15 years experience in proctological day-surgery

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Angelo Guttadauro*, Matteo Maternini*, Giulia Lo Bianco*, Lorenzo Ripamonti*, Nicoletta Pecora*, Marco Chiarelli**, Francesco Gabrielli*

**University of Milano-Bicocca, General Surgery Department, Istituti Clinici Zucchi, Monza, Italy*
***General Surgery Department, Ospedale di Lecco, Lecco, Italy*

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INTRODUCTION: *The actual high hospitalization costs have encouraged a growing attention towards reducing hospital stay. Nowadays, many simple surgical procedures are carried out in a one-day surgery regimen . A shorter hospital stay brings many advantages for the patients: lesser inconvenience, a lower risk of hospital infection and an earlier return to work. In proctology, day surgery polices are still uncommon because surgeons fear possible complications. In this paper we sum up our 15 years experience, stressing the possibility to perform even complex procedures in local-regional anesthesia and in a day-surgery context.*
MATERIALS AND METHODS: *In our experience, to be candidate to one-day surgery proctological procdures, patients should be classed as ASA I or II.*
RESULTS: *Between 2005 and 2015 our operative unit executed a total of 2688 proctological procedures in a one-day surgery. 1062 procedures have been completed under local anesthesia exclusively and all patients have been discharged between two and three hours after the procedure without significant complications. In the other 1626 patients perineal posterior block was performed in 932 cases (57.3%) and provided an optimal pain control in 51,6% of cases (301 patients) while in 5,7% of cases there was the need for an intravenous administration of Fentanil.*
DISCUSSION AND CONCLUSION: *Day-surgery is nowadays a concrete reality, made possible by an attentive selection of patients, an accurate surgical technique, an attentive patient monitoring in the postoperative period and a continuous monitoring of the effectiveness of pain medications. Over the last decades our surgical team has developed modified techniques of loco-regional anesthesia that allow us to perform even complex procedures and discharge the patient within 24 hours.*

KEY WORDS: Day-surgery, Haemorrhoids, Proctological procedures

Introduction

The actual high hospitalization costs have encouraged a growing attention towards reducing hospital stay. Nowadays, many simple surgical procedures are carried out in a one-day surgery regimen [1,2]. A shorter hospital stay brings many advantages for the patients: lesser inconvenience, a lower risk of hospital infection and an earlier return to work. Hospital organizations also benefit from this policy that leaves more resources at disposition for complex procedures that require a longer hospitalization. The reduction of hospital stay to less than 24 hours has been proved to reduce the expenses significantly [1,3]. In General Surgery, the first procedures to be selected for the one-day hospital policy were hernioplasty procedures [2]. In 1955 Farquharson performed approximately 500 hernia repair procedures in local anesthesia with same-day discharge [4]. The introduction of modern operatory techniques of specific local-regional anesthetic techniques allows some-day discharge to become the golden standard for this kind of procedures [2,5-8]. In proctology, day surgery polices are still uncommon because surgeons fear possible complications [9,10]. Our surgical team has been performing most proc-

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Correspondence to: Matteo Maternini, MD, University of Milano-Bicocca, General Surgery Department, Istituti Clinici Zucchi, Monza, Italy (e-mail: matteo.maternini@live.it)

tologic procedures as day-surgery since the 90s with satisfying results [11]. In this paper we sum up our 15 years experience, stressing the possibility to perform even complex procedures in local-regional anesthesia and in a day-surgery context.

Materials and Methods

Inclusion Criteria

In our experience, TO be candidate to one-day surgery proctological procedures, patients should be classed as ASA I or II [2]; ASA III patients can be discharged 24 hours after surgery only in selected cases [12,13]. Patients in treatment with anticoagulants or with known allergic reactions to local anesthetics are also not suitable. A further contraindication is the refusal from the part of the patient to undergo local anesthesia. Advanced age should not be considered a determent, on the contrary, day-surgery procedures can be considered especially suited for elderly patients which don't tolerate the removal from their home environment for long [14]. As for organization requirements, there is the need for a relative or other caregiver to be available for 48 h after discharge to grant assistance. It is also preferable that the patient should leave not too far off from the hospital (less than 100 km) to allow for a rapid transportation in case of emergency [14].

