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Simultaneous, combined sclerotherapy and rubber band ligation of haemorrhoids

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Abstract We present the results of combined, simultaneous application of sclerotherapy and rubber band ligation during one session in patients with symptomatic second-degree haemorrhoids. Between 1993 and 1996, 83 consecutive outpatients with second-degree haemorrhoids underwent simultaneous rubber band ligation of larger (primary) piles and sclerotherapy of smaller (secondary) piles. The treatment was successful, and the symptoms were controlled in 88% of the patients. The overall incidence of complications was 9.2%, but these were minor and transient. The simultaneous, combined sclerotherapy and rubber band ligation of second-degree haemorrhoids is a simple, safe, and effective method, with only minor and transient complications.

Key words Haemorrhoids • Sclerotherapy • Rubber band ligation • Combined treatment

Introduction

During the past few decades, symptomatic haemorrhoids have begun to be treated according to their degree. Sclerotherapy for first- and second-degree haemorrhoids and rubber band ligation for second- and third-degree haemorrhoids seem to be two of the most popular therapeutic alternatives [1-5]. The size of the primary (larger) haemorrhoidal piles defines the degree of the haemorrhoids. Clinical examination usually also reveals secondary (smaller) haemorrhoidal piles in the same patient. Combined, simultaneous sclerotherapy of smaller piles and rubber band ligation of the larger piles in one session could be an ideal therapy for second-degree haemorrhoids and could lead to much better results than sclerotherapy or rubber band ligation when applied separately. We know of no studies of simultaneous application of these two methods [4-9].

The purpose of this paper is to present the results of this combined procedure in patients with symptomatic second-degree haemorrhoids.

Patients and methods

Between 1993 and 1996, 83 consecutive outpatients with symptomatic second-degree haemorrhoids (according to Goligher's staging [10]), in whom medical treatment had failed, underwent simultaneous sclerotherapy and rubber band ligation of haemorrhoidal piles. The patients ranged in age from 21 to 77 years (average age 56.8 years); 55 were men and 28 were women. The major indications for treatment were recurrent bleeding and prolapse. However, the majority of patients reported two or more symptoms, as shown in Table 1. All of the patients were asked their medical history, given clinical examination, proctosigmoidoscopy and, when appropriate, colonoscopy or barium enema in order to exclude any other cause of haemorrhage. Two patients (2.4%) showed anal fissure, which was treated before the combined procedure; one (1.2%) eczema; and 8 (9.6%) skin tags (Table 2). Once there were no diagnostic uncertainties, we proceeded directly to the simulta-

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neous sclerotherapy of the smaller haemorrhoidal piles and rubber band ligation of the larger piles. Ligation was performed according to the well-known technique of Barron [11]. We performed ligation of one pile in 60 patients (72.3%) and two piles in the last 23 (27.7%) (Table 3). Sclerotherapy of the remaining 1-3 piles was done by submucosal injection of a 5% phenol solution in almond oil, as described by Blanchard [12] and Bensaude [13]. The amount of sclerosing solution used was 2 ml per pile and 2-6 ml in total per session.

Before discharge, the patients were given instructions for stool softening, and were informed about possible immediate and later complications, particularly about bleeding after 1 or 2 weeks, when the necrotic piles would fall off. The patients were asked to contact us after 48 h and were re-examined during the fourth week after surgery and then again in the second year.

Table 1 Frequency of symptoms found in the patient population

Symptom	Number of patients (%)
Prolapse (spontaneously reducible)	83 (100)
Bleeding	78 (94)
Pruritus ani	17 (20.5)
Pain	8 (9.6)

Table 2 Additional findings in the 83 patients studied

Finding	Number of patients (%)
Skin tags	8 (9.6)
Anal fissure	2 (2.4)
Eczema	1 (1.2)

Table 3 Rubber band ligation: frequency in total population of 83 patients

Ligation	Number of patients (%)
One	60 (72.3)
Two	23 (27.7)

Results

Sixty-two patients (74.7%) complained of anal discomfort, mild pain or tenesmus following the procedure and lasting up to 3 days. As shown in Table 4, four patients (4.8%) had pain, which was treated with oral analgesics. One patient had minor blood loss on the third day and another on the tenth day after treatment. Two patients reported difficulty in urinating, which lasted for up to 24 h. Most patients returned to their usual daily activities the next day. Four patients (4.8%) required additional sclerotherapy and ligation of another haemorrhoidal pile after 4 weeks of persisting symptoms.

Results were considered excellent in 59 patients (71.1%), who had no symptoms 2 years after treatment. Results were considered good in 14 patients (16.9%) who had minor, infrequent symptoms, but these patients had definitely improved compared to their pre-treatment status. Ten patients (12%) reported no change in symptoms (Table 5).

