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Comparison of Hemorrhoid Sclerotherapy Using Glucose 50% vs. Phenol in Olive Oil

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Abstract

***Background*:** Sclerotherapy is a safe hemorrhoid treatment with minimum costs and side effects. The expensive present sclerosants reduce our tendency to use this technique, so we conducted this study in a try to replace them.

***Material and Methods*:** This is a prospective study on 170 hemorrhoid cases visited at Imam Ali and Khatam clinics during a year. Patients were randomly divided into case and control groups. After sedation and proctoscopy 3 ml of "50% glucose" and "phenol in olive oil" solutions were injected in each hemorrhoid pile of case and control groups respectively. Patients were assessed 1 week and 3 months thereafter. Data was analyzed via SPSS-17 software, using χ^2 and *t*-student tests.

***Results*:** Out of 71 cases and 73 controls, 55.6% were female. The most common chief complaint was bleeding (51.4%). The 2 groups were even regarding gender, age and chief complaint. (*p*-value respectively 0.412, 0.876, 0.146). Bleeding after1 week and 3 months and response rate didn't show a significant statistical difference between 2 groups. (*p*-value respectively 0.914, 0.731, 0.422). Finally 19 patients didn't respond to any treatment (13.2%).

***Conclusion*:** In an even sample sclerotherapy with 50% glucose can be as efficient as phenol in olive oil solution. Regarding cultural characteristics, we hope that evolving non surgical techniques may encourage patients to seek early treatments.

Introduction

Vascular piles are a part of anal canal continence (left lateral, right anterior and right posterior) and if symptomatic, called hemorrhoids [4]. They are classified as internal and external [1, 5, 6]. Internal hemorrhoid (proximal to dentate line) is covered by anorectal mucosa and causes bleeding, prolapse and pain [7]. External hemorrhoid causes thrombosis and then pain and induration [8-10]. First line treatment consists of hygiene, diet and medication [1, 11]. Outpatient treatments are sclerotherapy, rubber band [7, 12], cryotherapy, diathermy and internal sphincterotomy [7]. Rubber band can be re-applied safely after 4-6 weeks [8, 13, 14].

Side effects (bleeding and thrombosis external hemorrhoids) are seen in 5%. Pelvic sepsis also has been reported [8]. Cure is reached via surgical hemorrhoidectomy using open (Milligan Morgan) or closed (Fergusson) approaches as using local anesthetics plus IV sedation [8, 15] .

Complications are pain, retention, urinary infection, constipation, skin tags, prolapse, ectropion, fistula, stenosis caused by extensive circumferential resection [8, 16], pseudo polyp, epidermal cyst, fissure, incontinence and rectocele [7]. Sclerotherapy has proved to be useful for 1, 2, 3 grades of internal hemorrhoids lately [8]. One to three milliliteres ml of sclerosing agent (5% phenol in almond oil, sodium tetradecyl sulfate, sodiume moroate, kinin urea [2], 23.4% saline [17], dextrose glycerin phenol [18] is injected in the sub mucosa of each packet. Side effects as fibrosis [2] and infection [2, 19] may result from superficial, high dose or repetitive injection [8].

Sclerosing agents are either unavailable or expensive; we hereby used 50% glucose solution which is available and not allergenic. The sclerosing agent occludes the vessels and causes inflammation and fibrosis that fixes the hemorrhoidal tissue and prevents prolapsed [20].

A long spinal needle is used via anoscope. Induration is the indicator of proper depth [8]. There are other complications as local abscess and temporary bacteremia, prostate abscess, retroperitoneal infection, necrotizing fascitis and anaphylaxis (to Sotradecol). The short term effect of sclerotherapy has been shown lately [8]. Two meta-analysis revealed the priority of elastic band over infra red coagulation although it has more pain, bleeding and needs more analgesics during first 24 hours [8]. Adding IR coagulation to elastic band ligation, 97% satisfaction is achieved.

Materials and Methods

This is a prospective randomized clinical trial conducted on every hemorrhoid patient presented at Khatam or Imam Ali hospitals during 2010. After written consent, all patients were examined with proctoscope under sedation.