Included Procedures

A one-day surgery policy can be applied to most procedures on the anus, on the anal channel and on the lower portion of the rectum [15]. Surgical techniques don't usually differ from those employed for standard inpatient surgery [13,14]. The proctological procedures that we usually perform in a one-day surgery regimen include: thrombosed external hemorrhoid excision, internal sphincterotomy, polypectomy of the anal channel and of the lower rectum, excision of skin tags and condyloma, evacuation of abscess cavities, fistulectomy, fistulotomy, pilonidal cyst excision, anoplasty, Milligan-Morgan hemorrhoidectomy, stapled hemorrhoidopexy (Longo procedure), double stapled trans-anal rectal resection (STARR). The simpler procedures can be executed under local anesthesia in an outpatient context with discharge 2-3 hours after surgery. More complex procedures require a 24 hours hospital stay in order to keep the patient under vigilance for the most common early complications (pain, bleeding, urinary retention)

Preoperative Evaluation

Patients receives accurate and complete information on his condition and on the proposed surgical procedure including: possible complications, post-operative recovery, pain management, hygienic rules [12]. After a complete information we agree with the patient on the kind of intervention and anesthesia and acquire an informed consent [12,14]. Preoperative evaluations include: standard serological testing, chest X-ray and ECG. Although most procedures are done under local anesthesia, each patient undergoes the necessary evaluation in case a rapid conversion to general anesthesia is needed.

Anesthesia

Most proctological procedures can be executed under local or loco-regional anesthesia. Procedures that require local anesthesia alone include: thrombosed external hemorrhoids excision, skin tags and condyloma excision, evacuation of minor abscess cavities.
The posterior perineal block (PPB), a technique introduced by Marti, is based on the infiltration of the posterior perineal nerves on a superficial and on a deeper plan [11,16]. This anesthetic technique, practiced by the operating surgeon in first person, allows for sphincter relaxation and provides an optimal intra-operative anesthesia whose effects persist for 5 to 10 hours after surgery in 70% of patients [11]. For procedures that include traction on the intermediate-lower rectum, such as interventions including the use of mechanical staplers, the PPB is paired with a continuous intravenous infusion of Remifentanil [17]. Procedures such as internal sphincterotomy, polypectomy of the anal channel and lower rectum, fistulectomy and fistulotomy, excision of single condyloma and circular excision of gigantic perianal condylomatosis [18], Milligan-Morgan hemorrhoidectomy, stapled hemorrhoidopexy (Longo procedure),double stapled trans-anal rectal resection (STARR) or more extensive rectal resections (perineal stapled prolapse resection)[29,32] can all be carried out under PPB. This technique can also be employed for more simple procedures in presence of contraindications to local anesthesia or when requested by the patient. Spinal or general anesthesia is reserved to the more complex cases or to the cases where patients refuse loco-regional techniques and is decided with the anesthesiologist and the operative surgeon beforehand, at the end of the preoperative work-up [12,14].

Postoperative Management

Postoperative pain is managed with Ketorolac 30 mg administered intravenously twice over the first 24 hours. The employ of opioid drugs is rare and reserved to those cases where non-steroid anti-inflammatory drugs (NSAIDs) don't suffice [12]. The infusion of crystalloids is contraindicated safe in cases of postoperative hypotension or spinal anesthesia-induced cephalea [14]. The patient

TABLE I - *One-day surgery proctological procedures*

Surgical procedures	Local anesthesia	PPB/ Spinal anestesia/ General anesthesia	Tot
Thrombosed external haemorroids excision	232	–	232
Single hemorrhoid excision	160	–	160
Anal channel polypectomy	42	–	42
Lateral internal sphincterotomy	176	–	176
Anal fissure excision and anoplasty	16	–	16
Skin tag excision	72	–	72
Condyloma excision	58	–	58
Small abscessual cavity drainage	70	–	70
Simple fistulotomy	72	–	72
Simple Pilonidal cyst excision	148	–	148
Other	16	–	16
Milligan Morgan hemorrhoidectomy	–	180	180
Longo procedure	–	1146	1146
Lateral internal sphincterotomy	–	120	120
Big abscesses cavity drainage	–	32	32
Complex fistulotomy	–	76	76
Excision of rectum adenoma	–	32	32
Complex pilonidal cyst excision	–	30	30
Excision of extensive perianal condylomatosis	–	10	10
Total	1062	1626	2688

can start feeding again 4-5 hours after the procedure and is usually discharged after 24 hours in absence of complications and if the pain is well under control. Surgeons are available continuatively in the postoperative period. At discharge, the patient is given telephonic and e-mail contacts of the medical team. He also receives written instructions on wound cleansing, on the use of laxative drugs and/or fiber integrators to regularize bowel habits [19] and on pain treatment. We usually recommend Ketorolac 1 mg three times/day for the first 3 days and then Paracetamol 1 g three times/day for the following 5 days to be taken at home. We also prescribe Lactulose 10 mg/die from the first day after surgery. Routine postoperative out-patient controls are scheduled depending on the kind of proctologic condition and procedure. Further control visits can be agreed on, if needed.

