Original Article

Injection Sclerotherapy versus Electrocoagulation in the management outcome of early haemorrhoids

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Abstract

Objective: To study the symptomatology of early hemorrhoids and to compare injection sclerotherapy (IS) with electrocoagulation (EC) in the management outcome of early haemorrhoids with respect to pain during the procedure, reduction in bleeding per rectum, and overall patient satisfaction score.

Methods: A total of 102 patients were included in this experimental study at the POF Hospital, Wah Cantt from October 2004 to June 2005. A detailed history was taken and proctoscopic examination was performed. Patients were then randomly divided into two groups (Lottery method). One group was subjected to EC and the other to IS. In the EC, using the EC machine (Wieda, China), direct current of 10-20 mA was applied in the submucosal plane of each pile core for 5-7 minutes. In the IS 1-2 ml of 5% phenol in almond oil was injected in the same plane in each pile core. Pain during the procedure, reduction in bleeding per rectum and overall patient satisfaction, were studied as outcome measures.

Results: The mean age of the patients was 44 years, 86 were males and 16 were females. Two thirds of the patients were having symptoms for more than 6 months. A third of patients had associated local pain while another third had associated mucous discharge. Chronic constipation was present in 81% patients. Only 24.5% of the patients had a positive family history of haemorrhoids. Patients in the electrocoagulation (EC) group experienced more pain during the procedure than the injection sclerotherapy (IS) group (P<0.000), but EC was significantly more effective than IS in terms of reducing the bleeding per rectum (P= 0.039), and also significantly higher number of patients were fully satisfied with EC than with IS (P<0.04).

Conclusion: EC, although more painful, is a safe, more effective and a highly satisfying procedure for treating early hemorrhoids (JPMA 56:579;2006).

Introduction

Haemorrhoidal disease is a common problem that affects a large number of patients.

Usually multiple remedies are used by patients without medical advice and for several reasons and consultation with a specialist is often delayed. The large prevalence of popular misconceptions adds to this and occasionally makes adequate treatment difficult.[1]

Haemorrhoids is believed to be one of the most widely spread human suffering ranking first among diseases of the rectum and large intestine.[2] Various modalities for the treatment of haemorrhoids exist, however efforts are being made to treat haemorrhoids as outpatient procedure.[3] Non-surgical outpatient treatment has a great impact on the patients' perception of the disease and results in considerable savings for the health care system.[4] New concepts in the management of haemorrhoidal disease have recently rekindled interest in this pathology.[5]

In the treatment of haemorrhoids all the procedures might have good results, if indications are correct.[6]

Two of the many treatment modalities used for haemorrhoids are injection sclerotherapy and electro coagulation. Injection sclerotherapy is widely used and is quite effective for early haemorrhoids.

Injection sclerotherapy is preferable to current coagulation for the outpatient treatment of haemorrhoids, because it is quicker, less tedious and a more comfortable procedure with equally effective early results.[7] However large dose single session sclerotherapy provides only short term benefits in the majority of patients with symptomatic haemorrhoids.[8] Injection sclerotherapy is slightly better than infra-red coagulation for second degree haemorrhoids.[9]

Septic complications following both conservative and surgical treatment of haemorrhoids are rare but catastrophic.[10] Impotence has been reported as a rare but important complication of sclerotherapy for haemorrhoids.[11]

Diathermy coagulation of haemorrhoids is a simple technique and may be considered in suitable cases.[12] Both direct current and bipolar probes are effective for the control of chronic bleeding from grade I to III internal haemorrhoids, but direct current produces fewer complications than bipolar probes.[13]

Not enough work has been done to compare the effectiveness of injection sclerotherapy with that of electro coagulation (using direct current with bipolar probe) in the

treatment of haemorrhoids.

The present study was aimed at comparing these two methods in the management outcome of early haemorrhoids, in terms of reduction in bleeding per rectum, pain score during the procedure, and patient satisfaction score.

Patients and Methods

Between October 2004 and June 2005, a total of 102 patients having 1st or 2nd degree piles, were recruited to this interventional study, conducted at POF Hospital Wah Cantt. After recruitment to study, they were randomized to two groups and were called one by one, on the given date to the outdoor department for the procedure.

For better follow up, only those patients who were entitled for free treatment at POF Hospital were included in the study (the employees and their families of the Pakistan Ordinance Factory). A computerized record of these patients is kept by the hospital. Patients of both the sexes having age 20-80 years and only patients having 1st or 2nd degree haemorrhoids were included. Patients excluded from the study were those having pregnancy, local infection, immune deficiency, 3rd or 4th degree piles, and haemorrhagic diathesis. Patients with pacemakers and history of arrhythmias were also excluded from the study. Approval of the local ethical committee of POF Hospital was obtained.

