Morgan technique, with idea that closure of wounds will result in less pain, and the indications are similar (67). Evaluation of almost 90.000 operations showed no differences in complication rate between open and closed technique (68), but others reported less pain compared with open hemorrhoidectomy during the early postoperative period and 67-92% of patients are asymptomatic after 5 years (69,70).

Submucosal hemorrhoidectomy - Parks, procedure was developed in the 1950s, by Sir Alan Parks. Submucosal reconstructive hemorrhoidectomy was more difficult to learn, compared to other techniques, and never was a popular operation due to its difficulty and duration, the amount of blood loss, and the risk of incontinence, which is why it was abandoned (71).

Supra-anodermal hemorrhoidectomy - Whitehead circumferential hemorrhoidectomy. The method was first described by Whitehead in 1882. Initially, the procedure was reserved only for circumferential hemorrhoids, but due to high complication rates, hemorrhage, anal stenosis and ectropion (Whitehead's deformity), the procedure was abandoned. Still, some authors have shown that this procedure has its place in selected cases

of circumferential hemorrhoids (72). In order to avoid well-known complications such as anal stricture and anal mucosal eversion, few surgeons introduced modification to the original Whitehead's operation performing W-shaped circular incision with preservation of perianal skin (73).

Recent advances in development of sophisticated instruments, which can be used in standard operative techniques, that include a bipolar electrothermal device (Ligasure-Covidien), ultrasonic-Harmonic scalpel (Ethicon Endosurgery) and circular staplers have provided effective alternatives, resulting in less postoperative pain and perioperative blood loss. They were developed in order to minimize thermal injury to the tissue and therefore complications.

Stapled hemorrhoidopexy (PPH-Procedure for Prolapsed Hemorrhoids-Longo), Circumferential mucosectomy - Stapled Transanal Rectal Resection (STARR). The first aim of this technique was to treat internal mucosal prolapse and obstructed defecation. Later, Longo in 1998 proposed it for the treatment of hemorrhoids (74,75). In 2007, the UK National Institute for Health and Clinical Excellence (NICE) issued its updated guidance on PPH use. Stapled hemorrhoidopexy was recommended as a possible treatment for patients with prolapsed internal hemorrhoids (76). The main disadvantage of the technique is the absence of treating external hemorrhoids and skin tags. Complication rate of 20.2% is similar to conventional hemorrhoidectomy (77). Bleeding occurs in 4.2-7.5%. Thrombosis of the external hemorrhoidal plexus, pain and proctalgia, urinary retention, anal stenosis (0.8-5.0%), local abscess or fistula, urgency, sphincter damage with fecal incontinence are some of the reported complications (12-36%) (78-80). Unusual complications reported in the literature include several cases of intra-abdominal bleeding from intramural hematoma, sepsis, retroperitoneal sepsis, rectovaginal fistula, rectal pocket and rectal diverticulum, rectal obliteration, rectal perforation due to staple line dehiscence with retroperitoneum and pneumomediastinum (81-88). Unfortunately, one patient was reported with lethal sepsis from Fournier's gangrene (89).

Laser hemorrhoidoplasty-LHP and hemorrhoidectomy (carbon dioxide, argon and neodymium-aluminium garnet-YAG) are new techniques for treating hemorrhoidal disease. Laser therapy is painless, but more costly, and provides no major advantages over other methods (90,91).

Atomizing hemorrhoids is a new technique to remove hemorrhoids. A medical device called the Atomizer™ was developed specifically to atomize tissue. An innovative waveform of electrical current and a specialized electrical probe, the Atomizer Wand™, was created for this purpose. With a wave of the Atomizer Wand™, the hemorrhoids are simply excised or one or more cell layers are vaporized at a time. The hemorrhoids are essentially disintegrated into an aerosol of carbon and water molecules. As a result, the surgeon

operates with minimal bleeding, and gets better hemostasis than with traditional electro-surgical techniques. There are no published results after treatment with this technique, yet, so clinical evaluation is needed in the future.

## Discussion

Everybody agree today that grade I hemorrhoids should be treated conservatively. Medical therapy is the only approach that addresses the underlying causes of symptomatic hemorrhoids. It can be used alone, prior to other treatment modalities, or in combination with other procedures (6, 92).

According to two meta-analyses that compared outcomes of 18 prospective, randomized trials, among sclerotherapy, RBL and IRC, for grade II hemorrhoids, RBL has the fewest recurrent symptoms and the lowest rate of retreatment, but another meta-analysis preferred IRC as the initial strategy because of less postprocedural pain (93-95).

Most patients with grade I, II, and III hemorrhoidal disease in whom medical treatment fails may be effectively treated with office-based procedures, such as banding, sclerotherapy and infrared coagulation. Hemorrhoid banding is the most effective option (4). In a British survey of almost 900 general and colorectal surgeons, RBL was the most common procedure performed, followed by sclerotherapy and hemorrhoidectomy (27).

For grade III hemorrhoids THD is as effective as PPH in terms of success rate, operation time, postoperative complications and incidence of recurrence (96-98). Lucarelli compared these two techniques in patients with grade III and IV hemorrhoids and reported significantly higher recurrence rate after THD (25.4% vs. 8.2%)(99). A randomised trial comparing THD with conventional hemorrhoidectomy concluded that THD could be performed as day-case procedure and has less pain, so the return to work is earlier (100).

