

OPEN HAEMORRHOIDS SURGERY IN SPINAL CORD INJURY PATIENTS

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Abstract

This Pilot retrospective research conducted on the results of open surgery in patients with Grade III and IV haemorrhoids With SCI. No major complications had arisen at 6 weeks post-operative and all wounds had healed, but 1 patient Anal fissure recurrence. 75% of patients reported a substantial increase in anorectal anorexia during long-term follow-up. With symptoms. Five patients reported recurrences: three haemorrhoids (18 percent) and two anal fissures (25 percent).

Keywords: Haemorrhoids, Pilot retrospective research, Anorectal Anorexia.

Introduction

There are common gastrointestinal problems in patients with Neurological infections. Symptoms include bloating, stool removal problems, faecal incontinence, dyschesia, bleeding, fissures of the anal and haemorrhoids. A recent study observed mild to extreme bowel symptoms in 61 percent of spinal cord injury (SCI) patients, 43 percent in multiple sclerosis patients, and 23 percent in hemiplegia patients. Haemorrhoids occur more commonly in SCI patients than in patients with any other neurological condition, with a prevalence reported to be as high as 74%. Symptoms associated with haemorrhoids include acute or chronic rectal bleeding, difficulty evacuating and anal discomfort. These symptoms affect the patient's quality of life. The mechanism behind the development of haemorrhoids remains unclear [1]. Risk factors include straining during stool evacuation and chronic trauma from digital stimulation for stool removal or reflex evacuation. In SCI patients, care for haemorrhoids is the same as in the general population. The treatment of choice for grade I internal (non-prolapsing) haemorrhoids is medical management. This involves a wide range of primarily empirical treatments (high-fiber diet, adequate consumption of fluid, stool softeners, topical and systemic analgesics, etc.). The most popular treatment for grade II

(protrude but reduce spontaneously) and grade III (protrude and need manual reduction) haemorrhoids is rubber band ligation. Grade III and grade IV (remain prolapsed) haemorrhoids with serious symptoms are best managed with surgical haemorrhoidectomy [2]. There is surprisingly little evidence for non-surgical care and few examples of surgical haemorrhoidectomy in SCI patients can be found in the literature. Both medical treatment and ligation are very effective, but a high rate of recurrence is associated with them. In their most recent retrospective study on ligations in patients with SCI, Cosman et al. reported that 86 out of 215 patients required repeated banding procedures (range, 2–11 procedures), with a mean interval between procedures of 2.9 ± 3.5 years. While haemorrhoidectomy could offer a long-term solution, it is widely believed by physicians, surgeons and the patients themselves, to be associated with post-operative complications in the case of SCI [2, 3].

The purpose of this study was to determine the short-term and long-term impact of haemorrhoid surgical care in patients with SCI [2, 3, 4].

Material and Methods

For open haemorrhoidectomies performed at the Calot clinic between 2007 and 2016, the surgical database was scanned. The requirements for inclusion were individuals

with SCI and haemorrhoids of grade III or IV. No exclusion requirements existed. The same gastroenterologist (MPE) performed all the procedures. For isolated haemorrhoids, an open haemorrhoidectomy (Milligan and Morgan procedure) was performed. It is a four-step process;

- Placement on each haemorrhoidal pedicle of three sets of clamps: on the peri-anal muscle, dentate line and rectal mucosa.
- The dissection and individual ligation with absorbable sutures of each of the three pedicles.
- In order to eliminate the underlying residual haemorrhoidal tissues, the muco-cutaneous bridges are trimmed between each dissected pedicle.
- Pedicle division, leaving a mucosal stump of approximately 5 mm.

This was paired with the Leopold Bellan treatment for related anal fissures requiring a fourth posterior incision and posterior anoplasty [5].

Under general anaesthesia and bilateral pudendal nerve block, surgery was conducted. At the end of the process, the wounds were left open to heal by secondary intent. Haemorrhoidectomies for patients with comorbidities were performed either as an outpatient procedure or as an inpatient procedure with a maximum stay of 3 days. From the first day after the operation, patients were allowed to sit in their wheelchairs. Prophylactic antibiotics (primarily metronidazole) were provided for 5 days, beginning on the day of surgery.

Both patients completed a surgeon's clinical follow-up assessment at weeks 2 and 6 (short-term follow-up) following surgery. For the long-term follow-up, a physical and rehabilitation medicine intern held previously planned telephone interviews. The interview was split into three sections: bowel care and habits, symptoms of haemorrhoids, and result of treatment [6].

Short term complications and rate of recurrence were the key outcome indicators. Improved anorectal symptoms and quality of life scored with the Patient Global Impression of Change (PGI-I) and anal pain rated with the Patient Global Impression of Severity (PGI-S) were secondary outcome indicators.