Results

Between 2005 and 2015 our operative unit executed a total of 2688 proctological procedures in a one-day surgery context on patients between 16 and 90 years of age. The 1062 procedures included in Group 1 of Table I have been completed under local anesthesia exclusively and all patients have been discharged between two and three hours after the procedure without significant complications. In Group 2 (1626 patients) PPB was performed in 932 cases (57,3%) and provided an optimal pain control in 51,6% of cases (301 patients) while in 5.7% of cases there was the need for an intravenous administration of Fentanil. The effects of intraoperative anesthesia on pain control continued for 5 hours in 31,7% of cases (515 patients), for 5-10 hours in 49,6% of cases (806 patients) and over 10-15 hours in 304 patients (18.7%). Discharge happened during the first day after surgery in 92% of cases (1496 patients), during the second day after surgery in 5,5% of cases (89 patients) and during the third day after surgery or later in only 2.3% of cases (37 patients). In the cases where hospitalization was longer than 24 hours this was due to complications: urinary retention, which required catheterization in 36 patients (2.2%) and early hemorrhage, happening in 24 patients (1,5%) and requiring a surgical revision. Delayed hemorrhage (occurring between the fifth and the ninth day after surgery) was registered in 16 patients (1%) and managed conservatively in all cases.

Discussion

Since the 70s, in the US where introduced programs for the implementation of outpatient surgery aiming to reduce the costs of low-complexity surgical procedures and to render more resources available for more complex medical or surgical procedures [1]. Presently it is estimated that over half of surgical procedures in the UK are done in an out-patient setting [2,3]. Thus developed the concepts of out-patient surgery and one-day surgery: out-patient surgery is defined by a discharge following shortly the surgical procedure, day-surgery is defined by an hospitalization shorter than 24 hours. Some authors postulate that around 90% of proctologic surgical procedures could be executed as one-day surgery [12]. Despite the vastly reported advantages on a clinical, social and

economical level of this kind of organization, however, one-day surgery proctology is still little diffused [9,20,21-23,24,31]. This apparently depends on resistances, both from the part of the surgeon and of the patient. Surgeons fear to be unable to manage post-operative complications effectively during such a short hospital stay, while patients are afraid that pain control might be insufficient at home [9]. One-day surgery proctological procedures must assure the same standards than ordinary surgery in terms of clinical outcomes. On the other side, day surgery imposes a greater organization effort on the medical and nursing staff [12]. To ensure valid results, treatment and management during the preoperative intraoperative and postoperative phase must be standardized [12,14]. All aspects of the intervention (kind of anesthesia, surgical procedure, possible complications, discharge) must be explained clearly and discussed with the patient during the preoperative work-up. It is important to involve the relatives or other caregivers that would assist the patient during the healing process [14]. After surgery, the modern means of communication (portable phone, electronic mail) allow for a constant contact between the patient and the surgeon [14]. The possibility to communicate easily allows for a timely management of all possible complications and issues, including the need to implement pain or laxative medications. Patients selection is fundamental, both clinical and psychological aspects must be taken into consideration. The administration of local anesthesia and the absence of a deep sedation could be ill tolerated by individuals suffering from anxious syndrome [11]. In these cases, a complete and constant information could enhance the patients compliance. Local anesthesia and PPB are both always executed by the operating surgeon himself. As a rule, all proctologic procedures performed as one-day surgery are done in the operatory theater in the presence of the anesthesiologist [17]. We reserve local anesthesia to few simple and short procedures. More complex procedures for eligible patients are done in PPB, sometimes paired with intravenous administration of a short-acting opioid drug (Remifentanil 0.1-0.2 g/Kg/minute) [17]. Posterior perineal block, a part from assuring optimal anesthesia, also allows for a valid intra-operative sphincter relaxation [23,25]. We usually employ Ropivacaine, which offers a good postoperative analgesia lasting for 5-10 hour after surgery [17]. To be able to perform a proctological procedure in a one-day surgery regimen, the surgeon must be especially attentive: excessive tractions must be avoided not to elicit pain and hemostasis must be extremely careful to minimize hemorrhagic complications. For over 20 years our team has been performing the Milligan-Morgan hemorrhoidectomy under Perineal Posterior Block with extremely satisfying results [11,30]. Recently PPB technique procedures has been modified to make it suitable for Longo procedure as well [17]: superficial infiltration is performed in the inter- sphincter space at the four cardinal points with bigger anesthetic volumes then usual and paired with continuous intravenous Remifentanil infusion. These changes allow to perform both the confection of the purse string and the mechanic stapling, which would otherwise cause visceral pain because of the traction applied on the lower rectum. During the last few years procedures with growing complexity have been introduced in clinical practice. STARR procedure is considered the gold standard for obstructed defecation caused by anterior rectocele or rectal-rectal intussusceptions [26,27]. In the meanwhile, new techniques have been developed for the complete excision of giant perianal condyloma [18,28]. These new surgical techniques brought about new issues in the management of local-regional anesthesia because of the traction applied to the intermediate rectum and of the excisions of vast portions of anal derma. Our vast experience with PPB during hemorrhoidectomy allowed us to employ this technique also for this kind of procedures with results similar to general anesthesia. Thus, day-surgery hospitalization has become routine for us, also for patients that receive an indication for STARR, stapled resection of external rectal prolapse or circumferential excision of giant perianal condyloma. The percentage of postoperative complications in our day surgery case series doesn't differ from the same interventions performed as ordinary inpatient surgery [13]. A correct postoperative management allows for an early discharge and helps minimizing possible complications. Postoperative analgesia must include the prescription of NSAIDs at scheduled times to enhance pain control [12,14]. The use of opioid drugs must be considered attentively to avoid the risk of postoperative nausea and constipation [12,14]. Crystalloid infusion must be regulated to minimize the risk of acute postoperative urinary retention [12,14].