For grade IV hemorrhoids, excisional hemorrhoidectomy is the most effective treatment and remains the "gold standard" of treatment. Surgical hemorrhoidectomy should be reserved for patients who are refractory to office procedures, who are unable to tolerate office procedures, who have large external hemorrhoids, or who have combined internal and external hemorrhoids with significant prolapse (grades III to IV) (4). This treatment is reserved for only 10% of patients (101). A major disadvantage of hemorrhoidectomy is postoperative pain. Early urinary retention is common (2-36%), postoperative bleeding (early and delayed) sometimes requires reoperation (0.03-6%); bacteraemia and septic complications (0.5%-5.5%), anal discharge, wound discharge (up to three months), anal stenosis (0-6%), anal sphincter injury leading to incontinence (2-30%), recurrence are described complications (62,102, 103). Although surgical hemorrhoidectomy is

associated with the highest complication rate, it is the most effective treatment for hemorrhoidal disease due to the best long-term results in terms of recurrence (2-5%) (33). Fergusone technique offers faster healing (104), but because of wound dehiscence healing could be longer compared to open technique (105).

Ligasure™ use in hemorrhoidectomy results in less postoperative pain, less urinary retention, shorter operation time, shorter hospitalization, less blood loss, faster wound healing and convalescence compared to conventional hemorrhoidectomy. However, after 14 days no significant differences were found in pain measurement and complications (106-110). Although the Ligasure method is simple and easy to learn it is more expensive than conventional technique. When compared to hemorrhoidectomy by the ultrasonic scalpel, bipolar diathermy requires a shorter operating time, but is painful as closed hemorrhoidectomy with the ultrasonic scalpel (111). Ligasure hemorrhoidectomy for patients with grade III and IV hemorrhoids is associated with shorter operative time and less postoperative pain compared to Harmonic Scalpel™ hemorrhoidectomy (112).

Good results have been reported also using stapled hemorrhoidopexy (113). A meta-analysis that compared surgical outcomes between PPH and hemorrhoidectomy included 27 randomized, controlled trials with 2279 procedures, showed that PPH was associated with less postoperative pain, less postoperative urinary retention, earlier return of bowel function, shorter hospital stay, quicker return to normal activities, and better wound healing, as well as higher degree of patient satisfaction (114,115). However, in the longer term, PPH was associated with a higher rate of recurrence (5.7% vs. 1% at one year and 8.5%

vs. 1.5% in the long term) (116-119). Although a popular method for the treatment of hemorrhoids in its beginning, considering the recurrence rate, cost of stapling device, potential serious complications and technically demanding procedure, there is the tendency to restrict the use of PPH to the management of three- and four-quadrant 3rd degree of hemorrhoids with prolapsed internal hemorrhoids. In the UK in 2008-9, only 10% of the hemorrhoidectomy procedures were performed by PPH (120). In fact, long-term results demonstrate that in grade IV hemorrhoids the rates of recurrence and patient dissatisfaction with the stapler treatment are significantly higher than after the Milligan-Morgan procedure (121,122).

### Conclusion

Treatment of hemorrhoidal disease is complex with many techniques available. Surgeons should be well aware of all treatment modalities from dietary and lifestyle modification to radical surgery management with all their complications. Technique should be tailored not only to the grade of the hemorrhoids and patient's symptoms, but also, not less important, on the experience of the surgeon.

Grade I hemorrhoids should be treated conservatively.

Grade II and III hemorrhoids should be treated first with RBL, or in combination with IS, and after this with THD.

Grade IV hemorrhoids should be treated with excisional hemorrhoidectomy, open or closed, with new sophisticated instruments, which is the most effective techniques and which has remained the "gold standard".