Results

Information for 25 patients were eligible for participation, but 4 patients died (of reasons unrelated to the procedure) after the operation and 4 others were unable to be reached (they had moved and changed their telephone number). The 17 remaining patients were approached and consented to be included in the study. Their features are shown in Table 1. Traumatic SCI was identified in all patients: there were 3 patients with tetraplegia, 7 with high-level paraplegia (T1-T6) and 7 with low-level

paraplegia (below T6), including 2 with cauda equina and lower motor neuron lesions. There were 15 patients with full motor and sensory lesions (AIS A and 2 with full motor but incomplete sensory lesions (AIS B). Two of the participating patients underwent open haemorrhoidectomy following ligation failure. A total of 44 haemorrhoid (rubber band) ligations were performed in 38 patients during the same time. Therefore a total of 63 patients needed either haemorrhoid surgery or ligation out of approximately 3,000 SCI patients in our center over the past 40 years [7-9].

The Milligan and Morgan procedure was conducted on its own in 4 cases and was associated with Leopold Bellan[13] in 13 cases (simple haemorrhoidectomy (n = 1) or anal fissure-associated procedure (n = 12)). Rectal bleeding and trouble evacuating were the patients' main problems before surgery. Digital stool removal (n = 13), straining (n = 2), transanal irrigation (n = 1) and enema (n = 1) were pre-intervention bowel programs. Intermittent catheterization was used by 13 patients and reflex voiding was done by 4.

Table 1 Patient characteristics

| Gender ratio | Level | AIS | Motor neuron lesion | Age | Time since injury | Follow-up |
|--------------|---------------|-------|---------------------|-------------|-------------------|-----------|
| 15 males | 3 tetraplegia | A: 15 | UMN: 15 | 50.1 years | 15.9 years | 5.8 years |
| 2 females | 14 paraplegia | B: 2 | LMN: 2 | (39.5-59.4) | (0.4-36.9) | (0.8-8.9) |

AIS Asia impairment scale

UMN upper motor neuron

LMN lower motor neuron

Short-term outcomes

Short-term complications were only mild, the most frequent of which was bleeding (4 patients). In both cases, this was resolved without the need for sutures or transfusions. No local infections requiring additional antibiotic courses have occurred. Pain that was successfully treated with non-steroidal anti-inflammatory drugs (ketoprofen) was encountered by the sensation patient (AIS B). There were moderate, intermittent autonomic dysreflexia episodes with headaches as the primary symptom in 4 patients [10, 11].

Around week 2 (n = 8) and week 6 (n = 9), all wounds healed. Anal fissure recurrence occurred in 1 patient (with cauda equina lesion) prior to week 6.

Long-term outcomes

The mean follow-up period was 5.7 (SD: 1.9) years (Tables 2 and 3). Eighty-two percent (n = 14) of the patients reported complete (n = 9) or partial (n = 5) bleeding cessation. Between the 6th week and long-term follow-up, five patients reported recurrences: 3 haemorrhoids (18 percent-1 tetraplegia patient and 2 high-level paraplegia patients-all Leopold Bellan procedures) and 2 anal fissures (1 tetraplegia patient and one low-level paraplegia patient, overall recurrence: 25 percent) (Table 2). To decrease the

haemorrhoids, one patient with high-level paraplegia needed more surgery. There was full change in the 2 patients with a prior history of haemorrhoid ligations [12].

Table 2 Outcome of open surgery

| | Haemorrhoids | Anal fissures |
|------------------|-----------------------|---|
| Cured / improved | 9 cured 5 improved | 9 cured |
| Recurrence | 3 recurrences (18%) | 3 recurrences (1 before 6 weeks 2 after 6 weeks) (25%) |
| Total | 17 | 12 |

Table 3 Long-term satisfaction and quality of life

| | Very much improved | Much improved | A little improved | Same | A little worse | Much worse | Very much worse |
|-----------------|--------------------|---------------|-------------------|------|----------------|------------|-----------------|
| Satisfaction | 6 | 6 | 1 | 2 | - | 1 | - |
| Quality of life | 1 | 2 | 1 | 10 | 1 | 1 | - |

PGI-I patient global impression of improvement ($n = 16$)

In patients who performed digital stool removal, recurrence of haemorrhoids and fissures happened. An anal examination did not show any anal stenosis during short-term or long-term follow-up. After the Leopold Bellan treatment (for combined haemorrhoids and anal fissure), which was successfully treated with an anal plug (Peristeen®), incontinence (gas and faeces) occurred in 1 patient. In all patients following surgery, bowel programs remained unchanged [13].

In 15 of the 17 long-term follow-up patients, PGI-S was scored. 67 percent of patients rated mild ($n = 5$) or no ($n = 5$) anorectal discomfort, and 33 percent ($n = 5$) rated moderate or extreme discomfort. 16 of the 17 patients had a PGI-I grade. Twelve patients reported a substantial improvement in anorectal symptoms (very much or much better, 75%), 1 patient reported a significant deterioration (requiring additional surgery), while 3 reported no change in symptoms or marginal improvement (19%). Quality of life for 12 patients (same, slightly better or slightly worse, 75 percent) was considered unchanged, improved for 3 (very much or much, 19 percent) and much worse for 1 (6 percent) (Table 3). Eighty-eight percent of patients ($n = 14$) indicated that if possible, they would perform the same treatment again.