Once the diagnosis was confirmed, 3 ml of 50% glucose in cases and 3 ml of phenol in olive oil standard solution was injected into the sub mucosa of each pile 1 cm proximal to dentate line. The patient was controlled 2 hours thereafter.

Chief complaint and response to treatment were assessed. An appointment was set upon a week, when patients were examined. In the case of slight bleeding, the patient was visited after 3 months; otherwise, they were asked if there were any problems on the phone. Regarding previous studies, 170 patients entered the study, sampling was consequently done. Sample fall caused that there remained 71, 73 patients in each group (Fig. 1).

Generally not abling to pay a visit was the result of leaving the study. Randomization was done through random number table and patient coding, results were recorded in a form and just codes were applied for patient reference.

At the end excel and SPSS-17 software were used to record and analyze the data. The significance point was set to $p<=0.05$, mean and standard deviation was used to analyze nominal data and frequency and χ^2 test for string data.

Many patients are not willing to take part in anorectal studies. Cultural factors happen to change ideas about treatment. The written consent was set regarding these parameters. For special data, just the author was informed and data was recorded using just codes, secrecy respected.

Patients entered the study if diagnosis was confirmed on examination, bleeding of other causes ruled out by Para clinics, nonsurgical procedures confirmed to be amenable regarding age and clinical parameters and grade 1-3 hemorrhoid confirmed.

Patients with no consent, or who had other anorectal diseases or immunodeficiency or diabetes mellitus did not enter the study. The patient paid a visit 1 week and 3 months after treatment. Pain was recorded just after the treatment. Bleeding and other symptoms were assessed in other visits.

Results

80 patients were female (55.6%). Chief complaint was mostly bleeding (51.4%, N=74) then pain and mass. Out of these patients with pain and mass chief complaints, 34 cases had co-bleeding. Number of hemorrhoid piles was compared regarding patient age, they had a linear relation. (p=0.018)

Bleeding as chief complaint was present in 26 patients between 46-55 years (74% of this group and 18% of all. Statistical tests show that chief complaints of these patients change significantly regarding patient age ($p\leq0.001$).

Demographic parameters were evenly set among patients as analysis confirms. Statistical tests reveal that 2 groups are even regarding gender and age. Chief complaint was assessed and no difference was found between case and control group.

Prevalence of bleeding as co-complaint revealed no difference between case and control groups. After one week we had persistent bleeding in 33 patients (23%) however there was no significant difference between two groups in this feature (Table 1). During 3 month after treatment, 19 patients did not respond to the treatment (either had bleeding or remained symptomatic) out of which 16 patients did not respond to the other nonsurgical measures and finally underwent surgery. Final assessment after 3 months revealed persistent bleeding just in 13 patients who then underwent other treatment modalities (Table 2). The type of sclerosing agent is not important in late persistence of bleeding.

Need for surgical treatment was not significantly different in 2 groups. Response to treatment was assessed and 11 cases (15%)/8 controls (11%) did not respond to treatment. Statistical tests reveal no significant difference between 2 groups (Fig. 2).

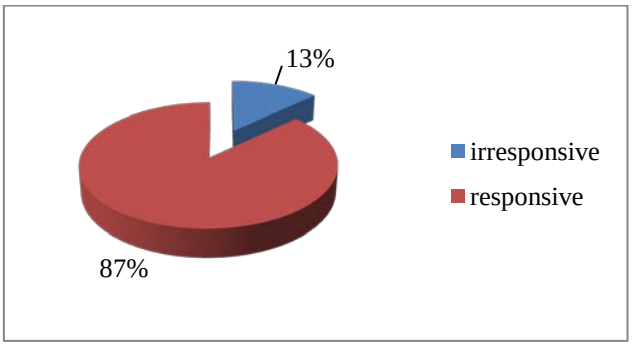

Figure 2. The frequency of response to treatment in patients

Table 1. Frequency of bleeding one week after surgery in patients

Bleeding a week after surgery	Bleeding(+) N(%)	Bleeding (-) N(%)	Total N(%)
Experimental group	16(22.5)	55(77.5)	71(100)
Control Group	17(23.3)	56(76.7)	73(100)
Total	33(22.9)	111(77.1)	144(100)