## References

1. Johanson JF, Sonnenberg A. The prevalence of hemorrhoids and chronic constipation. An epidemiologic study. *Gastroenterology* 1990;98:380-6. [[PubMed](#)]
2. Riss S, Weiser FA, Schwameis K, Riss T, Mittlböck M, Steiner G, et al. The prevalence of hemorrhoids in adults. *Int J Colorectal Dis* 2012;27:215–20. [[CrossRef](#)][[PubMed](#)]
3. Alonso-Coello P, Mills E, Heels-Ansdell D, López-Yarto M, Zhou Q, Johanson JF, et al. Fiber for the treatment of hemorrhoids complications: a systematic review and metaanalysis. *Am J Gastroenterol* 2006;101:181-8. [[CrossRef](#)][[PubMed](#)]
4. Rivadeneira DE, Steele SR, Ternent C, Chalasani S, Buie WD, Rafferty JL. Standards Practice Task Force of The American Society of Colon and Rectal Surgeons. Practice Parameters for the Management of Hemorrhoids [Revised 2010]. *Dis Colon Rectum* 2011;54:1059–64. [[CrossRef](#)][[PubMed](#)]
5. Menteş BB, Görgül A, Tatlıcioğlu E, Ayoğlu F, Unal S. Efficacy of calcium dobesilate in treating acute attacks of hemorrhoidal disease. *Dis Colon Rectum* 2001;44:1489–95. [[CrossRef](#)][[PubMed](#)]
6. Misra MC, Parshad R. Randomized clinical trial of micronized flavanoids in the early control of bleeding from acute internal haemorrhoids. *Br J Surg* 2000;87:868–72. [[CrossRef](#)][[PubMed](#)]
7. Perera N, Liolitsa D, Iype S, Croxford A, Yassin M, Lang P, et al. Phlebotonics for haemorrhoids. *Cochrane Database Syst Rev* 2012;15:8. [[CrossRef](#)][[PubMed](#)]
8. Alonso-Coello P, Zhou Q, Martinez-Zapata MJ, Mills E, Heels-Ansdell D, Johanson JF, et al. Meta-analysis of flavonoids for the treatment of haemorrhoids. *Br J Surg* 2006;93:909–20. [[CrossRef](#)][[PubMed](#)]
9. Lord PH. A new regime for the treatment of haemorrhoids. *Proc R Soc Med* 1968;61:935-6. [[PubMed](#)]
10. Norman DA, Newton R, Nicholas GV. Direct current electrotherapy of internal hemorrhoids: an effective, safe, and painless outpatient approach. *Am J Gastroenterol* 1989;84:482-7. [[PubMed](#)]
11. Yang R, Migikovsky B, Peicher J, Laine L. Randomized, prospective trial of direct current versus bipolar electrocoagulation for bleeding internal hemorrhoids. *Gastrointest Endosc* 1993;39:766–9. [[CrossRef](#)][[PubMed](#)]
12. Griffith CDM, Morris DL, Ellis I, Wherry DC, Hardcastle JD. Out-patient treatment of haemorrhoids with bipolar diathermy coagulation. *Br J Surg* 1987; 74:827. [[CrossRef](#)][[PubMed](#)]
13. Jensen DM, Jutabha R, Machicado GA, Jensen ME, Chenq S, Gombein J, et al. Prospective randomized comparative study of bipolar electrocoagulation versus heater probe for treatment of chronically bleeding internal hemorrhoids. *Gastrointest Endosc* 1997;46:435–43. [[CrossRef](#)][[PubMed](#)]
14. Dennison A, Whiston RJ, Rooney S, Chadderton RD, Wherry DC, Morris DL. A randomized comparison of infrared photocoagulation with bipolar diathermy for the outpatient treatment of hemorrhoids. *Dis Colon Rectum* 1990;33:32–4. [[CrossRef](#)][[PubMed](#)]
15. Neiger S. Hemorrhoids in everyday practice. *Proctology* 1979;2:22-8.
16. Madoff RD, Fleshman JW. Clinical Practice Committee and American Gastroenterological Association: American Gastroenterological Association technical review on the diagnosis and treatment of hemorrhoids. *Gastroenterology* 2004;126:1463–73. [[CrossRef](#)][[PubMed](#)]
17. Poen AC, Felt-Bersma RJ, Cuesta MA, Deville W, Meuwissen SG. A randomized controlled trial of rubber band ligation versus infrared coagulation in the treatment of internal haemorrhoids. *Eur J Gastroenterol Hepatol* 2000;12:535-9. [[CrossRef](#)][[PubMed](#)]
18. Cataldo P, Ellis N, Gregorcyk S, Hyman N, Buie WD, Church J, et al. Practice parameters for the management of hemorrhoids [revised]: Standards Practice Task Force—the American Society of Colon and Rectal Surgeons. *Dis Colon Rectum* 2005; 48:189–94. [[CrossRef](#)][[PubMed](#)]
19. Kaidar-Person O, Person B, Wexner SD. Hemorrhoidal disease: A comprehensive review. *J Am Coll Surg* 2007;204:102-17. [[CrossRef](#)][[PubMed](#)]
20. Guindic LC. Treatment of uncomplicated hemorrhoids with a Hemor-Rite® cryotherapy device: a randomized, prospective, comparative study. *J Pain Res* 2014;7:57–63. [[PubMed](#)]
21. Oh C. Problems of cryohemorrhoidectomy. *Cryobiology* 1982;19:283-6. [[CrossRef](#)][[PubMed](#)]
22. Gupta PJ. Radio-frequency ablation and plication of hemorrhoids. *Tech Coloproctol* 2003;7:45–50. [[CrossRef](#)][[PubMed](#)]
23. Filingeri V, Angelico R, Bellini MI, Manuelli M, Sforza D. Prospective randomised comparison of rubber band ligation [RBL] and combined hemorrhoidal radiocoagulation [CHR]. *Eur Rev Med Pharmacol* 2012;16:224-9. [[PubMed](#)]
24. Hachiro Y, Kunimoto M, Abe T, Kitada M, Ebisawa Y. Aluminum potassium sulfate and tannic acid [ALTA] injection as the mainstay of treatment for internal hemorrhoids. *Surgery Today* 2011;41:806-9. [[CrossRef](#)][[PubMed](#)]
25. Tokunaga Y, Sasaki H. Impact of Less Invasive Treatments Including Sclerotherapy With a New Agent and Hemorrhoidopexy for Prolapsing Internal Hemorrhoids. *Int Surg* 2013;98:210–3. [[CrossRef](#)][[PubMed](#)]
26. Kanellos I, Goulimaris I, Vakalis I, Dadoukis I. Long-term evaluation of sclerotherapy for haemorrhoids. A prospective study. *Int J Surg Invest* 2000;2:295-8. [[PubMed](#)]
27. Al-Ghnamiehl R, Andrew JM, Leather A, Rennie JA. Survey of methods of treatment of haemorrhoids and complications of injection sclerotherapy. *Ann R Coll Surg Engl* 2001;83:325-8. [[PubMed](#)]
28. Santos G, Novell JR, Khoury G, Winslet MC, Lewis AA. Long-term results of large-dose, single-session phenol injection sclerotherapy for hemorrhoids. *Dis Colon Rectum* 1993;36:958-61. [[CrossRef](#)][[PubMed](#)]
29. Guy RJ, Seow-Choen F. Septic complications after treatment of haemorrhoids. *Br J Surg* 2003;90:147-56. [[CrossRef](#)][[PubMed](#)]
30. Bullock N. Impotence after sclerotherapy of haemorrhoids: case reports. *BMJ* 1997;314:419. [[CrossRef](#)][[PubMed](#)]

