

# EFFICACY OF N BUTRYL CYANOACRYLATE IN CASES WITH ISOLATED GASTRIC VARICES DUE TO LIVER CIRRHOSIS

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## ABSTRACT

**Background:** Isolated gastric varices (IGV) are one of the major causes of upper gastro intestinal bleeding in cases with liver cirrhosis. They are difficult to manage and N butryl cyanoacrylate is one of the options. **Objective:** To determine the efficacy of N butryl cyanoacrylate in cases with isolated gastric varices due to liver cirrhosis. **Methodology:** This cross-sectional study was conducted at Endoscopy unit of Hamza Medicare Hospital, Rahim Yar Khan from 1st January 2015 to 31<sup>st</sup> July 2016. The cases presenting with upper GI bleedy and history of liver cirrhosis (documented by presence of jaundice, ascites, hepatic encephalopathy, deranged LFTs, i.e. serum bilirubin, PT, albumin) irrespective of etiology and the child pugh class were included. The endoscopy was done by Olympus GIF-XQ140 and the site of bleeding varices were documented. The cases of isolated gastric varices of any type or severity were considered. Then glue comprising N butryl cyanoacrylate with lipoid solution in a ratio of 5:8 was injected into the varices in a dose of 2.5 to 5 cc and were then followed for next 5 days for any re bleeding episode and control of homeostasis. The cases, in which no such event was noted, were labeled as with positive efficacy. The data was entered and analyzed by using SPSS version 21. **Results:** In this study out of total 54 cases of IGV, there were 34 (62.96%) males and 20 (37%) females. The mean age was 58.50± 15.54 years. There were 47 cases with hepatitis C and 7 has hepatitis B. Efficacy was seen in 52 (96.30%) out of 54 cases. Thirty-three out of 34 males and 19 out of 20 females has shown efficacy with p value of 0.80. The efficacy was better seen with age group of 15 to 35 years with cure in 5 (100%) out of 5 cases as compared to lower rate in others with p= 0.27. The cases with Child pugh class C contained the both failure cases with significant p= 0.04. There were one case each with hepatitis B and C with failure with p= 0.39. **Conclusion:** N butryl cyanoacrylate has a high efficacy rate in short-term relief for bleeding and Child pugh class C is significantly associated with lower success rate. **Key words:** Isolated gastric varices, N butryl cyanoacrylate, Efficacy.

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## INTRODUCTION

Gastric varices (GV) are the second leading cause of upper gastro intestinal bleeding following esophageal variceal (EV) bleed. Among all the cases of portal hypertension that bleed, 20% possess IGV.<sup>1</sup> The bleeding tendency is slightly at lower side of GV as compared to esophageal varices but they add significantly to overall morbidity and mortality.<sup>1,2</sup> Gastric varices can be categorized into different stage by Sarine, Hashizome and Arakawa's classification but the former is used the most. According to Sarine's classification of varices, it can be divided into gastric varices I and II, depending upon their presence at lesser and greater curvature. While in isolated gastric varices, type I is found at the fundus and the other and distal part of the stomach and duodenum.<sup>3</sup> One important consideration regarding gastric varices is the exclusion of the splenic vein thrombosis. Considering the management point of view, the fundal varices are thought to be the most difficult to manage, due to

their approach and presentation as serpiginous and grape like cluster of varices.<sup>4,5</sup>

Management of the gastric varices is not easy and no definite guidelines are outlined regarding this. Endoscopy and band ligation, Sclerotherapy, intralesional glue injection, thrombin, USG guided glue and coil implantation and surgical options like trans jugular intra hepatic portosystemic shunts (TIPS), all have been tried with different degree of success. Every procedure carries its own benefits and risk profile. Intra variceal N butryl cyanoacrylate has shown good efficacy and better long-term success rates with very low side effect profile. The results have been found to be successful in as high as 100% of the cases.<sup>6,9</sup> This study was conducted to determine the efficacy of N butryl Cyanoacrylate in case with isolated gastric varices in patients with liver cirrhosis.

## METHODOLOGY

This cross-sectional study was conducted at Endoscopy unit of Hamza Medicare Hospital, Rahim

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Yar Khan from 1st January to 31<sup>st</sup> July 2016. The cases presenting with upper GI bleed and history of liver cirrhosis (documented by presence of jaundice, ascites, hepatic encephalopathy, deranged LFTs, i.e. serum bilirubin, PT, albumin) were included. The endoscopy was done by GIF-XQ140 and the site of bleeding varices was documented.

The cases of isolated gastric varices of any type or severity were considered. Then glue was prepared by mixing N butryl cyanoacrylate with lipiodal solution in a ratio of 5:8. This solution was injected through endoscope into the bleeding varices in a dose of 2.5 to 5 cc depending upon the size of varices.

The injecting needle was flushed with lipiodal solution. The cases were also evaluated retrograde for their data like age, weight and hemoglobin concentration. Further they were inquired about the signs and symptoms and investigations like Hepatitis B, C, and serum bilirubin, PT, LFTs, to categorize into different child pugh classes. The cases were then followed for next 5 days for any re bleeding episode and control of homeostasis. The cases, in which no such event was noted, were labeled as with positive efficacy.