Patients were divided into two groups by simple randomization (Lottery Method). After history taking and examination in the outdoor department, the patients with Ist or 2nd degree piles were subjected to either Injection Sclerotherapy (IS) or Electrocoagulation (EC), as an outdoor procedure.

During the injection sclerotherapy, 1-2 ml of 5% phenol in almond oil was injected in the sub mucosal plane of each pile core above the dentate line. While in the Electrocoagulation, using the Electrocoagulation machine (Wieda, China), direct current of about 10-20mA is applied with a bipolar probe in the sub mucosal plane of each pile core above the dentate line. The current is applied for 5-7 minutes for each pile core.

A specific pain scale ranging from 0-10 was used in which patient had to mark the magnitude of pain perceived by him. On this scale 0 meant no pain at all and 10 meant the worst pain the patient has ever experienced. After the procedure patients of both the groups were given a standardized treatment of Metronidaziole 400 mg thrice a day for two days and bulk laxatives (Skilax 10 drops in water twice daily) for one week. Advice of increased vegetable intake in diet was also given. Follow up was done at 1st, 2nd, 3rd and 8th week. In the follow up visit, history taking and proctoscopic examination was done and finding noted as follows.

1. **No effect:** There was no effect or slight decrease (0-25%) in bleeding per rectum. No shrinkage of pile cores on proctoscopy.
2. **Reduced Bleeding:** There was noticeable reduction in bleeding per rectum, (25-90%) and the pile cores were shrunken on proctoscopy.
3. **Fully cured:** Bleeding per rectum was fully or nearly fully stopped and the pile cores were sclerosed on proctoscopy (>90% reduction).

At the 8th week of follow up, overall patient satisfaction score was measured. In this the patient had to mark his level of overall satisfaction, with 0 meaning not satisfied, 1 meaning moderate satisfaction and 2 meaning highly satisfied from the procedure.

The statistical analysis was done using SPSS version 10. Chi square test and Fischer's exact test (where cell values <5) was applied for assessing the significance of difference in the outcome measures of the two procedures. These outcome measures included pain score during the procedure, reduction in bleeding per rectum, and overall patient satisfaction score.

Results

A total of 102 patients were included in the study, the mean age of the patients was 44 years with STD deviation of 15.5 years, 86 were males and 16 were females. Majority of the patients (n=68, 66.6%) symptoms for more than 6 months, 30 (29.4%) had symptoms for the last 1-3 months, and only 4 (3.9%) had symptoms for the last 4-6 months. A third of patients (n=35, 34.3%) had associated local pain, while the remaining patients had no pain. All the patients had bleeding per rectum which was bright red in color. Seventy two (70.5%) patients reported this bleeding to be in the form of a few drops while 30 (29.4%) reported that they had a bloody splash in the pan. About a third of patients (n=31, 30.3%) had associated mucous discharge. History of constipation was present in 83 (81.3%) patients more often, while 19 (18.6%) had constipation sometimes. Only 2 patients (1.9%) had history of weight loss who were found to have carcinoma rectum, which was palpable on digital rectal examination. Only 25 (24.5%) patients in our series had a positive family history of haemorrhoids (first degree relative), while 77 (75.5%) had a negative family history. Dietary history was taken from all the patients, 66 (64.7%) patients in our series were used to a diet having more vegetables and 36 (35.2%) patients were used to a relatively fibreless diet (diet having less vegetables but more meat, pulses and rice).

Proctoscopic examination of all the patients was

Table. Comparison of IS with EC with respect to the three variables being studied.

Treatment modality used	Pain score during procedure			Reduction in bleeding per rectum			Overall patient satisfaction			
	Mild	Moderate	Severe	No effect	Reduced bleeding	Fully curved	Not satisfied	Moderate satisfaction	Fully satisfied	Total
Injection selerotherapy (IS)	50 (96%)	2 (4%)	0	8 (17.3%)	9 (17.3%)	35 (67.3%)	8 (15.4%)	11 (21.1%)	33 (63.4%)	52 (100%)
Electrocoagulation (EC)	15 (30%)	34 (68%)	1 (2%)	3 (6%)	3 (6%)	44 (8%)	2 (4%)	6 (12%)	42 (84%)	50 (100%)

performed and the number and degrees of pile cores was recorded for each patient. Most patients (n=85, 83.3%) had three or more pile cores on proctoscopic examination, 12 (11.8%) patients had two pile cores and only 5 (4.9%) had single pile core. Eighty one (79.4%) patients had second degree piles while 21 (20.6%) had first degree piles.

Patients were divided into two groups and were subjected to either IS or EC. Fifty (49%) patients received EC and 52 (51%) patients received IS for their Ist or 2nd degree piles.