31. Blaisdell PC. Prevention of massive hemorrhage secondary to hemorrhoidectomy. *Surg Gynecol Obstet* 1958;106:485-8. [[PubMed](#)]
32. Barron J. Office ligation of internal hemorrhoids. *Am J Surg* 1963;105:563-70. [[CrossRef](#)][[PubMed](#)]
33. MacRae HM, McLeod RS. Comparison of hemorrhoidal treatments: a meta-analysis. *Can J Surg* 1997;40:14-7. [[PubMed](#)]
34. Shanmugam V, Thaha MA, Rabindranath KS, Campbell KL, Steele RJ, Loudon MA. Rubber band ligation versus excisional haemorrhoidectomy for haemorrhoids. *Cochrane Database Syst Rev* 2005. [[PubMed](#)]
35. Komborozos VA, Skrekas GJ, Pissiotis CA. Rubber band ligation of symptomatic internal hemorrhoids: results of 500 cases. *Dig Surg* 2000;17:71-6. [[CrossRef](#)][[PubMed](#)]
36. Watson NFS, Liptrott S, Maxwell-Armstrong CA. A prospective audit of early pain and patient satisfaction following out-patient band ligation of haemorrhoids. *Ann R Coll Surg Engl* 2006;88:275-9. [[CrossRef](#)][[PubMed](#)]
37. Forlini A, Manzelli A, Quresima S, Forlini M. Long-term result after rubber band ligation for hemorrhoids. *Int J Colorectal Dis* 2009;24:1007-10. [[CrossRef](#)][[PubMed](#)]
38. El Nakeeb AM, Fikry AA, Omar WH, Fouda EM, El Metwally TA, Ghazy HE, et al. Rubber band ligation for 750 cases of symptomatic hemorrhoids out of 2200 cases. *World J Gastroenterol* 2008;14:6525-30. [[CrossRef](#)][[PubMed](#)]
39. Bat L, Melzer E, Koler M, Dreznick Z, Shemesh E. Complications of rubber band ligation of symptomatic internal haemorrhoids. *Dis Colon Rectum* 1993;36:287-90. [[CrossRef](#)][[PubMed](#)]
40. Iyer VS, Shrier I, Gordon PH. Long-term outcome of rubber band ligation for symptomatic primary and recurrent internal hemorrhoids. *Dis Colon Rectum* 2004;47:1364-70. [[CrossRef](#)][[PubMed](#)]
41. McCloud JM, Jameson JS, Scott AN. Life-threatening sepsis following treatment for haemorrhoids: a systematic review. *Colorectal Dis* 2006;8:748-55. [[CrossRef](#)][[PubMed](#)]
42. Chau NG, Bhatia S, Raman M. Pylephlebitis and pyogenic liver abscesses: a complication of hemorrhoidal banding. *Can J Gastroenterol* 2007;21:601-3. [[PubMed](#)]
43. Tejirian T, Abbas MA. Bacterial endocarditis following rubber band ligation in a patient with a ventricular septal defect: report of a case and guideline analysis. *Dis Colon Rectum* 2006;49:1931-3. [[CrossRef](#)][[PubMed](#)]
44. Morinaga K, Hasuda K, Ikeda T. A novel therapy for internal hemorrhoids: Ligation of the hemorrhoidal artery with a newly devised instrument in conjunction with a Doppler flowmeter. *Am J Gastroenterol* 1995;90:610-3. [[PubMed](#)]
45. Ratto C. THD Doppler procedure for hemorrhoids: the surgical technique. *Tech Coloproctol* 2014;18:291-8. [[CrossRef](#)][[PubMed](#)]
46. Berkela AEM, Witteb ME, Koopa R, Hendrixc MGR, Klaase JM. Brain abscess after Transanal Hemorrhoidal Dearterialization: A Case Report. *Case Rep Gastroenterol* 2013;7:208-13. [[CrossRef](#)][[PubMed](#)]
47. Bursics A, Morvay K, Kupcsulik P, Flautner L. Comparison of early and 1-year follow-up results of conventional hemorrhoidectomy and hemorrhoid artery ligation: a randomized study. *Int J Color Dis* 2004;19:176-80. [[CrossRef](#)][[PubMed](#)]
48. Denoya P, Tam J, Bergamaschi R. Hemorrhoidal dearterialization with mucopexy versus hemorrhoidectomy: 3-year follow-up assessment of a randomized controlled trial. *Tech Coloproctol* 2014;18:1081-85. [[CrossRef](#)][[PubMed](#)]
49. Infantino A, Altomare DF, Bottini C, Bonanno M, Mancini S, Yalti T, et al. Prospective randomized multicentre study comparing stapler haemorrhoidopexy with Doppler-guided transanal haemorrhoidal dearterialization for third-degree haemorrhoids. *Colorectal Dis* 2012;14:205-11. [[CrossRef](#)][[PubMed](#)]
50. Giordano P, Overton J, Madeddu F, Zaman S, Gravante G. Transanal hemorrhoidal dearterialization: a systematic review. *Dis Colon Rectum* 2009;52:1665-71. [[CrossRef](#)][[PubMed](#)]
51. Giordano P, Tomasi I, Pascariello A, Mills E, Elahi S. Transanal dearterialization with targeted mucopexy is effective for advanced haemorrhoids. *Colorectal Dis* 2014;16:373-6. [[CrossRef](#)][[PubMed](#)]
52. Ratto C, Giordano P, Donisi L, Parello A, Litta F, Doglietto GB. Transanal haemorrhoidal dearterialization [THD] for selected fourth-degree haemorrhoids. *Tech Coloproctol* 2011;15:191-7. [[CrossRef](#)][[PubMed](#)]
53. Walega P, Romaniszyn M, Kenig J, Herman R, Nowak W. Doppler-Guided Hemorrhoid Artery Ligation with Recto-Anal-Repair Modification: Functional Evaluation and Safety Assessment of a New Minimally Invasive Method of Treatment of Advanced Hemorrhoidal Disease. *Scientific World Journal* 2012;2012:324040. [[CrossRef](#)][[PubMed](#)]
54. Gemici K, Okuş A, Ay S. Vascular Z-shaped ligation technique in surgical treatment of haemorrhoid. *World J Gastrointest Surg* 2015;7:10-4. [[PubMed](#)]
55. Vidal V, Louis G, Bartoli JM, Sielezneck Y. Embolization of the hemorrhoidal arteries [the emborroid technique]: a new concept and challenge for interventional radiology. *Diagn Interv Imaging* 2014;95:307-15. [[CrossRef](#)][[PubMed](#)]
56. Vidal V, Sapoval M, Sielezneck Y, De Parades V, Tradi F, Louis G, et al. Emborroid: A New Concept for the Treatment of Hemorrhoids with Arterial Embolization: The First 14 Cases. *Cardiovasc Intervent Radiol* 2015;38:72-8. [[CrossRef](#)][[PubMed](#)]
57. Cataldo PA, MacKeigan JM. The necessity of routine pathologic evaluation of hemorrhoidectomy specimens. *Surg Gynecol Obstet* 1992;174[4]:302-4. [[PubMed](#)]
58. Lemarchand N, Tanne F, Aubert M, Benfredj P, Denis J, Dubois-Arnous N, et al. Is routine pathologic evaluation of hemorrhoidectomy specimens necessary? *Gastroenterol Clin Biol* 2004;28[8-9]:659-61. [[PubMed](#)]
59. Chamberlain J, Johnstone JM. The results of hemorrhoidectomy by clamp and cautery. *Surg Gynaecol Obstet* 1970;131:745-7. [[PubMed](#)]
60. Faraq AE. Pile Suture: A new technique for the treatment of hemorrhoids. *Br J Surg* 1978;65:293-5. [[CrossRef](#)][[PubMed](#)]
61. Awojobi OA. Modified pile suture in the outpatient treatment of hemorrhoids. A preliminary report. *Dis Colon Rectum* 1983;26:95-7. [[PubMed](#)]
62. Keighley MR, Buchmann P, Minervini S, Arabi Y, Alexander-Williams J. Prospective trials of minor surgical procedures and high-fibre diet for haemorrhoids. *Br Med J* 1979;2[6196]:967-9. [[CrossRef](#)][[PubMed](#)]
63. Milligan ETC, Morgan CN, Jones LE, Officer R. Surgical anatomy of the anal canal and the operative treatment of hemorrhoids. *Lancet* 1937;2:1119-24. [[CrossRef](#)]
64. Mattana C, Coco C, Manno A, Verbo A, Rizzo GL, Petito L, et al. Stapled hemorrhoidopexy and Milligan-Morgan hemorrhoidectomy in the cure of fourth degree hemorrhoids: long-term evaluation and

