Early quality of life outcomes following Doppler guided transanal haemorrhoidal dearterialisation : a prospective observational study

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Abstract

Background and aims : **There are few studies examining the quality of life (QOL) of patients with haemorrhoidal disease. Transanal heamorrhoidal dearterialization (THD) is a treatment modality for heamorrhoidal disease in which a Doppler transducer is used to locate the supplying arteries that are subsequently ligated. The aim of this study was to assess symptoms and QOL changes following THD.**

Patients and methods : **This was a prospective evaluation of QOL and symptom changes following THD. Patient symptoms, demographics and QOL were recorded preoperatively and 1-month post-operatively following THD using the medical outcomes study short-form-36 (SF-36).**

Results : **Thirteen patients undergoing THD were evaluated. One month following THD symptoms of haemorrhoid protrusion, bleeding, anal pain, painful defaecation, constipation and tenesmus, had all significantly reduced ($P < 0.05$). Limitations in usual role activities because of physical health problems (53.8 ± 10.5 Vs 90.4 ± 4.5, $P = 0.004$), vitality, energy and fatigue (45 ± 6.9 Vs 73.5 ± 5.0, $P = 0.003$), general mental health, psychologic distress and wellbeing (60.9 ± 6.9 Vs 83.1 ± 5.9, $P = 0.023$), limitations in social activities because of physical or emotional problems (58.7 ± 8.8 Vs 84 ± 5.9, $P = 0.025$), and physical pain (52.9 ± 7.9 Vs 84.6 ± 6.4, $P = 0.005$) scores had all improved 1-month following THD.**

Conclusions : **THD significantly reduces symptoms of haemorrhoidal disease and improves specific aspects of QOL 1-month following surgery.** (Acta gastroenterol. belg., **2013**, 76, **231-234**).

Key words : haemorrhoidal disease, haemorrhoidal artery ligation, transanal haemorrhoidal dearterialisation, quality of life.

Introduction

Heamorrhoids represent one of the most common medical and surgical disease processes encountered in clinical practice (1) with more than 39% of the population suffering from haemorrhoids (2). A plethora of treatment options exist including phenol injection, rubber band ligation, open or closed haemorrhoidectomy and stapled haemorrhoidectomy. Believed to be superior to excisional haemorrhoidectomy, stapled haemorrhoidectomy offers reduced length of hospital stay, decreased operating time, less postoperative pain, and higher patient acceptability (3,4) but prolapse control is better with excisional haemorrhoidectomy (4). Novel techniques, which are acceptable to patients, continue to be evaluated. An alternative intervention first reported by Morinaga *et al* (5) is a haemorrhoidal artery ligation procedure known as the HAL (haemorrhoid artery ligation) or THD (transanal haemorrhoid dearterialization) procedure.

A recent systematic review comparing THD with stapled haemorrhoidectomy found them to be equivalent in treatment success rate, operation time, postoperative complications and recurrence, however THD is associated with significantly less postoperative pain (6). For third degree haemorrhoids, THD shows reduced postoperative length of stay and reduced late complications relative to stapled haemorrhoidectomy including symptoms of obstructed defaecation, with no differences in postoperative incontinence (7).

There are few studies examining quality of life in patients with haemorrhoids. In a recent study of 976 patients attending for colonoscopy assessed using the Short Form (SF)-12 Health Survey, the presence of haemorrhoids had no influence on patient quality of life (8), implying this may not be the most appropriate instrument to assess quality of life in these patients. In contrast, the SF-36 score has been shown to be a valid tool to assess changes in quality of life following haemorrhoid surgery (9,10). Prior studies have been limited by examining quality of life at variable and prolonged periods following intervention.

Based on these data, the current study aims to assess the affect of THD on patient symptoms and quality of life using the SF-36 instrument one month after surgery to assess the effect of THD on early patient outcomes.

Methods

A prospective, case-control study was performed comparing preoperative and postoperative symptoms and SF-36 scores in patients undergoing THD in our institution for the management of symptomatic haemorrhoids.

All consecutive patients aged over 18 years who had prior physical examination and proctoscopy to confirm the diagnosis of haemorrhoids and had failed treatment with phenol injection or rubber band ligation and were referred for THD were eligible for inclusion in the study between March and May 2012. The morning of surgery

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patients were invited to participate in the study, and a written symptom questionnaire was completed and the SF-36 questionnaire (10,11) was conducted. Identical questionnaires were repeated 28 days following surgery in all patients.

The THD procedure was performed in the operating room under general anesthesia in the lithotomy position. All patients were treated with the THD proctoscope (THD America, Inc, Tampa, FL). The ligations were performed using the supplied synthetic absorbable braided suture and the artery was identified using the Doppler transducer. Significant reduction or disappearance of the Doppler signal was considered confirmative of vessel occlusion. Figure-of-eight ligation was applied with additional mucopexy procedures as needed.