Conclusions

Day-surgery is nowadays a concrete reality, made possible by an attentive selection of patients, an accurate surgical technique, an attentive patient monitoring in the postoperative period and a continuous monitoring of the effectiveness of pain medications. An attentive management and a good patient compliance to post-operative protocols contribute to the good outcome of one-day surgery procedures. Over the last decades our surgical team has developed modified techniques of loco-regional anesthesia that allow us to perform even complex procedures and discharge the patient within 24 hours in perfect safety.

Riassunto

INTRODUZIONE: Gli elevati costi di ospedalizzazione hanno incoraggiato una maggiore attenzione verso la riduzione della degenza ospedaliera. Al giorno d'oggi, molte

procedure chirurgiche possono essere eseguite in regime di day-surgery. Una degenza ospedaliera breve comporta molti vantaggi per i pazienti: minori disagi, minori rischi di infezione ospedaliera e un veloce ritorno al lavoro.
In proctologia, le procedure in regime di day-suregry non sono ancora molto diffuse per paura delle possibili complicazioni. In questo lavoro riassumiamo la nostra esperienza di 15 anni, sottolineando la possibilità di eseguire anche procedure complesse in anestesia locale-regionale e in un contesto di day-surgery.
Materiali e Metodi: I pazienti devono essere classificati come ASA I o II.
Risultati: Tra il 2005 e il 2015 la nostra unità operativa ha eseguito un totale di 2688 procedure proctologiche in day surgery. 1062 procedure sono state completate in anestesia locale esclusivamente e tutti i pazienti sono stati dimessi tra due e tre ore dopo la procedura senza complicazioni significative. Negli altri 1626 pazienti il blocco posteriore perineale è stato eseguito in 932 casi (57,3%), ha fornito un controllo ottimale del dolore nel 51,6% dei casi (301 pazienti) mentre nel 5,7% dei casi c'è stata la necessità di somministrazione endovenosa di Fentanil.
Discussione e Conclusione: La day surgery è oggi una realtà concreta, resa possibile da un'attenta selezione dei pazienti, un'accurata tecnica chirurgica, un attento monitoraggio del paziente nel periodo postoperatorio e un monitoraggio continuo dell'efficacia dei farmaci antidolorifici. Negli ultimi decenni il nostro team chirurgico ha sviluppato tecniche modificate di anestesia loco-regionale che ci consentono di eseguire procedure anche complesse e di dimettere il paziente entro 24 ore

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