

## Outpatient management of proctologic disease. Which techniques for local anesthesia? The experience of a single center

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**SUMMARY: Outpatient management of proctologic disease. Which techniques for local anesthesia? The experience of a single center.**

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**Introduction.** Since 1899 outpatient management of surgical patients had been increasing, becoming the best option when possible. In 1988 was described the first experience of outpatient management of proctologic disease. Advances in local anesthesia techniques have improved the outpatient approach to surgical disease, particularly in patients with proctological diseases.

**Methods.** From 2010 to 2016, 1160 patients who needed surgery for proctologic disease have been recruited: 239 hemorrhoidectomies using the variant of Milligan Morgan technique described by Phillips, 45 trans-anal hemorrhoidal DE-arterialization (THD),

315 sphincterotomies, 12 anal polypectomies, 230 loop seton positions, 65 cone-like fistulectomies and 254 fistulotomies for perianal fistulas. In 329 cases, we used the posterior perineal block, 603 local perineal blocks, and 228 tumescent anesthesia.

**Results.** On a total of 1160 procedure failure rate was of 4.7% (55 cases). Urinary retention (69% 38 cases); bleeding 18% (10 cases), uncontrolled pain 12% of cases (7 cases). The chi-square test demonstrates ( $p < 0.01$ ) that the failure rate of the three types of anesthesia is very different with high statistical significance. The failure rate in patient underwent Posterior Perineal Block was 27/329 cases (8.2%), 8/228 (3.5%) in patients who underwent Tumescent Anesthesia and 20/603 (3.3%) in who underwent Local Perineal Block.

**Conclusions.** Outpatient protocols represent the most common approach to minor proctologic disease that needs a good local block, with a good analgesic and sedative assistance, the different local block seems to be the same concerning the pain control, but presents some little, not relevant difference concerning urinary retention rate.

KEY WORDS: Proctology - Surgery - Anesthesia - Outpatient - Pain.

### Introduction

Since 1899, after Emil Reis in Chicago (USA) and later in the Royal Glasgow Hospital for Children where were realized numerous outpatient surgeries in children with excellent result, and with the improvement of local anesthesia protocols, the number of surgeon that adopted different outpatient protocols increased (1). The necessities to control the outgoings improved the application of outpa-

tient protocols. In 1980, in USA 16% of surgeries were realized using out-patient protocols, in 1985 increased to 35% and in 2003 reached the 67%. In UK about 50% of all surgeries are realized without hospitalization (1).

The first outpatient surgery center was installed in "Centro Hospitalar San Juan de Dios" in Bogotá (Colombia) with the publication of the first "outpatient surgery brochure" (1). Actually, several surgical procedures can be safely performed by local anesthesia, with very good surgical results, patient's satisfaction and cost reduction (2, 3), and for the most part of these procedures outpatient protocols are allowed.

In colon-proctology, the high incidence of

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anorectal diseases and the economic impact of various types of surgical treatments have motivated interest for outpatient management of these ailments (1).

Recently B. Vinson-Bonnet et al. in 2015 published a systematic review of the literature that took into consideration 50 relevant studies on ambulatory hemorrhoidal surgery, analyzing failure percentage and side effects. This study concludes that the rate failure in different studies ranges between 0 and 61%. The main reasons for failure were urinary retention, postoperative hemorrhage and uncontrollable pain (4). Spinal anesthesia seems to be associated with the highest rate of urinary retention. The perineal block is more useful in control pain during and after operative time.

The three common techniques for treatment of hemorrhoids syndrome (THD, Milligan-Morgan hemorrhoidectomy and stapled haemorrhoidopexy) don't give same results in all kinds of hemorrhoidal anatomical alterations (4, 5). A study of Corrado Rosario Asteria et al. confirms the common belief that, following the effects of anesthesia (sphincter relaxation), the intraoperative finding is often worse than the outpatient clinical finding. The changes of disease severity are often not significant and not associated with the need to change the scheduled procedure. However, it should be highlighted that if at the time of surgery, following anesthesia, the severity of hemorrhoidal disease changes, a different kind of operation could be undertaken. Surgeons must be able to offer the patient different surgical options and not be stuck always to the same procedure (6).

