How to Cite:
Bag, L., Naik, A. K., Barik, P. ., & Abani Kumar Mahapatra. (2022). Results of injection sclerotherapy using absolute alcohol in management of esophageal varices. *International Journal of Health Sciences*, *6*(S7), 1862–1870. https://doi.org/10.53730/ijhs.v6nS7.11687

Results of injection sclerotherapy using absolute alcohol in management of esophageal varices

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***Abstract*---**The upper gastrointestinal bleeding is one of the most common surgical emergencies that the surgeon encounters. Early diagnosis and accurate decision regarding its management is very important. Bleeding from esophageal varices can present to the clinician with one of the most challenging therapeutic problems. Bleeding may be rapid and exsanguinating, requiring urgent treatment for its control and resuscitation of the patient.

***Keywords*---**Sclerotherapy, Esophageal Varices, Sclerosant.

Introduction

The upper gastrointestinal bleeding is one of the most common surgical emergencies that the surgeon encounters. Early diagnosis and accurate decision regarding its management is very important. Bleeding from esophageal varices can present to the clinician with one of the most challenging therapeutic

problems. Bleeding may be rapid and exsanguinating, requiring urgent treatment for its control and resuscitation of the patient[1].

Approximately 1/3 of patients with portal hypertension experience upper Gastrointestinal haemorrhage, and bleeding correlates with moderate to large sized gastroesophageal varices. The mortality attending the initial variceal hemorrhage may be 50% in untreated patients. Of those patients surviving their initial bleeding episodes, approximately one third rebleed within 6 weeks, and more than two-thirds will rebleed within 1 year of initial bleed[2].

The patients with cirrhosis of liver are already in a state of compromised health status. Any additional surgical intervention will increase the morbidity and mortality. Very few patients are in a condition to undergo major surgical procedures like portacaval shunt. So simpler and safer procedures have evolved such as sclerotherapy of varices, variceal band ligation, laser coagulation of varices. Variceal injection sclerotherapy has emerged as the emergency intervention of choice and accomplishes immediate control of variceal bleeding in 70% of cases[3].

Sclerosants such as ethanolamine oleate, sodium morrhuate, sodium tetradecylsulphate and polydocanol are very effective but they are expensive and are not easily available at all places. In search for an effective and freely available agent we have assessed the efficacy and safety of absolute alcohol as alternate sclerosant in the treatment of esophageal varices in our endoscopy unit to treat emergency and non emergency patients with upper gastrointestinal bleeding. The patients of all status are admitted and treated in our hospital[4].

This study is aimed to assess the magnitude of this problem and efficacy of absolute alcohol as a sclerosant in endoscopic management in our set up.

Aim and Objective :

- To diagnose the cases of esophageal varices.
- To know the effect of endoscopic sclerotherapy using absolute alcohol.

Material and Methods

A prospective clinical observation study on management of esophageal varices by endoscopic injection sclerotherapy using absolute alcohol as sclerosant has been done in Endoscopy Unit of Maharaja Krushna Chandra Gajapati Medical College, Berhampur over a period of 1 year. The patients were admitted in various medicine, surgical and paediatric wards in our hospital.

All the patients who came with upper gastro-intestinal bleeding i.e. haematemesis and malena were examined and treated. The patients with esophageal varices were included in our study and the patients with acute variceal bleeding were selected for the therapeutic endoscopic procedures that is injection sclerotherapy using absolute alcohol. The patients who were selected for the endoscopic procedures included the emergency as well as non-emergency patients.

On General physical examination the following clinical features were noted i.e. Anaemia, jaundice, Ascites, Engorged veins over the anterior abdominal wall, Generalised Oedema, Jugular Venous Pressure.

Endoscopy (Esophago Gastro Duodenoscopy) is the utmost important investigation to know the cause of upper gastrointestinal bleeding. If the bleeding is from the esophageal varices, then the grading of the esophageal varices has to be done and associated fundal varices, portal hypertensive gastropathy are noted. Patients with esophageal varices were subjected for endoscopic sclerotherapy using absolute alcohol, while performing the diagnostic endoscopy.

Inclusion Criteria:

- Age 6-90 years either Gender complaining with hematemesis and/or malena.