Data on age, sex, Goligher grade, symptoms (bleeding, anal pain, painful defaecation, constipation, tenesmus and incontinence), prior treatment and number of vessels ligated were recorded.

The SF-36 health status questionnaire is one of the most widely accepted and best validated quality of life instruments currently available (11). SF-36 assesses 8 health concepts : (1) limitations in physical activities because of health problems (PF) ; (2) limitations in social activities because of physical or emotional problems (SF) ; (3) limitations in usual role activities because of physical health problems (RP) ; (4) physical pain (PP) ; (5) general mental health, psychologic distress, and well-being (MH) ; (6) limitations in usual role activities because of emotional problems (RE) ; (7) vitality, energy, and fatigue (VT) ; and (8) perception of general health (GH). Scores in each category were standardized to a range of 0 (worst possible) to 100 (best possible).

Data is presented as mean ± standard error of mean (SEM). Statistical analysis was performed using Chi squared test for categorical variables and analysis of variance (ANOVA) for continuous variables using SPSS v12.01 (SPSS Inc., Chicago, Il).

Results

13 patients underwent THD for symptomatic haemorrhoids and completed follow-up questionnaires 1-month after surgery. 100% data was retrieved on all patients.

Table 1. — **Patient characteristics**

Age, median (inter-quartile range) years	37.0 (31.5-52.5)
Male : Female, *n*	4 : 9
Goligher grade, *n*	
1	2
2	4
3	5
4	2
# vessels ligated, median (inter-quartile range)	6.0 (5.5-6.0)

Patient demographics are detailed in Table 1. All underwent day case surgery under general anaesthesia. All had previously received treatment for haemorrhoids, 5 rubber band ligation alone and 8 both phenol injection and banding. There were no complications or readmissions following THD.

One month following THD symptoms of haemorrhoid protrusion, bleeding, anal pain, painful defaecation, constipation and tenesmus, had all significantly reduced (Table 2). The proportion of patients using topical therapy for haemorrhoid treatment had also reduced. The median return to work was 6 (3-6.5) days. No patient required repeated haemorrhoidal injection or banding in the month following surgery. 8/13 (61.5%) described the outcome as excellent/good, 4/13 (30.8%) as acceptable and 1/13 (7.8%) as poor. 12/13 (92.3%) would undergo the procedure again. The single patient who reported a poor outcome had known cauda equina syndrome and pre-existing faecal incontinence.

Quality of life was assessed in all patients before and after 1-month following THD using the SF-36 instrument. Limitations in usual role activities because of physical health problems (53.8 ± 10.5 Vs 90.4 ± 4.5, $P = 0.004$), vitality, energy and fatigue (45 ± 6.9 Vs 73.5 ± 5.0, $P = 0.003$), general mental health, psychologic distress and wellbeing (60.9 ± 6.9 Vs 83.1 ± 5.9, $P = 0.023$), limitations in social activities because of physical or emotional problems (58.7 ± 8.8 Vs 84 ± 5.9, $P = 0.025$), and physical pain (52.9 ± 7.9 Vs 84.6 ± 6.4, $P = 0.005$) scores had all improved 1-month following THD.

Table 2. — **Symptoms before and 1-month after THD**

	Pre-operative *(n)*	Post-operative *(n)*	P-value
Protrusion	11	3	0.005
Bleeding	13	2	< 0.001
Anal Pain	7	1	0.030
Painful defaecation	10	2	0.005
Constipation	9	3	0.047
Tenesmus	12	6	0.030
Incontinence	1	1	0.760
Use of topical therapy	11	3	0.005