Postoperative bleeding is another cause of failure after stapled haemorrhoidopexy and hemorrhoidectomy, which can be prevented by careful surgical hemostasis and with use of hemostatic devices (7, 8).

According to Vinson-Bonnet et al. failure could be reduced by applying some recommendations:

- Patients undergoing hemorrhoid surgery should meet the medical team
- In case of day surgery social eligibility criteria should be checked, since an accompanying person it is recommended
- According to the patient's anatomical alterations, symptoms and intraoperative conditions it is recommended to select the correct surgical procedure

- It is recommended to provide patients with detailed information concerning the procedure, postoperative pain treatment and the risk of postoperative complications including urinary retention
- It is recommended to check for the absence of surgical bleeding before hospital discharge, especially after stapled haemorrhoidopexy and hemorrhoidectomy
- It is recommended to control early postoperative pain with a pudendal block or a perineal infiltration completed by systemic analgesia
- Patients should be asked by telephone about pain control and bleeding on postoperative day one or two (4).

The improvement of local anesthesia technique and drugs have increased the out-patient surgeries (1). Different types of anesthesia could be proposed in case of proctologic surgery:

- general anesthesia
- spinal anesthesia
- local anesthesia (perineal block; tumescent anesthesia).

According to 2006 SICCR (*Italian Society of Colon and Rectal Surgery*) guidelines only patients with ASA risk I and II are eligible for local anesthesia. In our experience, also patients with ASA risk III with no cardiologic ischemic or rhythm disease; COPD and hemorrhagic diathesis could be eligible for local anesthesia and day surgery protocol (9). General anesthesia represents an alternative for intraoperative pain control but patients need a perineal block for postoperative pain control, catheterization and ordinary hospitalization. Spinal anesthesia with adequate dose of drugs for a limited duration of its effect could be an alternative to general anesthesia. It is related to a high risk of urinary retention that led to failure of outpatient protocols (1). Nowadays local anesthesia with sedation represents the most common choice as a first approach for treatment of patients with ASA risk I and II (9).

Perineal block could be distinguished in:

- Local perineal block: injection among the sphincter of 40 ml of 4.75 mg/ml ropivacaine solution divided in eight 5 ml injections columns, with the benefit of a targeted action limited only to the perianal nerves; this technique does not allow trans-anal stapled haemorrhoidopexy and in this case it needs a supplement infiltration of submucosal layer beneath the string suture line (10).

- Posterior perineal block described first by Gabrielli et al. involves the deep planes anesthesia (infiltration of the inferior hemorrhoidal nerves, the posterior branch of the internal pudendal nerves, and the anococcygeal nerves) and the anesthesia of the superficial plans (block of the inferior gluteal nerves and of perineal branches of minor nerves from the sacral plexus); also in this case could be necessary a supplement of anesthetic that Gabrielli prompt to inject in the inter-sphincteric space overall when the operator intends to work over the dentate line (11).
- Tumescence anesthesia was introduced in plastic surgery to facilitate liposuction and other similar operations by Jeffrey Klein. He describes the practice of injecting a very dilute solution of local anaesthetic combined with epinephrine and sodium bicarbonate into tissue until it becomes firm and tense (tumescence). Now surgical applications for the technique are widely varied ranging across vascular surgery, breast surgery, plastic surgery and ENT procedures. In 2003 Bussen et al. described a case series of proctologic surgeries in which tumescence anesthesia was applied with good result both in the control of the intraoperative that postoperative pain. Advantages include a reduction in blood loss due to both epinephrine-induced vasoconstriction as well as hydrostatic compression from the tumescence effect. Sodium bicarbonate associated with an acidic local anesthetic solution reduces pain. Tumescence lidocaine is absorbed very slowly from subcutaneous tissues. Also, it produces a lower and more delayed blood peak levels compared to other routes and long lasting postoperative analgesia. Slow systemic absorption allows the rapid hepatic plasma clearance of lidocaine to maintain safe local anesthetic blood levels (12, 13).

