Section: General Surgery

Original Research Article

MANAGEMENT OF ESOPHAGEAL VARICES BY INJECTION SCLEROTHERAPY USING ABSOLUTE ALCOHOL: HOSPITAL BASED STUDY

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Abstract

Background: One of the most frequent surgical emergencies that the surgeon faces is upper gastrointestinal bleeding. It is crucial to make proper management decisions and receive an early diagnosis. One of the most difficult therapeutic issues that a physician may encounter is bleeding from esophageal varices. Exsanguinating bleeding may occur quickly, necessitating immediate medical attention to stop it and revive the patient. **Materials and Methods:** During the course of a year, a prospective clinical observation study on the endoscopic injection sclerotherapy for the treatment of esophageal varices utilising 100% alcohol as the sclerosant was conducted in the endoscopy unit of the Maharaja Krushna Chandra Gajapati Medical College, Berhampur. Patients were hospitalised to our hospital's numerous medical, surgical, and paediatric wards. All patients who presented with upper gastro-intestinal bleeding, such as haematemesis and malena, were evaluated and treated. Our study included patients with esophageal varices, and patients with acute variceal bleeding were chosen for therapeutic endoscopic procedures such as injection sclerotherapy with absolute alcohol. **Result:** Endoscopic examination revealed 168 cases with esophageal varices. 46 patients with esophageal varices who met the inclusion and exclusion criteria were subjected to therapeutic endoscopic procedures, namely sclerotherapy with absolute alcohol. It was discovered that 7 (15%) of the 46 patients had Grade I varices, 30 (65%) had Grade II varices, and 9 (20%) had Grade III varices. The total number of sclerotherapy sessions needed is 145. Five patients underwent single sessions of obliteration, three patients underwent two sessions, fifteen patients underwent three sessions, and twenty-three patients underwent four sessions of sclerotherapy. **Conclusion:** The absolute alcohol injection sclerotherapy technique is simple, time-saving, safer, and well tolerated by patients. Sclerotherapy with absolute alcohol has produced superior results in terms of acute bleeding control and varices obliteration, but complications such as esophageal ulcer are more common. Absolute alcohol sclerotherapy is very cost effective, economical, safe, and widely available. However, these are preliminary findings, and much more experience with a large number of patients is needed to determine the overall long-term benefit of endoscopic sclerotherapy with absolute alcohol.

INTRODUCTION

Upper gastrointestinal bleeding is one of the most common surgical emergencies encountered by surgeons. It is critical to make an accurate diagnosis and management decision as soon as possible. Bleeding from esophageal varices can present one of the most difficult therapeutic problems to the clinician. Bleeding can be rapid and exsanguinating, necessitating immediate treatment for control and patient resuscitation.[1]

Upper gastrointestinal haemorrhage affects approximately one-third of patients with portal hypertension, and bleeding is associated with

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moderate to large sized gastroesophageal varices. In untreated patients, the mortality rate following the initial variceal haemorrhage may be 50%. Approximately one-third of those who survive their initial bleeding episodes rebleed within 6 weeks, and more than two-thirds rebleed within a year of the initial bleed.[2] Patients suffering from liver cirrhosis already have a compromised health status. Any further surgical intervention will worsen morbidity and mortality. Only a small percentage of patients are in a position to undergo major surgical procedures such as a portacaval shunt. As a result, simpler and safer procedures such as varice sclerotherapy, variceal band ligation, and varice laser coagulation have evolved. Variceal injection sclerotherapy has emerged as the preferred emergency intervention, achieving immediate control of variceal bleeding in 70% of cases.[3]

Sclerosants such as ethanolamine oleate, sodium morrhuate, sodium tetradecylsulphate, and polydocanol are extremely effective, but they are costly and not widely available. In our endoscopy unit, we evaluated the efficacy and safety of absolute alcohol as an alternate sclerosant in the treatment of esophageal varices in both emergency and non-emergency patients with upper gastrointestinal bleeding. Our hospital admits and treats patients of all socioeconomic backgrounds.[4] The purpose of this study is to determine the scope of the problem and the efficacy of absolute alcohol as a sclerosant in endoscopic management in our setting.