- All Grades of esophageal varices with upper GI bleeding.

Exclusion Criteria:

- Gastric or combined Gastric and Esophageal varices.

- Presence of Hepatic Encephalopathy, Hepatorenal syndrome and life expectancy less than 48 hours.

- Prior history of endoscopic treatment and shunt operation for varices.

- Patients with positive serology for Hepatitis B (HbsAg) and C viruses (anti HCV).

Preparation Of The Patient For Endoscopic Sclerotherapy :

The patients who were posted for Endoscopic sclerotherapy were kept nil by mouth for 12 hrs, the survey endoscopy was done to know the varices to be sclerosed and for the grading of varices and also to know 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

Of these, 168 cases were endoscopically diagnosed to have esophageal varices. Among those presented with esophageal varices, 46 patients who fulfilled the inclusion and exclusion criteria were subjected for therapeutic endoscopic procedures i.e. sclerotherapy using absolute alcohol.

Table No 1
Incidence of Esophageal varices as gastro intestinal Bleeding

	No. of patients	Percentage
Total no. of upper G.I. bleeding	224	100
Esophageal varices	168	75

Total 224 patients were diagnosed clinically as upper gastrointestinal bleeding out of which 168 patients were diagnosed having esophageal varices.

Table No 2
Age distribution of the study population

Age group in years	No. 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

In our clinical observation study, 46 cases were selected. Out of these, the maximum number of cases was within the age group of 40-49 years. i.e. 15 cases (32.6%). The minimum age of the patient in our series was 6 years and the maximum age was 82 years

Table No 3
Sex Distribution of the Study Population

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

There were 42 males and 4 females, with male to female ratio 6.7:1. There was a significant preponderance of male patients.

Table no. 4
Clinical Features

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

Haematemesis was the commonest manifestation of esophageal varices in our study i.e., 35 patients (76%), the next common symptom was Melena i.e. 11 (24%).

Table No 5
Various clinical signs

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

Out of 46 patients 37(80%) present with anemia, 14(30%) patients present with hepatomegaly, 27(60%) present with splenomegaly and 12(26%) present with ascites.

Table No 6
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

Out of the 46 patients it was found that 7(15%) having Grade I varices, 30(65%) having Grade II varices and 9(20%) having Grade III varices.

Table No 7
No. 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

Total no. of sclerotherapy sessions required is 145. Out of 46 patients 5 patients undergone single sessions for obliteration, 3 patients undergoes two sessions, 15 patients undergone three sessions and 23 patients undergone four sessions of sclerotherapy.

Discussion

The improvement in the results of the treatment of the esophageal variceal bleeding might be attributed to better clinical management of the above patients. Although in most of the studies performed, sclerotherapy using absolute alcohol is found to be effective and safe not only for primary and secondary prophylaxis for variceal bleeding, but also equally efficacious in the treatment of the esophageal varices.

In variceal injection of sclerotherapy, which was the first endoscopic treatment used approximately 50 years before, now there are numerous variations 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 heterogenous results of sclerotherapy presented in different publication. And also this technique requires more experience and significant skill of the endoscopist and hence this technique is more operator dependent.

A total of 46 patients were included in the present study, 50.1% of the patients were in the age group of 30-50 years. In the present study, the patients with grade III were 20%, grade 2 were 65% and grade 1 are 15%. The male and female ratio was 6.7:1.Total no. of sessions of sclerotherapy were 145.

The efficacy of endoscopic sclerotherapy for initial hematemesis was found to be an average of 95%. In the present study, the efficacy of sclerotherapy is 80%. This excellent control of variceal bleeding is comparable to other reports has been mentioned by many authors that during active bleeding, presence of fresh blood and blood clots obscures the vision leading to difficulty in sclerotherapy.

Sarin *et al.* reported an 100% i.e 7 out of seven patients having acute variceal bleeding was controlled after a single course of sclerotherapy using absolute alcohol[6].

Karbhari *et al.* reported a 70% control of bleeding with endoscopic sclerotherapy using absolute alcohol[7].

In this study about 5 patients had active bleeding were subjected to sclerotherapy using absolute alcohol. It was found that 80% control of variceal bleeding after single course of sclerotherapy using absolute alcohol.one patient rebleed who was subjected to further sclerotherapy session.