In case of assisted local anesthesia (the most common choice) this local protocols are coupled with intravenous sedative (midazolam 1-1.5 mg/ml) and often with an opioid analgesic (fentanyl or remifentanyl) obtaining a good pain control during surgery and an anterograde amnesia effecting high rate of patient satisfaction. Dose-related respiratory depression and, less commonly, bradycardia are possible side-effects, especially in older women (particularly over 70 years) (14). Local block is moreover associated to general or spinal anesthesia to improving post-operative pain control (10-14).

## Patients and methods

Using hospital data base we obtained retrospectively information about proctologic procedure performed in the period from 2010 to 2016, in the Department of General and Emergency Surgery of "AOUP Paolo Giaccone" of Palermo (Italy) the Ambulatory of Coloproctology and Laparoscopic Surgery. In this period was recruited 1160 patients who need surgery for proctologic disease: 857 females and 303 males with age ranged between 16 and 87 years old. Each patient was adequately studied by a Day surgery protocol providing ECG, blood count, coagulation standard routine. In absence of contraindications patient was admitted the day of surgery with direct access to the surgery room. We performed under local anesthesia, and consequently with an outpatient management 239 hemorrhoidectomies using the variant of Milligan Morgan technique described by Phillips, 45 THD with mucopexy; 315 sphincterotomies for anal fissures; 12 anal polypectomies; 230 loop seton positions, 65 cone-like fistulectomies and 254 fistulotomies for perianal fistulas. In 329 cases, we used the posterior perineal block, 603 local perineal block, and 228 tumescence anesthesia associated to a good sedation (Table 1). Thirty-eight stapled trans-anal rectal resections were performed for obstructed defecation syndrome given by muco-haemorrhoidary prolapse with recto-anal intussusception. We decide to perform this kind of operation under general anesthesia and during full hospitalization because of the high risk of bleeding, dehiscence of suture and septic consequences.

After surgery patients underwent short observation recovery (maximum 8 hours) after that they were discharged. In case of complications patients were hospitalized. The needs of hospitalization was considered it own a failure, the urinary retention which require over 12 h to self-resolving, the bleeding requiring a reoperation, an uncontrolled pain needing application of analgesic pump or opioids were considered as failure of outpatient management of the case. At the time of the discharge antibiotic therapy (amoxicillin + clavulanic acid or ciprofloxacin) was prescribed for 5 days; macrogol solution (1 dose per day); ketorolac drops (maximum 3 times per day); anti-oedemic therapy; chlorhexi-

TABLE 1 - TYPE OF LOCAL ANESTHESIA FOR SURGERIES.

Type of surgeries		Posterior perineal block	Local perineal block	Tumescent anesthesia
Phillips	239	80	118	41
THD and Mucopexy	45	11	34	0
Sphincterotomies	315	104	201	10
Polypectomies	12	2	10	0
Loop seton position	230	98	106	26
Cone like resection	65	18	47	0
Fistulotomies	254	16	87	151
Total	1160	329	603	228

dine detergent was also prescribed. Patients were followed-up with a first check after 1 week and a second and third checks every 15 days only in the presence of a second intention healing wound.

We used Chi-square test for three groups of patients (2 degrees of freedom). Using this test, we propose to refuse the H0: posterior perineal block, local perineal block, tumescent anesthesia have the same failure rates.

## Results

On a total of 1160 procedures the rate of failure was of 4.7% (55 cases). The causes of failure were: urinary retention (69% 38 cases) with a prevalence in man (22 cases) compare to women (16 cases), and in all cases self-resolved in 24-48 hours; bleeding 18% (10 cases) that needed reoperation in 100% of cases often only in order to performing a simple coagulation of small bleeding vessels (in case of hemorrhoidectomies) or to put a suture stich in a sphincterotomy or on the base of anal polyp. This compli-

cation occurred in 4 males and 6 females, with a prevalence for elderly people (8 cases). Only in 12% (7 cases) the reason of failure was uncontrolled pain that needed the application of analgesic pump with fans or opioids with small difference in sex (4 cases in men and 3 cases in women) and in age (5 cases in under 65 people and 2 cases in elderly people) (Table 2). The chi-square test demonstrates ( $p < 0.01$ ) that the failure rate of the three types of anesthesia is very different with high statistical significance, in fact the failure rate in patient underwent posterior perineal block was 27/329 cases (8.2%), was 8/228 (3.5%) in patients who underwent tumescent anesthesia and was 20/603 (3.3%) in patients who underwent local perineal block. The last two methods of anesthesia result associated to a minor failure rate and ensure a good control of pain (Table 3).