Aim and Objective

- To identify cases of esophageal varices.
- To learn more about the effects of endoscopic sclerotherapy with absolute alcohol.

MATERIALS AND METHODS

A one-year prospective clinical observation study on the management of esophageal varices with endoscopic injection sclerotherapy using absolute alcohol as a sclerosant was conducted in the Endoscopy Unit of Maharaja Krushna Chandra Gajapati Medical College, Berhampur. Our hospital admitted the patients to various medicine, surgical, and paediatric wards.

All patients who presented with upper gastro-intestinal bleeding, such as haematemesis and malena, were evaluated and treated. Our study included patients with esophageal varices, and patients with acute variceal bleeding were chosen for therapeutic endoscopic procedures such as injection sclerotherapy with absolute alcohol. The patients chosen for the endoscopic procedures included both emergency and non-emergency patients.

Anaemia, jaundice, ascites, engorged veins over the anterior abdominal wall, generalised oedema, and jugular venous pressure were all observed during a general physical examination.

The most important investigation to determine the cause of upper gastrointestinal bleeding is endoscopy (Esophago Gastro Duodenoscopy). If the bleeding is caused by esophageal varices, the varices must be graded, and any associated fundal varices or portal hypertensive gastropathy must be noted. Endoscopic sclerotherapy with absolute alcohol was performed on patients with esophageal varices during diagnostic endoscopy.

Inclusion Criteria

- Age 6-90 years old, either gender suffering from hematemesis and/or malena.
- All esophageal varices grades with upper GI bleeding.

Exclusion Criteria

Varices in the stomach and oesophagus.

Hepatic Encephalopathy, Hepatorenal Syndrome, and a life expectancy of less than 48 hours are all present.

Endoscopic treatment and a shunt operation for varices were previously performed.

Patients who tested positive for Hepatitis B (HbsAg) and C viruses (anti HCV).

Preparation of the Patient for Endoscopic Sclerotherapy

The patients who were scheduled for endoscopic sclerotherapy were kept nil by mouth for 12 hours, and a survey endoscopy was performed to determine the varices to be sclerosed, the grading of varices, and the associated gastric and duodenal varices.

Method of Endoscopic Sclerotherapy.[5]

There are two methods

1. Using over sheath tube (flexible) with a slotted distal end.
2. Free hand technique –No special equipment other than endoscope and injector needle are used.

We use the Free hand technique procedure for our study.

RESULTS

Endoscopic examination revealed 168 cases with esophageal varices. 46 patients with esophageal varices who met the inclusion and exclusion criteria were subjected to therapeutic endoscopic procedures, namely sclerotherapy with absolute alcohol.

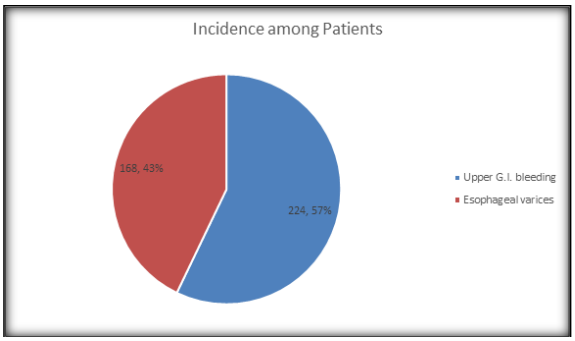

Figure 1: Incidence of Esophageal varices as gastro intestinal Bleeding

A total of 224 patients were clinically diagnosed with upper gastrointestinal bleeding, with 168 of them having esophageal varices.