- clinical results. *Dis Colon Rectum* 2007;50:1770–5. [[CrossRef](#)][[PubMed](#)]
65. Sayfan J. Complications of Milligan-Morgan hemorrhoidectomy. *Dig Surg* 2001;18:131-3. [[CrossRef](#)][[PubMed](#)]
  66. Cakmak GK, Irkorucu O, Ucan BH, Karakaya K. Fournier's Gangrene after Open Hemorrhoidectomy without a Predisposing Factor: Report of a Case and Review of the Literature. *Case Rep Gastroenterol* 2009;3:147–55. [[CrossRef](#)][[PubMed](#)]
  67. Ferguson JA, Heaton JR. Closed hemorrhoidectomy. *Dis Colon Rectum* 1959;2:176–9. [[CrossRef](#)]
  68. Wolf JS, Munoz JJ, Rozin JD. Survey of hemorrhoidectomy practices: open versus closed techniques. *Dis Colon Rectum* 1979;22:536-8. [[CrossRef](#)]
  69. You SY, Kim SH, Chung CS, Lee DK. Open vs. closed hemorrhoidectomy. *Dis Colon Rectum* 2005;48:108-13. [[CrossRef](#)][[PubMed](#)]
  70. Guenin MO, Rosenthal E, Kern B, Peterli R, von Flüe M, Ackermann C. Ferguson hemorrhoidectomy: long-term results and patient satisfaction after Ferguson's hemorrhoidectomy. *Dis Colon Rectum* 2005;48:1523–27. [[PubMed](#)]
  71. Rosa G, Lolli P, Piccinelli D, Vicenzi L, Ballarin A, Bonomo S, et al. Submucosal reconstructive hemorrhoidectomy [Parks' operation]: a 20-year experience. *Tech Coloproctol* 2005;9[3]:209-14. [[CrossRef](#)][[PubMed](#)]
  72. Maria G, Alfonsi G, Nigro C, Brisinda G. Whitehead's hemorrhoidectomy. A useful surgical procedure in selected cases. *Tech Coloproctol* 2001;5:93-6. [[CrossRef](#)][[PubMed](#)]
  73. Kim JH, Kang DW, Sun BH. Revisit the original whitehead hemorrhoidectomy: the postoperative results of W-shaped circular incision & preservation of perianal skin. *J Korean Soc Coloproctol* 1998;14:101-7.
  74. Longo A. Treatment of hemorrhoids disease by reduction of mucosa and haemorrhoidal prolapse with a circular suturing device: A new procedure. 6th World Congress of Endoscopy Surgery. Naples; Munday Editore 1998. p. 777-84.
  75. Pescatori M, Favetta U, Dedola S, Orsini S. Transanal stapled excision of rectal mucosal prolapse. *Tech Coloproctol* 1997;1:96–8.
  76. Stapled haemorrhoidopexy for the treatment of haemorrhoids. NICE technology appraisal guidance 128 [Internet]. 2007. Available from: [www.http://guidance.nice.org.uk/ta128](http://guidance.nice.org.uk/ta128).
  77. Tjandra JJ, Chan MK. Systematic review on the procedure for prolapse and hemorrhoids [stapled hemorrhoidopexy]. *Dis Colon Rectum* 2007;50:878–92. [[CrossRef](#)][[PubMed](#)]
  78. Pescatori M, Gagliardi G. Postoperative complications after procedure for prolapsed hemorrhoids [PPH] and stapled transanal rectal resection [STARR] procedures. *Techniques in coloproctology* 2008;12:7-19. [[CrossRef](#)][[PubMed](#)]
  79. Senagore AJ, Singer M, Abcarian H, Fleshman J, Corman M, Wexner S, Nivatvongs S. A prospective, randomized, controlled multicenter trial comparing stapled haemorrhoidopexy and Ferguson haemorrhoidectomy: perioperative and one year results. *Dis Colon Rectum* 2004;47:1824-36. [[CrossRef](#)][[PubMed](#)]
  80. Seow-Choen F. Stapled haemorrhoidectomy: pain or gain. *Br J Surg* 2001;88:1-3. [[CrossRef](#)][[PubMed](#)]
  81. Augustin G, Smud D, Kinda E, Majerovic M, Jelincic Z, Kekez T, et al. Intra-abdominal bleeding from a seromuscular tear of an ascending rectosigmoid intramural hematoma after stapled hemorrhoidopexy. *Can J Surg* 2009;52:E14-5. [[PubMed](#)]