The data assessed and analyzed on SPSS version 21. Mean and standard deviation were calculated for age, weight, Hemoglobin (Hb) concentration. Frequency and percentages were calculated for categorical data. Confounding variables like age, gender, child pugh class and hepatitis B and C serology were stratified to look for their effect on outcome variable i.e. efficacy. Post stratification chi square test was applied to see for significance and p value of  $\leq 0.05$  was taken as significant.

## RESULTS

In this study, out of the total 54 cases of IGTV, there were 34 (62.96%) males and 20 (37.04%) females. The mean age was  $58.50 \pm 15.54$  years. There were 47 cases with hepatitis C and 7 has hepatitis B. Efficacy was seen in 52 (96.30%) out of 54 cases as shown in Figure I. Thirty-three out of 34 males and 19 out of 20 females has shown efficacy with p value of 0.80.

The efficacy was better seen with age group of 15 to 35 years with cure in 5 (100%) out of 5 cases as compared to 56 to 75 years where it was in 14 (93.33%) out of 15 cases with  $p = 0.27$  (Table I). The cases with Child pugh class C contained the

both failure cases with significant  $p = 0.04$  as in Table II. There was one case each with hepatitis B and C with failure with  $p = 0.39$  as in Table III.

**Table I: Efficacy with respect to age groups (n= 54)**

Age Groups	Efficacy	
	Yes	No
15-35	5 (100%)	0 (00%)
36-55	28 (96.55%)	1 (3.45%)
56-75	19 (95%)	1 (5%)

( $p = 0.88$ )

**Table II: Efficacy with respect to Child Pugh class (n= 54)**

CHILD PUGH CLASS	Efficacy	
	Yes	No
Class A	1 (100%)	0 (00%)
Class B	5 (100%)	0 (00%)
Class C	46 (95.83%)	2 (4.17%)

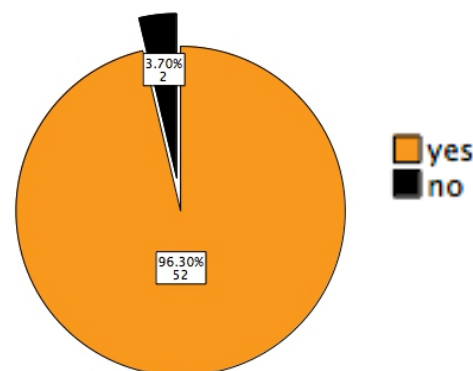
( $p = 0.04$ )

**Table III: Efficacy with respect to type of hepatitis (N= 54)**

TYPE OF HEPATITIS	Efficacy	
	Yes	No
Hepatitis B	6 (85.71%)	1 (14.29%)
Hepatitis C	46 (97.87%)	1 (2.13%)

( $p = 0.39$ )

**Figure I: Efficacy of n butryl cyanoacrylate (N= 54)**



## DISCUSSION

The management recommendations for cases with gastric varices are less well developed as compared to esophageal varices, and the other management options like TIPS and surgical porto systemic shunts are preferred options, but either they are not available at every center, or on they have multiple complications.<sup>7</sup>

Treatment with N butrylcyanoacrylate has opened the new horizons with good efficacy and lesser long-term recurrence rates.<sup>8</sup> The efficacy of N butryl cyanoacrylate in this study was seen in 52 (96.30%) out of 54 cases. This was consistent to other studies as well.<sup>7-8</sup> In a study done by Sato T et al, it was seen in 86.7% of cases.<sup>10</sup> In another study conducted by Sarin SK et al, who compared the efficacy of injectable N butryl cyanoacrylate with absolute alcohol for the treatment of gastric varices.<sup>11</sup> They revealed that significant better improvement was seen in reduction of bleeding in the cases with N butryl cyanoacrylate.

In a study done by Lo GH et al, they compared the efficacy of this glue with the conventional band ligation and showed up the cases with N butrylcyanoacrylate had better efficacy than band ligation.<sup>12</sup> The reason of lesser success rate with band ligation was explained by difficult approach to access few varices and secondly the varices that were larger than 2 cm were also difficult to suck in and for band application. That's why the failure rate was higher with this. In this study there was 100% efficacy with N butryl cyanoacrylate in Child pugh class A and B as compared to C where it was seen in 46 (95.83%) out of 48 cases which was found statistically significant with p value of 0.04. According to a study by Noophun P et al, the failure rate was also higher in cases with Child Pugh class C.<sup>13</sup>

They had success rate of about 86% each in Class A and B and in cases with Class C it was less than 30%. This difference was also found statistically significant. The reason of higher failure rate with higher child pugh class can be explained by the pathophysiology of the disease process. As the severer the disease and higher are the chances of severe portal hypertension and these is increased likelihood of failure rate.

There were few limitations of this study as this was conducted to see for only short-term relief of bleeding and long-term recurrence rates were not assessed. Moreover, this was not compared with other regimen options to compare for efficacy.

## CONCLUSION

N butryl cyanoacrylate has a very high efficacy rate in short-term relief for bleeding and Child pugh class C is significantly associated with lower success rate.

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