Kocher *et al.* have reported a 82.6% obliteration rate of the esophageal varices using absolute alcohol[8]. In the present study the total regression of varices was achieved in in 37 patients (80.43%) which was similar to the previous study. Partial regression of ulcer occurs in 8 patients (17.4%).

Sarin *et al.* reported a series of 71 patients with bleeding from varices which were managed with injection sclerotherapy using absolute alcohol. They have reported variceal obliteration rate of 71.6%[6]. Khan *et al.* conducted a study with 60

patients and reported that 35(58.3%) patients with obliteration of varices using absolute alcohol[9].

In the present study, the complications were found in 30 of 50 patients among which the majority were esophageal ulceration, esophgeal stricture, retrosternal pain, dysphagia, fever. Similar observations were made out in most of the studies.

Esophageal ulcer was the commonest complication following sclerotherapy in most of other studies. The occurrence of post sclerotherapy ulceration was attributed to the higher volume of sclerosant per session, shorter interval between sclerotherapy sessions, higher concentration of sclerosant and nature of sclerosant used.

Esophageal ulceration was reported in 60% of patients who had undergone sclerotherapy using absolute alcohol by Khan *et al.* in the study of 60 patients[9]. Sarin *et al.*, has also shown similar reports- 71% of patient who had Sclerotherapy using absolute alcohol[6].

Hameed *et al.*, showed that the ulceration rate was 61% and was the most common complication[10]. Sarin *et al.*, compared the effect of sclerotherapy at one weekly interval and at three weekly interval and found that ulceration were common in one weekly interval[6].

In present study, the esophageal ulceration is found to be the most common complication of sclerotherapy using absolute alcohol. 27 out of 46 patients had esophageal ulceration who underwent sclerotherapy using absolute alcohol. Thus about 58% of patients who had sclerotherapy developed esophageal ulceration. All ulceration were found to be superficial without bleeding.

Transient retrosternal pain and fever following sclerotherapy can be due to mediastinitis and due to esophagitis. Sarin *et al.,* reported an incidence of 64% retrosternal pain and 36% fever with absolute alcohol[6]. Both complications were of short duration from 24 to maximum 72 hours. Retrosternal pain was seen more frequently after initial one or two courses of endoscopic sclerotherapy using absolute alcohol. Or whenever large quantity of alcohol was injected (>10 ml)[6].

In a study done by Hameed *et al.*, the retrosternal pain is associated with about 16% of patients and fever in 28% of patients who underwent the treatment[10]. These results were compared to our study in which about 22 out of 46 patients 48% of patients developed retrosternal pain and 9 patients (19.5%) develop fever after sclerotherapy using absolute alcohol.

Khan *et al.*, in their study found that the retrosternal pain was invariably experienced and lasted for a short while[9].

In a study by Hameed *et al.*, 8% of patients had reported a transient dysphagia which lasted upto 24-72 hours after the procedure[10]. Karbhari *et al.,* noted that dysphagia significantly common with sclerotherapy with absolute alcohol that is 10%[7].

In the present study, dysphagia is seen in 4 patients (8.7%) and esophageal stricture was found in 3 patients (6.8%) which is comparable to the previous studies. Edema and inflammation around the ulcer contributes to the narrowing of esophagus. This explains why dysphagia is occurring in use of absolute alcohol as sclerosant because of its ulcerogenic property.

Sarin *et al.*, in their study found that common complication is dysphagia (74%). It was generally transient lasting for few hours to 7 days. Dysphagia was limited to solid food and was completely relieved after metal dilatation[6]. Khan *et al.* In their study found that 5(8.3%) patients having stricture and 4 requirs dilatation with bougie without any complication[9].

Conclusion

The technique of injection sclerotherapy using absolute alcohol is simple, time saving, safer and well tolerated by the patients. Sclerotherapy using absolute alcohol has yielded superior results as far as the control of acute bleeding, obliteration of varices is concerned but complication like esophageal ulcer is more. Sclerotherapy using absolute alcohol is very cost effective, economical, safe, and freely available. These are preliminary observations, however, and much more experience with a large number of patients is required to assess the overall long-term benefit of endoscopic sclerotherapy using absolute alcohol.

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