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Table 1: Age distribution of the study population

Age group (years)	Number of patients	Percentage
0-9	4	8.7
10-19	3	6.5
20-29	4	8.7
30-39	8	17.5
40-49	15	32.6
50-59	6	13.0
60-69	3	6.5
70-79	1	2.2
80-89	2	4.3

46 cases were chosen for our clinical observation study. The greatest number of cases were among those aged 40 to 49 years. 15 cases, in other words (32.6 percent). The youngest patient in our series was 6 years old, and the oldest was 82 years old.

Table 2: Gender Distribution of the Study Population

Gender	No. of patients	Percentage
Male	40	87
Female	6	13

There were 40 males and 6 females in the group, with a male to female ratio of 6.7:1. Male patients outnumbered female patients by a large margin.

Table 3: Clinical Features of study participants

Clinical features	No. of patients	Percentage
Hematemesis	35	76
Malena	11	24

Haematemesis was the most common manifestation of esophageal varices in our study, accounting for 35 patients (76 percent); Melena was the next most common symptom, accounting for 11 patients (24 percent).

Table 4: Various clinical signs

Clinical signs	No. of patients	Percentage
Anemia	37	80
Hepaomegaly	14	30
Splenomegaly	27	60
Ascites	12	26

Out of 46 patients, 37 (80 percent) have anaemia, 14 (30 percent) have hepatomegaly, 27 (60 percent) have splenomegaly, and 12 (26 percent) have ascites.

Table 5: Endoscopic sclerotherapy in different grades of esophageal varices

Grade of varices	Sclerotherapy	Percentage
Grade 1	7	15
Grade 2	30	65
Grade 3	9	20

It was discovered that 7 (15%) of the 46 patients had Grade I varices, 30 (65%) had Grade II varices, and 9 (20%) had Grade III varices.

Table 6: Number of sessions of sclerotherapy required

No. of sessions for sclerotherapy	No. of patients	Percentage
1	5	11
2	3	6.5
3	15	32.5
4	23	50

The total number of sclerotherapy sessions needed is 145. Five patients underwent single sessions of obliteration, three patients underwent two sessions, fifteen patients underwent three sessions, and twenty-three patients underwent four sessions of sclerotherapy.

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DISCUSSION

The improved treatment outcomes for esophageal variceal bleeding may be attributed to better clinical management of the patients mentioned above. Although most studies show that sclerotherapy with absolute alcohol is effective and safe not only for primary and secondary prophylaxis of variceal bleeding, but it is also effective in the treatment of esophageal varices.

There are numerous variations in variceal injection of sclerotherapy, which was the first endoscopic treatment used approximately 50 years ago, including the type of sclerosant, sclerosing technique, concentration of sclerosing agent, injected volume, and location of the sclerosant (intravariceal and paravariceal or combined), which is the reason for heterogeneous sclerotherapy results presented in different publications. Furthermore, this technique necessitates more experience and significant skill on the part of the endoscopist, making it more operator dependent.

The current study included 46 patients, with 50.1 percent of the patients being between the ages of 30 and 50. In the current study, 20 percent of patients had grade III, 65 percent had grade 2, and 15 percent had grade 1. The male and female ratio was 6.7:1. Total no. of sessions of sclerotherapy were 145.

Endoscopic sclerotherapy was found to be 95 percent effective for initial hematemesis. Sclerotherapy was found to be 80 percent effective in this study. This excellent control of variceal bleeding is comparable to other reports, as many authors have stated that during active bleeding, the presence of fresh blood and blood clots obscures vision, making sclerotherapy difficult.

Sarin et al. reported a 100 percent success rate, i.e. 7 out of 7 patients with acute variceal bleeding were controlled after a single course of absolute alcohol sclerotherapy.[6] Karbhari et al. reported that endoscopic sclerotherapy with absolute alcohol reduced bleeding by 70%.[7] In this study, 5 patients with active bleeding received sclerotherapy with absolute alcohol. After a single course of sclerotherapy with absolute alcohol, it was discovered that 80 percent of variceal bleeding was controlled. One patient rebled and required additional sclerotherapy. Using absolute alcohol, Kocher et al. reported an 82.6 percent obliteration rate of the esophageal varices.[8]The total regression of varices was achieved in 37 patients (80.43 percent) in the current study, which was similar to the previous study. In 8 patients, the ulcer partially heals (17.4 percent). Sarin et al. described 71 patients with varices bleeding who were treated with injection sclerotherapy with absolute alcohol. They reported a 71.6 percent variceal obliteration rate6.Khan et al. conducted a study with 60 patients and reported that 35 patients (58.3 percent) had varices obliteration using absolute alcohol.[9]