The pain score was measured at the time of procedure, with a pain scale ranging from 0-10. This scale was divided into three parts namely, 0-3, 4-6, and 7-10. In EC group, 15 (30%) patients were placed on the pain scale at 0-3, 34 (68%) patients were placed at 4-6, and only 1 (2%) patient having severe pain was placed at 7-10. In the IS group, the pain experienced by the patient was quite less, 50 (96%) patients were placed in 0-3 group, 2 (4%) in 4-6 group, while there was no patient in 7-10 group. This difference in the pain experienced by the patients in the two groups was highly significant ($p< 0.001$) (Table).

The second variable, i.e. reduction in bleeding per rectum was studied in the follow up at 8th week. In the IS group, 8 (15.3%) patients had no effect, 9 (17.3%) had reduced bleeding, and 35 (67.3%) were fully cured and had no bleeding per rectum. In the EC group, 3 (6%) patients had no effect, 3 (6%) had reduced bleeding, and 44 (88%) were fully cured. Statistically, this difference was significant ($p=0.043$) (Table).

The third variable, overall patient satisfaction score was also measured at 8th week of follow up. In the IS group, 8 (15.4%) patients were not satisfied at all from the treatment modality, 11 (21.1%) had moderate satisfaction and 33 (63.4%) were highly satisfied with IS. In the EC group, 2 (4%) patients were not satisfied, 6 (12%) had moderate satisfaction and 42 (84%) were fully satisfied from this treatment modality. This difference in overall patient satisfaction score was statistically significant ($p=0.04$) (Table).

Discussion

Haemorrhoids are one of the common surgical problems widely prevalent in all societies.

Haemorrhoidectomy is the procedure that cures the haemorrhoids most effectively. This widely perfomed procedure first described by Milligan and Morgan led to more blood loss and is associated with troublesome postoperative pain.[14] Therefore the emphasis these days is towards more conservative therapies and newer out patient methods for treating haemorrhoids are being devised. Many newer and scopic therapies are available, but fewer comparative randomized studies have evaluated them.[13]

Males were more in number than females in our series. This could be due to the reason that haemorrhoidal disease affects males more than females, as supported in another study.[15] This can also be due to social reasons, for females in eastern setup often do not disclose the problems relating to their pudendum. Most of the patients in our series had chronic constipation, thus relating it to the etiopathogenesis of haemorrhoids, which is also evident in a local study. However this association has been questioned recently by some of the international studies.[16,17] This conflict could be due to the difference in ethnicity or the race from which patients were sampled.

Injection sclerotherapy is an older method of treating haemorrhoids non surgically. It is very effective and a less tedious procedure but is not free from complications which can be serious sometimes. Rare complications reported were liver abscess[18], life threatening retropenitoneal sepsis[19] from UK, and nectrotizing fascitis of the perineal region from India.[20] Phenol induced chemical hepatitis from injection selerotherapy has been reported by Suppiah.[21] In a survey conducted by Al-Ghnaniem and his colleagues in UK, among the complications associated with injection sclerotherapy, 82% were urological.[22] Despite all these associated complications, injection sclerotherapy, because of its ease of use and effectiveness, is the widely used non-surgical method of treating haemorrhoids.

In comparison to 67.3% fully cured of the per rectal bleeding who were subjected to injection sclerotherapy. Verma et al. from Hong Kong have found early cure rate of 84% with injection sclerotherapy.[7] Among the national studies, Aftab has found a response rate to injection sclerotherapy of 63% for Ist degree and 60% for 2nd degree hemorrhoids, while Saleem has observed a rate of 95% for the first degree and 60% for second degree piles.[9,23] Rabau states a cure rate of 85-90% at one year of follow up but Santos and his co-workers from UK, have found this cure to be short lived and at 4 years of follow up, only 28% of his patients remained symptom free.[8,24]

Electrocoagulation on the other hand, has been found more effective than injection sclerotherapy in our series with 88% patients in EC group fully cured at 8th weeks follow up. Bipolar low voltage electrocoagulation has also been found effective and useful in an study USA.[25] More patients expressed their full satisfaction with electrocoagulation than with sclerotherapy in our study. The transmission of viral hepatitis also can be prevented because the instrument is provided with more than one probes and also a sterilization kit containing activated glutaraldehyde, so that after use the probe can be washed and sterilized, while at the same time the other probe is ready to be used. The only drawback of electrocoagulation in our series was that it was found to be more painful procedure as compared to sclerotherapy. This might be due to the longer duration of procedure as compared to sclerotherapy, much of the pain might be attributed to the longer duration of keeping the proctoscope in the rectum.

Electrocoagulation using direct current with bipolar probes decreased the complications of sclerotherapy and gave higher cure rates. Although more painful, it may be regarded as a safe, more effective and a highly satisfying procedure for treating 1st and 2nd degree piles.

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