## Discussion

According to the literature of the last 20 years a cheaper and cheaper medical expense is needed, so an

TABLE 2 - FAILURES.

	Failure	Posterior perineal block	Local perineal block	Tumescent anesthesia
Uncontrolled pain	7 (12%)	1	3	3
Urinary retention	38 (69%)	19	14	5
Bleeding	10 (18%)	7	3	0
Total	55 (4.7%)	27	20	8

TABLE 3 - FAILURE RATE.

Types of anesthesia	Posterior perineal block	Local perineal block	Tumescent anesthesia	
Failure rate	27/329 (8.2%)	20/603 (3.3%)	8/228 (3.5%)	p<0.01*

\*H0: posterior perineal block, local perineal block and tumescent anesthesia have the same failure rate (p<0.01).

increased application of outpatient protocols for proctologic disease has been observed all over the world. According to the SICCR guidelines and last consensus statement of SICCR these protocols should be limited to patients with ASA risk I and II with some exceptions on the base of performance status of patient and of the type of surgeries. Our experience demonstrates the feasibility of outpatient approach for hemorrhoidectomy, THD with haemorrhoidopexy, sphincterotomies, fistulotomies, fistulectomies, loop seton position. Local assisted anesthesia is necessary to do this type of surgeries. All options are feasible the urinary retention, that is a direct consequence of this type of anesthesia, represent the first reason of failure. We noted in our experience that tumescent anesthesia is associated to the less risk of urinary retention (5 cases on 38) but with the higher necessities of analgesic therapies in postoperative time. In our study local perineal block seems to be the better compromise in fact it is associated with 14 episodes of urinary retention but with a good pain control. The most useful local anesthesia technique in pain control seems to be the posterior block with infiltration of superficial layer but the infiltration of deep branch of pudendal nerve are associated to the higher risk of urinary retention. This failure is only temporary and requires catheterization only for few hours or days. A recent trial compared the urinary retention rate in patient underwent spinal anesthesia with ones underwent local block. The local block represents absolutely the best choice because of his lower incidence of urinary retention (15). The bleeding represents a possible complication but lower and lower frequent because of the intraoperative control of bleeding, the availability of hemostatic devices currently used in different general surgical procedures (16-21). Rarely (2 cases) we observed late bleeding (after 7 days) during the follow-up that re-

quired the emergency hospitalization and emergency surgery in both cases with assisted local block approach.

## Conclusions

Nowadays outpatient protocols represent the most common approach to minor proctologic diseases. It needs a good local block, with a good analgesic and sedative assistance. The different local blocks seem to be similar in terms of pain control, but it presents some significant differences in terms of failure rate (overall urinary retention). In our experience the failure rate is among 4,7% and it endorse the feasibility of this approach. This approach allows an efficacious control of costs and thin out rapidly waiting lists.

### Authorship

N. Falco and R. Tutino were involve in the elaboration of the manuscript and in the statistics.

N. Falco was involved in the correspondence with editor.

T. Fontana and L. Licari were involved in collecting data.

G. Salamone and G. Cocorullo as supervisor were involved in control of language and contents and give their final approval for the submission.

### Conflict of interest

None.