Table 4 Complications following treatment

Complications	Number of patients (%)
Pain	4 (4.8)
Bleeding	2 (2.4)
Difficulty in urinating	2 (2.4)
Total	8 (9.6)

Table 5 Results following treatment

Results	Number of patients (%)
Excellent	59 (71.1)
Good	14 (16.9)
Poor	10 (12)

Discussion

There has been a world-wide decline in the rate of haemorrhoidectomy due to the dietary advice given to patients and conservative treatment, including non-invasive methods such as sclerotherapy and rubber band ligation. Sclerotherapy and particularly rubber band ligation are the methods of choice for the treatment of first-degree and second-degree haemorrhoids [2-9, 11-18]. Combined treatment retains all the advantages of sclerotherapy and rubber ring ligation performed alone, e.g. simplicity, economy, safety, efficacy, acceptability by the patient, and the avoidance of general anaesthesia. The procedure does not require special preparation of either the patient or the bowel, it can be performed in outpatients, and it can be performed immediately at the time of diagnosis [5, 8, 19]. The most frequent indications for treatment in our patients were bleeding and prolapse, in which we concur with prior studies [2, 5, 9, 15, 16].

Several authors [4, 5, 8, 16] report that patients complained of tenesmus or anal discomfort with a rate of 45%-85% after ligation of haemorrhoids; we observed an incidence of 74.7% after combined simultaneous sclerotherapy and ligation. These complaints did not prevent most of our patients from resuming their daily activities, which accords with other studies [4, 5, 8, 16]. The rate of complications after rubber band ligation, as reported in prior studies, ranges from 4%-12%, and most of these are transient. The complications following sclerotherapy are less common (1%-5%) and are usually due to technical errors [1, 2, 5, 6, 8, 9, 14, 16]. The rate of complications following our combined procedure was 9.2%. However, all these complications were minor and transient, such as pain in 4.8% of patients. In other studies, the rate of pain after rubber ring ligation varies between 2%-20%. Again in other studies, the incidence of haemorrhage is 1%-3% [1, 2, 5, 8, 16, 17, 20]. Two of our patients (2.4%) had minor bleeding and did not need any specific treatment. There have also been infrequent reports of serious bleeding after haemorrhoidal ligation, but this probably occurred in patients with predisposing factors, such as use of anticoagulants, liver disease or advanced age,

which were not present in our patients [1, 2, 4, 6, 9, 17]. There have been rare reports of serious complications after rubber band ligation such as pelvic sepsis and even death, possibly occurring in immunodepressed individuals, who generally have a high rate of serious and dangerous complications, but these were not observed in our study [1, 21-23].

One session of sclerotherapy is not always sufficient. Repeated treatment, 3-4 weeks after the initial procedure is often required [4, 6]. Santos et al. [9] report that haemorrhoid-associated symptoms were successfully treated in one sclerotherapy session in 77% of their patients, while 23% required repeated treatment. In regard to rubber band ligation, as recommended by Barron [11] and widely practised today, if one ligation is performed per session, three to four sessions must be performed [2, 5, 8, 20, 24-26]. It should be noted that after the combined, simultaneous procedure, only 4 of our patients (4.8%) required a repeated treatment for effective symptom control.

Many investigators report initially positive results after sclerotherapy alone in 50%-70% of patients with first- or second-degree haemorrhoids [3, 4, 6, 7, 9, 27, 28]. Santos et al. [9] report that the condition of most of their patients improved, while in about 30% symptoms persisted. McLeod [26] reports a success rate of 72% in patients with second-degree haemorrhoids. The ligation of second-degree haemorrhoids has a success rate of 50%-80% [1, 3, 5, 8, 19]. Wroblewski et al. [5] report that the results of ligation depend on the degree of the haemorrhoids. In their study, the overall success rate was 69%: 76% for second degree, 66% for third degree, and only 26% for fourth degree haemorrhoids. Combined sclerotherapy and rubber band ligation achieved successful initial results in 88% of our patients 2 years after treatment.

In conclusion, the simultaneous, combined sclerotherapy and rubber band ligation of second-degree haemorrhoids is a simple, safe and effective method, with only minor and transient complications.