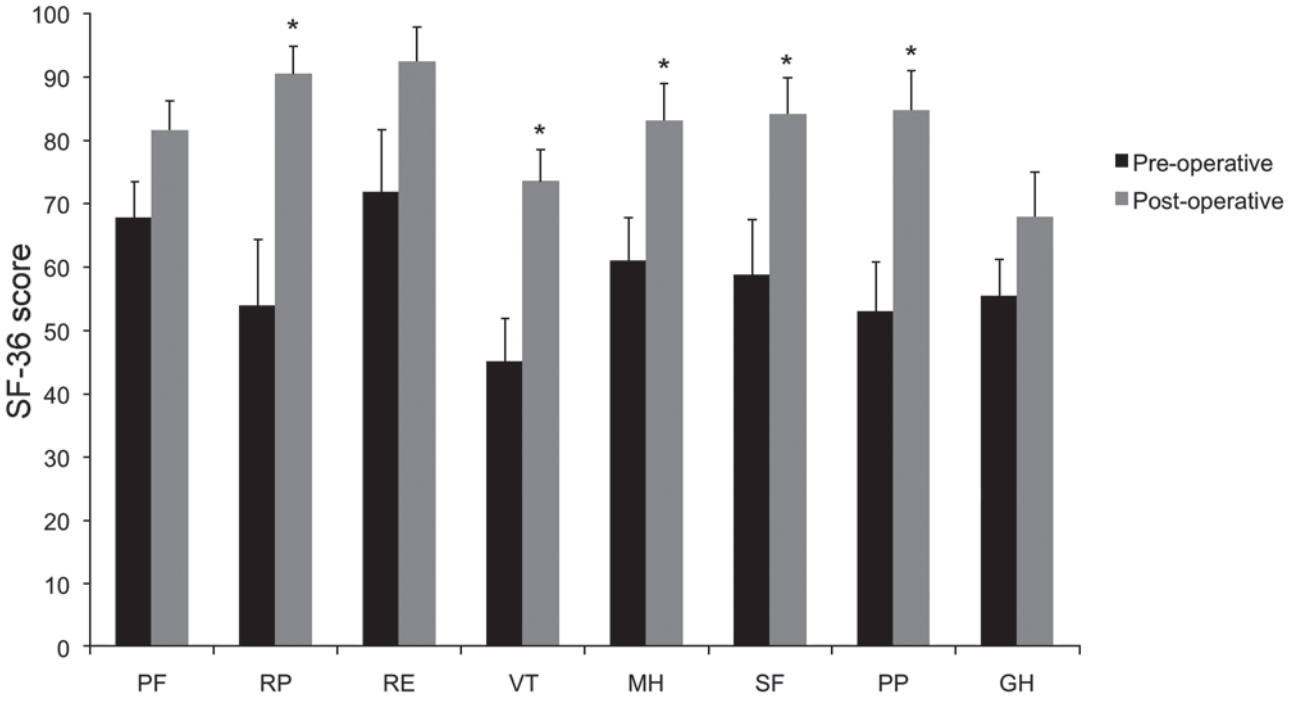

Fig. 1. — Comparison of SF-36 scores before and 1-month after THD.
8 variables were assessed : limitations in physical activities because of health problems (PF), limitations in usual role activities because of physical health problems (RP), limitations in usual role activities because of emotional problems (RE), vitality, energy and fatigue (VT), general mental health, psychologic distress and well-being (MH), limitations in social activities because of physical or emotional problems (SF), physical pain (PP) and perception of general health (GH). *P < 0.05, ANOVA.

Discussion

The current study demonstrates that 1-month following THD, symptoms of haemorrhoid protrusion, bleeding, anal pain, painful defaecation, constipation and tenesmus, had all reduced. Limitations in usual role activities because of physical health problems, vitality, energy and fatigue, general mental health, psychologic distress and wellbeing, limitations in social activities because of physical or emotional problems, and physical pain SF-36 scores had all improved 1-month following THD.

THD aims to localize the supplying arteries of the corpus cavernosum recti in the distal rectum using a Doppler transducer and subsequently ligate these arteries through a specially designed proctoscope resulting in shrinkage of the pathological tissue and subsequent symptom relief. THD is atraumatic to the anorectum, not affecting anal manometric and rectal volumetric parameters or the sphincter complex (12). In concordance with previous published results (13-15), the beneficial effect of the THD procedure and the high patient satisfaction was to be expected. However, the aim of this study was to evaluate QOL following THD.

Patients with haemorrhoids report an abnormal bowel habit, bloating, pain associated with evacuation and describe a reduced feeling of well being and disturbed social life caused by bowel symptoms (16). Despite this, QOL in haemorrhoidal disease is an under-evaluated endpoint with no haemorrhoid specific QOL score. One study to date has assessed QOL following THD with gastrointestinal and faecal incontinence QOL scales (13), reporting an improvement following THD at 3 months. The current study supports these findings but is the first to report an improvement in QOL 1-month after surgery and to use the SF-36 score which assess the patients global QOL. After stapled haemorrhoidectomy, a significant improvement in SF-36 QOL parameters is seen 6-months after surgery, but 6-weeks after surgery several parameters are lower (9), implying a further advantage of THD over this procedure.

Limitations of the current study include its relatively small sample size. As small studies may produce false-positive findings, the results herein must be interpreted with caution. However, no study using the SF-36 instrument to assess the benefit of THD has been conducted to date on which a sample size calculation could be based. The current study did not limit inclusion criteria to a specific haemorrhoid grade, however, THD is successful for up to fourth degree haemorrhoids (17) and this was unlikely to have affected the observed endpoints. Long-term success was not evaluated, but this has been demonstrated by other series (18). Finally, there was no non-treatment control arm for the purposes of comparison.

Despite these limitations, the current study adds weight to the existing literature that the SF-36 score is a

valid instrument to measure outcomes following haemorrhoid surgery and that THD significantly reduces symptoms and improves specific aspects of QOL 1-month following surgery.

Conflict of Interest : None to declare.

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