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## References

1. Sobrado CW. Outpatient Surgical Proctology - past, present and future. *Arq Gastroenterol*; (jul/set 2005) ISSN 0004-2803. Doi: 10.1590/S0004-28032005000300002.
2. Melfa GI, et al. Comparison of minimally invasive parathyroidectomy under local anaesthesia and minimally invasive video-assisted parathyroidectomy for primary hyperparathyroidism: a cost analysis. *G Chir*. 2016;37(2):61-7. Doi: 10.11138/gchir/2016.37.2.061.
3. Amato G, et al. Damage to the vascular structures in inguinal hernia specimens. *Hernia*. 2012 Feb;16(1):63-7. Doi: 10.1007/s10029-011-0847-4.
4. Vinson-Bonnet B, et al. Ambulatory haemorrhoidal surgery: systematic literature review and qualitative analysis. *Int J Colorectal Dis*. 2015;30:437-45. Doi: 10.1007/s00384-014-2073-x.
5. Trompetto M, et al. Evaluation and management of hemorrhoids: Italian society of colorectal surgery (SICCR) consensus statement. *Techniques in Coloproctology*, October 2015. 2016;19(10):567-75. Doi: 10.1007/s10151-015-1371-9.
6. Corrado Rosario Asteria, et al. Does anaesthesia change severity of haemorrhoidal disease? A prospective and multicentre case-control study on haemorrhoidal disease assessment in two different settings: outpatient and operating theatre. *Int J Colorectal Dis*. 2016 March; Doi: 10.1007/s10151-015-1371-9.
7. Herzfeld G. Hernia in infancy. *Am J Surg*. 1938;39:422-4. Doi: 10.1590/S0004-28032005000300001.
8. Fingerhut A, et al. European Initial Hands-On Experience with HEMOPATCH, a Novel Sealing Hemostatic Patch: Application in General, Gastrointestinal, Biliopancreatic, Cardiac, and Urologic Surgery. *Surg Technol Int*. 2014 Nov;25:29-35.
9. Altomare DF, et al. The treatment of hemorrhoids: guidelines of the Italian Society of Colo-Rectal Surgery. *Tech Coloproctol*. 2006;10:181-6. Doi: 10.1007/s10151-006-0277-y.
10. Nyström PO, et al. Local perianal block for anal surgery. *Tech Coloproctol*. 2004;8:23-2. Doi: 10.1007/s10151-004-0046-8.
11. Gabrielli F, et al. Hemorrhoidectomy with posterior perineal block: experience with 400 cases. *Dis Colon Rectum*. 2000 Jun;43(6):809-12.
12. Conroy PH, O'Rourke J. Tumescant anaesthesia. *Surgeon*. 2013 Aug;11(4):210-21. Doi: 10.1016/j.surge.2012.12.009.
13. Bussen D, et al. Tumescant local anesthesia in proctologic surgery. *Chirurg*. 2003;74:839-43. Doi: 10.1007/s00104-003-0670-2.
14. Haylen BT, et al. Remifentanyl-assisted local anaesthesia: application to continence surgery. *Aust N Z J Obstet Gynaecol*. 2008 Apr;48(2):214-7. Doi: 10.1111/j.1479-828X.2008.00837.
15. Anannamcharoen S, et al. Local perianal nerve block versus spinal block for closed hemorrhoidectomy: a randomized controlled trial. *J Med Assoc Thai*. 2008 Dec;91(12):1862-6.
16. Docimo G, et al. A Gelatin-Thrombin Matrix Topical Hemostatic Agent (Floseal) in Combination With Harmonic Scalpel Is Effective in Patients Undergoing Total Thyroidectomy: A Prospective, Multicenter, Single-Blind, Randomized Controlled Trial. *Surg Innov*. 2016;23(1):23-9. Doi: 10.1177/1553350615596638.
17. Scerrino G, et al. The use of haemostatic agents in thyroid surgery: efficacy and further advantages. Collagen-Fibrinogen-Thrombin Patch (CFTP) versus cellulose gauze. *Ann Ital Chir*. 2013 Sep-Oct;84(5):545-50.
18. Salamone G, Tutino R, et al. Liver hydatidosis: Reasoned indications of surgical treatment. Comparison between conservative and radical techniques Retrospective study. *Annali Italiani di Chirurgia*. 2014;85(5):422-30.
19. Scerrino G, Salamone G, et al. The multinodular non-toxic goitre: What a surgery? [Il gozzo multinodulare non tossico: Quale chirurgia?]. *Annali Italiani di Chirurgia*. 2001;72(6):647-51.
20. Cocorullo G, Falco N, et al. Open versus laparoscopic approach in the treatment of abdominal emergencies in elderly population. *Giornale di Chirurgia*. 2016;37(3):108-112.
21. Guercio G, Tutino R, et al. Solitary metastasis from melanoma causing bowel perforation. *Annali Italiani di Chirurgia*. 2015;86(26):1-5.