In the current study, 30 of 50 patients had complications, the majority of which were esophageal ulceration, esophgeal stricture, retrosternal pain, dysphagia, and fever. Observations similar to these were made in the majority of the studies. In most other studies, the most common complication after sclerotherapy was esophageal ulcer. The higher volume of sclerosant per session, shorter interval between sclerotherapy sessions, higher concentration of sclerosant, and nature of sclerosant used were all linked to the occurrence of post-sclerotherapy ulceration.

Khan et al. found esophageal ulceration in 60% of patients who had sclerotherapy with absolute alcohol in a study of 60 patients 9.Sarin et al., published similar findings: 71% of patients who received Sclerotherapy using absolute alcohol.[6] According to Hameed et al., the most common complication was ulceration, which accounted for 61% of all cases 10. Sarin et al. compared the effect of sclerotherapy at one and three weekly intervals and discovered that ulceration was more common at one weekly interval.[6]

In the current study, esophageal ulceration was discovered to be the most common complication of absolute alcohol sclerotherapy. 27 of 46 patients with esophageal ulcers underwent sclerotherapy with absolute alcohol. As a result, approximately 58 percent of sclerotherapy patients developed esophageal ulceration. All ulceration was discovered to be superficial and without bleeding.

Transient retrosternal pain and fever after sclerotherapy can be caused by mediastinitis or esophagitis. Sarin et al. discovered that absolute alcohol caused 64% of retrosternal pain and 36% of fever 6. Both complications were minor, lasting only 24 to 72 hours. Retrosternal pain was more common after the first one or two courses of endoscopic sclerotherapy with absolute alcohol. Alternatively, when a large amount of alcohol (>10 ml) was injected.[6]

In a study conducted by Hameed et al., retrosternal pain was associated with approximately 16% of patients and fever with 28% of patients who received treatment.[10] These findings were compared to our study, in which approximately 22 out of 46 patients (48 percent) developed retrosternal pain and 9 patients (19.5%) developed fever after sclerotherapy with absolute alcohol.In their study, Khan et al. discovered that retrosternal pain was invariably felt and lasted only a short time.[9] In a study conducted by Hameed et al., 8% of patients reported transient dysphagia that lasted up to 24-72 hours after the procedure.[10] Dysphagia is significantly more common with sclerotherapy with 10% absolute alcohol, according to Karbhari et al.[7]

The current study found dysphagia in 4 patients (8.7%) and esophageal stricture in 3 patients (6.8%), which is comparable to previous studies. Edema and inflammation around the ulcer contribute to esophageal narrowing. This explains why dysphagia

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Sarin et al., in their study found that common complication is dysphagia (74 percent). (74 percent). It was typically transient, lasting from a few hours to seven days. Dysphagia was restricted to solid foods and was completely alleviated following metal dilatation.[6]. Those named Khan et al. In their study, they discovered that 5 (8.3 percent) of patients had stricture and 4 required bougie dilatation without complications.[9]

CONCLUSION

The absolute alcohol injection sclerotherapy technique is simple, time-saving, safer, and well tolerated by patients. Sclerotherapy with absolute alcohol has produced superior results in terms of acute bleeding control and varices obliteration, but complications such as esophageal ulcer are more common. Absolute alcohol sclerotherapy is very cost effective, economical, safe, and widely available. However, these are preliminary findings, and much more experience with a large number of patients is needed to determine the overall long-term benefit of endoscopic sclerotherapy with absolute alcohol.

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