Discussion

To our knowledge, that's the first retrospective pilot study in patients with SCI to record the outcomes of haemorrhoidectomy with or without associated fissurectomy. Around one in ten patients with haemorrhoids in the general population needs surgical care, i.e. the removal of haemorrhoidal tissue. In 6.9 percent of patients, immediate complications were

identified, including urinary retention, faecal impairment, secondary haemorrhage requiring haemostasis, and local infection. Urinary retention and faecal impaction were unlikely to occur in the current study as occasional catheterization and digital stool removal were performed in most patients. The most common complication was bleeding (4 patients (24%)), but this was resolved without the need for further treatment. Just 1 patient with an incomplete sensory (AIS B) lesion had postoperative pain. Anal stenosis and local infections, neither of which occurred in the present research, are other early complications recorded in the literature. Just 1 patient with an incomplete sensory (AIS B) lesion had postoperative pain. Anal stenosis and local infections, neither of which occurred in the present research, are other early complications recorded in the literature [14]. Therefore, developing an open wound around the anus has elevated risks. Despite this within six weeks, all wounds healed, which is actually faster than in the general population (90% at 10 weeks)[10]. This may be due to the lack of pain that allowed patients from the first post-operative day to get out of bed and sit. In response to stimuli below the injury stage, autonomic dysreflexia is characterized as an increase in systolic blood pressure (~20 mmHg above baseline). This usually occurs in patients with SCI at and above T6 and can include multiple signs and symptoms (headache, dysrhythmia, flushing and sweating). Effective stimuli for autonomic dysreflexia are in particular, bladder distension or contractions, and any anal processes for stool removal (such as the insertion of a suppository or a finger). Both procedures were performed under general anaesthesia with a bilateral pudendal nerve block in order to control autonomic dysreflexia. The fact that 88% of patients said that if necessary, they will undergo the same surgery again reflects the fact that haemorrhoidectomy was well tolerated, but we strongly recommend that it should be done in a center with SCI personnel.

The reported incidence of anal incontinence after haemorrhoidectomy varies from 2 percent to 12 percent in the general population, depending on the description adopted by the authors. Excision of the anal cushions (connective tissue complexes comprising smooth cells and vascular channels) producing up to 15% of the resting pressure, postoperative scar tissue formation decreasing sensation in the transitional region, and lateral internal sphincterotomy are the reasons for incontinence. In this study, incontinence was encountered by only 1 patient (6 percent) (mixed gas and faecal).

Hemorrhoidectomy is a long-term procedure, in contrast to haemorrhoid ligation that is done to alleviate symptoms. A recurrence rate of 18 percent (3 patients) was shown in the results. This is greater than in the general population, where one-year recurrence is about 5%, but

can be as low as 1%. The longer follow-up in the present study (5.8 years vs. 1 year and the fact that most patients underwent more complicated procedures to correct anal fissures (12 of the 17 patients) must be taken into account in the interpretation of the findings. In addition, since the bowel programs of the patients did not improve after surgery, the risk factors for haemorrhoids continued. The satisfaction rate, while strong, was lower in the general population than in studies (75 vs. 90 percent).

The longer follow-up in the present study (5.8 years vs. 1 year) in individuals with SCI is another complication associated with gastrointestinal issues. Risk factors include the passage of rough and bulky stools, resulting in anal tears, hypertonia or internal sphincter spasm in response to raw ulceration, local anal ischaemia, and repetitive digital stimulation trauma. 1 year and the fact that most patients underwent more complicated procedures to correct anal fissures (12 of the 17 patients) must be taken into account in the interpretation of the findings. In addition, since the bowel programs of the patients did not improve after surgery, the risk factors for haemorrhoids continued. The satisfaction rate, while strong, was lower in the general population than in studies (75 vs. 90 percent). There is no consensus in France as regards medical care for anal fissures. First-line and nitroglycerin rectal ointments are always given as second-line non-specific care, with healing rates between 8 and 31 percent and 33 and 49 percent. In this study, the 25 percent (3 patients) recurrence rate of fissures is higher than in the general population (11.6 percent with 8.2-year mean follow-up).

Strikingly, the most serious SCI (AIS A or B), i.e. full motor lesions, occurred in all 17 patients who took part in this study. Previous studies have shown a substantial association between the severity of SCI and the severity of neurogenic bowel dysfunction using the NBD or PGI-S score in individuals with SCI. Patients with full motor lesions may seem to be especially at risk of developing haemorrhoids. Previous research on the other hand, have not found any effect of the lesion stage on the frequency of slow transit or difficulty of defecation, constipation or incontinence or NBD score [15].

Conclusion

This pilot retrospective review of open-label surgery in patients with SCI for grade III and IV haemorrhoids found high levels of satisfaction and low rates of complications comparable to rates in the overall population. In fact, in all patients, all wounds healed within 6 weeks and autonomic dysreflexia was managed.

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