  82. Petersen S, Hellmich G, Schumann D, Schuster A, Ludwig K. Early rectal stenosis following stapled rectal mucosectomy for hemorrhoids. *BMC Surgery* 2004;4:6. [[CrossRef](#)][[PubMed](#)]
  83. Dowden JE, Stanley JD, Moore RA. Obstructed defecation after stapled hemorrhoidopexy: a report of four cases. *Am Surg* 2010;76:622-5. [[PubMed](#)]
  84. Ravo B, Amato A, Bianco V, Boccasanta P, Bottini C, Carriero A, et al. Complications after stapled hemorrhoidectomy: can they be prevented? *Tech Coloproctol* 2002;6:83-8. [[CrossRef](#)][[PubMed](#)]
  85. Cipriani S, Pescatori M. Acute rectal obstruction after PPH stapled haemorrhoidectomy. *Colorectal Dis* 2002;4:367–70. [[CrossRef](#)][[PubMed](#)]
  86. Ripetti V, Caricato M, Arullani A. Rectal perforation, retroperitoneum, and pneumomediastinum after stapling procedure for prolapsed haemorrhoids: report of a case and subsequent consideration. *Dis Colon Rectum* 2002;45:268–70. [[CrossRef](#)][[PubMed](#)]
  87. Park YJ. Pneumoretroperitoneum After Procedure for Prolapsed Hemorrhoid. *Ann Coloproctol* 2013;29:256-8. [[CrossRef](#)][[PubMed](#)]
  88. Sutherland LM, Burchard AK, Matsuda K, Sweeney JL, Bokey EL, Childs PA, et al. A systematic review of stapled hemorrhoidectomy. *Arch Surg* 2002;137:1395-406. [[CrossRef](#)][[PubMed](#)]
  89. McCloud JM, Doucas H, Scott ADN, Jameson JS. Delayed presentation of life-threatening perineal sepsis following stapled haemorrhoidectomy: a case report. *Ann R Coll Surg Engl* 2007;89:301–2. [[CrossRef](#)][[PubMed](#)]
  90. Zahir KS, Edwards RE, Vecchia A, Dudrick SJ, Tripodi A. Use of the Nd-YAG laser improves quality of life and economic factors in the treatment of hemorrhoids. *G Conn Med* 2000;64:199-203. [[PubMed](#)]
  91. Plapler H, Hage R, Duarte J, Lopes N, Masson I, Cazarini C, et al. A new method for hemorrhoid surgery: intra hemorrhoidal diode laser, does it work? *PhotomedLaserSurg* 2009; 27[5]:819-23. [[PubMed](#)]
  92. Ho Y-H, Tan M, Seow-Choen F. Micronized purified flavonoid fraction compared favorably with rubber band ligation and fiber alone in the management of bleeding hemorrhoids: randomized controlled trial. *Dis Colon Rectum* 2000;43:66-9. [[CrossRef](#)][[PubMed](#)]
  93. Johanson JF, Rimm A. Optimal nonsurgical treatment of hemorrhoids: a comparative analysis of infrared coagulation, rubber band ligation, and injection sclerotherapy. *Am J Gastroenterol* 1992; 87:1600-6. [[PubMed](#)]
  94. MacRae HM, McLeod RS. Comparison of hemorrhoidal treatment modalities. A meta-analysis. *Dis Colon Rectum* 1995;38:687-94. [[CrossRef](#)][[PubMed](#)]
  95. Altomare DF, Roveran A, Pecorella G, Gaj F, Stortini E. The treatment of hemorrhoids: guidelines of the Italian Society of Colo-Rectal Surgery. *Tech Coloproctol* 2006;10:181–6. [[CrossRef](#)][[PubMed](#)]
  96. Sajid MS, Parampalli U, Whitehouse P, Sains P, McFall MR, Baig MK. A systematic review comparing transanal haemorrhoidal de-arterialisation to stapled haemorrhoidopexy in the management of haemorrhoidal disease. *Tech Coloproctol* 2012;16:1–8. [[CrossRef](#)]
  97. Giordano P, Nastro P, Davies A, Gravante G. Prospective evaluation of stapled haemorrhoidopexy versus transanal haemorrhoidal dearterialisation for stage II and III hemorrhoids: three-year outcomes. *Tech Coloproctol* 2011;15:67–73. [[CrossRef](#)][[PubMed](#)]