Table 1. Frequency of bleeding three months after surgery in patients

Bleeding Three months after surgery	Bleeding(+) N(%)	Bleeding (-) N(%)	Total N(%)
Experimental group	7(9.9)	64(90.1)	71(100)
Control Group	6(8.2)	67(91.8)	73(100)
Total	13(9)	131(91)	144(100)

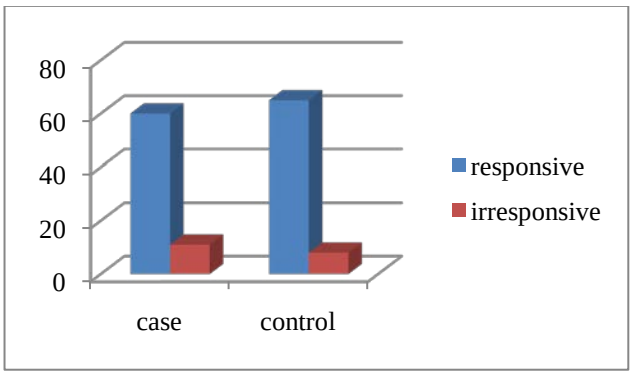

Figure 2. Frequency of response to treatment in patients

Discussion

Sclerosing agent type does not affect the treatment regardless of the chief complaint. That means in a homogenous group of patients, randomly divided into 2 groups, phenol in olive oil would not differ from glucose 50% injection into hemorrhoid piles. So we can use them in place to reduce the cost of treatment followed by more acceptances.

Sclerotherapy is one of hemorrhoid treatments [8, 9, 20] and is a proper and acceptable treatment [8]. Although there are new methods and equipment like stapler, simple old cost effective sclerotherapy is left behind. Few studies cover it and this is one of those few. Hemorrhoid is a common disease treated by a vast majority of physicians with different specialties [10]. Age distribution was comparable to the published studies [5, 9, 12, 20]. The gender distributed like other studies in the field [4].

Pregnancy and puerperal period make the patient prone to symptomatic hemorrhoid. The treatment during pregnancy is symptomatic [4].

We did not find any pregnancy related hemorrhoid study in our database. No pregnant patient rolled in our study. Our study confirmed that more piles were present in older patients. Aging causes hemorrhoid progression [2, 4, 17].

Outpatient treatment is widely acceptable and cost effective. There are many outpatient treatments amenable in the office like sclerotherapy, IR embolization and rubber band ligation. The latter is more effective but has more pain post operatively [8, 13, 14].

Sclerotherapy side effects are mostly urinary, frequently in anterior piles. So it is not recommended to use sclerotherapy in anterior hemorrhoids [9].

This being an early side effect was not encountered in our study. Expensive unavailable sclerosing agents reduce the popularity of this modality. These are phenol in almond oil, sodium tetradecyl sulfate, sodium moroate, kinin urea [2], 23.4% saline [17], dextrose glycerin phenol [18]. Sclerotherapy has the least complications among other hemorrhoid treatments which prevents the progression of the disease [4, 21].

Sclerosing agent blocks vessels and causes inflammation and fibrosis that fixes hemorrhoid to the surrounding tissue, preventing prolapsed [20].

Regarding the high prevalence of early hemorrhoid and its slow progressive nature, treatment in these stages reduces the costs and also complications [8, 19, 20].

Early bleeding is the complication of a variety of hemorrhoid treatments [8]. We had this complication in some cases.

Fifty percent glucose solution has been used successfully in other anorectal diseases to fix the mucosa namely in rectal prolapse [20], so we used the same agent as sclerosing agent with interesting results. A relatively painless procedure which is less time consuming resulted in patient satisfaction. From the surgeon's point of view, it has less side effects, is fast and simple. High response rate in our series persuades us to use this simple, safe and now cost effective procedure in primary stages of the disease. Relying on the cultural situation of our society, we hope using nonsurgical treatments result in early presentation of the patients.

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Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest

The authors declare no conflict of interest.

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