References

- Bat L, Melzer E, Koler M, Dreznick Z, Shemesh E (1993) Complications of rubber band ligation of symptomatic internal hemorrhoids. A meta-analysis. *Dis Colon Rectum* 36:287-290
- Lee H, Spencer R, Beart R (1994) Multiple hemorrhoidal banding in a single session. *Dis Colon Rectum* 37:37-41
- McRae H, McLeod R (1995) Comparison of hemorrhoidal treatment modalities. *Dis Colon Rectum* 38:687-694
- Watson SJ, Phillips RKS (1996) Haemorroidektomie: Gegenwaertiger Stand. *Chirurg* 67:213-221
- Wroblewski DE, Corman ML, Veidenheimer MC, Collier JA (1980) Long-term evaluation of rubber ring ligation in hemorrhoidal disease. *Dis Colon Rectum* 23:478-482
- Bock JU (1989) Technik, Vorgehen und Wertigkeit bei ambulanter Haemorrhoidentherapie. *Langenbecks Arch Chir Suppl II Verh Dtsch Ges Chir.: 773-776*
- Greca F, Hares M, Neva E, Alexander-Williams J, Keighley RB (1981) A randomized trial to compare rubber band ligation with phenol injection for treatment of haemorrhoids. *Br J Surg* 68:250-251
- Lau WY, Chow HP, Poon GP, Wong SH (1982) Rubber band ligation of three primary hemorrhoids in a single session: a safe and effective procedure. *Dis Colon Rectum* 25:336-339
- Santos G, Novell JR, Khoury G, Winslet MC, Lewis AAM (1993) Long-term results of large dose, single-session phenol injection sclerotherapy for hemorrhoids. *Dis Colon Rectum* 36:958-961
- Goligher JC (1976) *Surgery of the anus, rectum and colon*, 3rd edn. Bailliere Tindall and Cassell, London, p 118
- Barron J (1963) Office ligation of internal hemorrhoids. *Am J Surg* 105:563-570
- Blanchard CE (1928) *Text book of ambulant proctology*. Medical Success Press, Youngstown, Ohio, p 134
- Bensaude A (1967) *Les hemorrhoides et affections courantes de la region anale*. Librairie Maloine SA, Paris
- Kanellos I, Goulimaris I, Vlachtsis K, Dadoukis I (1997) Rubber band ligation of symptomatic internal hemorrhoids. *Hell Iatr* 63:412-416
- Dencker H, Hjorth N, Norryd C, Tranberg GK (1973) Comparison of results obtained with different methods of treatment of internal hemorrhoids. *Acta Chir Scand* 139:742-745
- Marshman D, Huber PJ Jr, Timmerman W, Simonton CT, Odom FC, Kaplan ER (1989) Hemorrhoidal ligation: a review of efficacy. *Dis Colon Rectum* 32:369-371
- Shemesh EI, Kodner IJ, Fry RD, Neufeld DM (1987) Severe complication of rubber band ligation of internal hemorrhoids. *Dis Colon Rectum* 30:199-200
- Khoury GA, Lake SP, Lewis AA (1985) A randomised trial to compare single with multiple phenol injection treatment for haemorrhoids. *Br J Surg* 72:741-742
- Walker AJ, Leicester RJ, Nicholls RJ, Mann CV (1990) A prospective study of infrared coagulation, injection and rubber band ligation in the treatment of haemorrhoids. *Int J Colorectal Dis* 5:113-116
- Mattana C, Maria G, Pescatori M (1989) Rubber band ligation of hemorrhoids and rectal mucosal prolapse in constipated patients. *Dis Colon Rectum* 32:372-375
- O'Hara VS (1980) Fatal clostridial infection following hemorrhoid banding. *Dis Colon Rectum* 23:570-571
- Russell TR, Donohue JH (1985) Hemorrhoidal banding: a warning. *Dis Colon Rectum* 28:291-293
- Clay LD III, White JJ Jr, Davidson JT, Chandler JJ (1986) Early recognition and successful management of pelvic cellulitis following hemorrhoidal banding. *Dis Colon Rectum* 29:579-581
- Khubchandani I (1983) A randomised comparison of single and multiple rubber band ligations. *Dis Colon Rectum* 26:705-708
- Poon GP, Chu KW, Lau WY, et al (1986) Conventional vs. triple rubber band ligation for hemorrhoids: a prospective randomised trial. *Dis Colon Rectum* 29:836-838
- McLeod JH (1983) Rational approach to treatment of hemorrhoids based on a therapy of etiology. *Arch Surg* 118:29-32
- Kanellos I, Odisseos C, Vlachtsis K, Tourlis T, Dadoukis I (1997) Sclerotherapy for internal first degree hemorrhoids. *Acta Chir Hellen* 63:437-440
- Kanellos I (1997) Conservative treatment of hemorrhoids. Sclerotherapy-ligation. *Hell Gastroenterology*, pp 83-89