98. Festen S, van Hoogstraten MJ, van Geloven AA, Gerhards MF. Treatment of grade III and IV haemorrhoidal disease with PPH or THD. A randomized trial on postoperative complications and short-term results. *Int J Colorectal Dis* 2009;24:1401-5. [[CrossRef](#)][[PubMed](#)]
99. Lucarelli P, Picchio M, Caporossi M, De Angelis F, Di Filippo A, Stipa F, et al. Transanal haemorrhoidal dearterialisation with mucopexy versus stapler haemorrhoidopexy: a randomised trial with long-term follow-up. *Ann R Coll Surg Engl* 2013;95:246-51. [[CrossRef](#)][[PubMed](#)]
100. Bursics A, Morvay K, Kupcsulik P, Flautner L. Comparison of early and 1-year follow-up results of conventional hemorrhoidectomy and hemorrhoid artery ligation: a randomized study. *Int J Colorectal Dis* 2004;19:176-80. [[CrossRef](#)][[PubMed](#)]
101. Bleday R, Pena JP, Rothenberger DA, Goldberg SM, Buls JG. Symptomatic hemorrhoids: current incidence and complications of operative therapy. *Dis Colon Rectum* 1992;35:477-81. [[CrossRef](#)][[PubMed](#)]
102. Corman ML. *Colon and rectal surgery*. 4th ed. Philadelphia: Lippincott-Raven; 1998. p. 147-205. [[PubMed](#)]
103. Johannsson HO, Graf W, Pahlman L. Long-term results of haemorrhoidectomy. *Eur J Surg* 2002;168:485-9. [[CrossRef](#)][[PubMed](#)]
104. Ho YH, Buettner PG. Open compared with closed haemorrhoidectomy: meta-analysis of randomized controlled trials. *Tech Coloproctol* 2007;11:135-43. [[CrossRef](#)][[PubMed](#)]
105. Ho YH, Seow-Choen F, Tan M, Leong AF. Randomized controlled trial of open and closed haemorrhoidectomy. *Br J Surg* 1997;84:1729-30. [[CrossRef](#)][[PubMed](#)]
106. Milito G, Cadeddu F, Muzi MG, Nigro C, Farinon AM. Haemorrhoidectomy with Ligasure vs conventional excisional techniques: meta-analysis of randomized controlled trials. *Colorectal Dis* 2010;12:85-93 [[CrossRef](#)][[PubMed](#)]
107. Tan EK, Cornish J, Darzi AW, Papagrigoriadis S, Tekkis PP. Meta-analysis of short-term outcomes of randomized controlled trials of LigaSure vs conventional hemorrhoidectomy. *Arch Surg* 2007;142:1209-18. [[CrossRef](#)][[PubMed](#)]
108. Mastakov MY, Buettner PG, Ho YH. Updated meta-analysis of randomized controlled trials comparing conventional excisional haemorrhoidectomy with LigaSure for haemorrhoids. *Tech Coloproctol* 2008;12:229-39. [[CrossRef](#)][[PubMed](#)]
109. Nienhuijs SW, deHingh IH. Pain after conventional versus Ligasure haemorrhoidectomy. A meta-analysis. *Int J Surg* 2010;8:269-73. [[CrossRef](#)][[PubMed](#)]
110. Khanna R, Khanna S, Bhadani S, Singh S, Khanna AK. Comparison of Ligasure Hemorrhoidectomy with Conventional Ferguson's Hemorrhoidectomy. *Indian J Surg* 2010;72:294-7. [[CrossRef](#)][[PubMed](#)]
111. Tsunoda A, Sada H, Sugimoto T, Kano N, Kawana M, Sasaki T, et al. Randomized controlled trial of bipolar diathermy vs ultrasonic scalpel for closed hemorrhoidectomy. *World J Gastrointest Surg* 2011;3:147-52. [[CrossRef](#)][[PubMed](#)]
112. Kwok SY, Chung CC, Tsui KK, Li MKW. A double-blind randomized trial comparing Ligasure™ and Harmonic Scalpel™ hemorrhoidectomy. *Dis Colon Rectum* 2005;48:344-8. [[CrossRef](#)][[PubMed](#)]
113. Boccasanta P, Capretti PG, Venturi M, Cioffi U, De Simone M, Salamina G, et al. A randomised controlled trial between stapled circumferential mucosectomy and conventional circular hemorrhoidectomy in advanced hemorrhoids with external mucosal prolapse. *Am J Surg* 2001;182:64-8. [[CrossRef](#)][[PubMed](#)]
114. Burch J, Epstein D, Sari AB, Weatherly H, Jayne D, Fox D, et al. Stapled haemorrhoidopexy for the treatment of haemorrhoids: a systematic review. *Colorectal Dis* 2009;11:233-43. [[CrossRef](#)][[PubMed](#)]
115. Pavlidis T, Papaziogas B, Souparis A, Patsas A, Koutelidakis I, Papaziogas T. Modern stapled Longo procedure vs. conventional Milligan-Morgan hemorrhoidectomy: a randomized controlled trial. *Int J Colorectal Dis* 2002;17:50-3. [[PubMed](#)]
116. Giordano P, Gravante G, Sorge R, Ovens L, Nastro P. Longterm outcomes of stapled hemorrhoidopexy vs conventional hemorrhoidectomy: a meta-analysis of randomized controlled trials. *Arch Surg* 2009;144:266-72. [[CrossRef](#)][[PubMed](#)]
117. Shao WJ, Li GC, Zhang ZH, Yang BL, Sun GD, Chen YQ. Systematic review and meta-analysis of randomized controlled trials comparing stapled haemorrhoidopexy with conventional haemorrhoidectomy. *Br J Surg* 2008;95:147-60. [[CrossRef](#)][[PubMed](#)]
118. Nisar PJ, Acheson AG, Neal K, Scholefield JH. Stapled haemorrhoidopexy compared with conventional haemorrhoidectomy: systematic review of randomized controlled trials. *Dis Colon Rectum* 2004;47:1837-45. [[CrossRef](#)][[PubMed](#)]
119. Jayaraman S, Colquhoun PH, Malthaner RA. Stapled haemorrhoidopexy is associated with a higher long-term recurrence rate of internal hemorrhoids compared with conventional excisional hemorrhoidal surgery. *Dis Colon Rectum* 2007;50:1297-305. [[CrossRef](#)][[PubMed](#)]
120. Stapled haemorrhoidopexy for the treatment of haemorrhoids. NICE technology appraisal guidance 128 [Internet]. 2007. Available from: [www.http://guidance.nice.org.uk/ta128](http://guidance.nice.org.uk/ta128).
121. Racialbuto A, Aliotta I, Corsaro G, Lanteri R, Di Cataldo A, Licata A. Hemorrhoidal stapler prolapsectomy vs. Milligan-Morgan hemorrhoidectomy: a long-term randomized trial. *Int J Colorectal Dis* 2004;19:239-44. [[CrossRef](#)][[PubMed](#)]
122. Jayaraman S, Colquhoun PH, Malthaner RA. Stapled versus conventional surgery for hemorrhoids. *Cochrane Database Syst Rev* 2006;18[4]:CD005393. [[PubMed](#)]

## DOKLE SMO STIGLI U LEČENJU HEMOROIDA

Vladimir Čuk<sup>1,2</sup>, Milena Šćepanović<sup>1</sup>, Igor Krđžić<sup>1</sup>, Marko Kenić<sup>1</sup>,  
Bojan Kovačević<sup>1,2</sup>, Vladica Čuk<sup>1</sup>

Kliničko bolnički centar Zvezdara, Klinika za hirurgiju „Nikola Spasić“, Beograd, Srbija<sup>1</sup>  
Univerzitet u Beogradu, Stomatološki fakultet, Beograd, Srbija<sup>2</sup>

Hemoroidi su veoma često i obično hronično anorektalno oboljenje definisano simptomatskim uvećanjem i ispadanjem normalnih analnih jastučića. Hemoroidalna bolest je stara koliko i ljudska rasa.

Od antičkih vremena do danas korišćeni su mnogi načini lečenja, nehirurški i hirurški, u pokušaju da se otklone simptomi i uskladi zadovoljstvo bolesnika sa prihvatljivim komplikacijama, sa boljim ili lošijim rezultatima. Rasprava o tome koja je najbolja metoda lečenja traje do danas.

Ovaj članak predstavlja različite mogućnosti lečenja hemoroida tokom vremena, sa posebnim osvrtom na efikasnost pojedinih metoda i komplikacije koje ih prate, kao i savremene preporuke o lečenju hemoroidalne bolesti. *Acta Medica Medianae* 2015; 54(1):97-106.

**Ključne reči:** hemoroidi, ambulantno lečenje, hirurške intervencije