

# Management of Hemorrhage from Esophageal Varices Using the Esophagoscopy Sclerosing Method

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**H**EMORRHAGE from gastroesophageal varices is the most severe complication in patients with cirrhosis of the liver and portal hypertension. Approximately one-third of all patients with portal cirrhosis die of acute gastrointestinal hemorrhage.<sup>2,4</sup> There has never been a uniform concept of emergency management of variceal hemorrhage because of pitfalls in the surgical as well as the medical therapeutic technics. The major reason for the poor results of both therapeutic avenues lies in the decompensated liver function of most patients with variceal bleeding.

In patients with bleeding esophageal varices in whom reduced liver function rules against a decompressing shunt procedure, a number of alternatives are available. Palliative surgical procedures may be attempted but have a disadvantageous short hemostatic effect and a mortality rate which ranges as high as 50%.<sup>2,4</sup> The Sengstaken-Blakemore double balloon tube is frequently used successfully. Infusion therapy with vasopressin is often ill-advised because restriction of the microcirculation of the liver may lead to further decompensation of liver function and hepatic coma.

The double balloon tube is sometimes unsuccessful in the control of variceal hemorrhage, particularly when there are varicosities originating from the fornix region of the stomach. In addition, in patients who have congenital pre-hepatic blocks or cirrhosis with complete thrombosis of the portal vein, shunting is contraindicated despite good liver function values due to lack

of a patent vein. Finally, in some patients thrombosis of a previously-functioning portal-systemic shunt may cause recurrent bleeding problems. The use of the endoscopic sclerosing technic is particularly applicable to the latter group of patients.

## Materials and Methods

Acute hemorrhage from gastroesophageal varices was managed according to the following steps:

The initial effort consisted of blood replacement and insertion of the double balloon tube. In addition enemas and antibiotics were utilized to limit hepatic dysfunction. If control of hemorrhage was inadequate the esophagoscopy sclerosing treatment of varices, described by Wodak,<sup>5</sup> was carried out under general anesthesia. In most instances hemorrhage was arrested after the first sclerosing treatment. In instances of recurrent hemorrhage the double balloon tube was reinserted and the sclerosing therapy was repeated.

In the absence of acute hemorrhage, the following conditions constituted additional indications for use of the sclerosing procedure in patients with esophageal varices:

1. Decompensated liver function.
2. Pre-hepatic block in which splenoportogram failed to show patent vessels appropriate for a shunting procedure.
3. Thrombosed anastomoses between the portal and caval system.

The technic used for the sclerosing therapy was originally described by Crawford and Frenckner<sup>1</sup> and later

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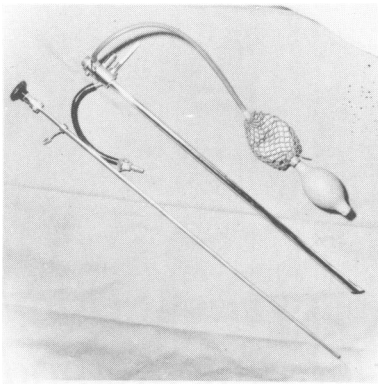


FIG. 1. Instrument for the sclerosing therapy of varices in the terminal esophagus.

modified by Wodak.<sup>5</sup> Following anesthesia by orotracheal intubation the esophagoscope was inserted. This instrument included an optical system which permitted a detailed enlarged view of the entire inner surface of the esophagus (Fig. 1). After the varices had been visualized, a magnifying optical device was introduced which included a 12-gauge cannula. The cannula was inserted into the submucosa adjacent to the varices (Fig. 2). Then a maximum of 2 ml. of 5% Varicocid\* was injected into the submucosa at each selected site.

The total volume of Varicocid did not exceed 10 ml. Following injection, a small hemorrhage appeared at the site of injection which usually stopped by the end of the procedure. When bleeding continued, slight compression was applied using an adrenalin-soaked sponge. When severe hemorrhage occurred a supplementary suction device was inserted to remove the clotted and fresh blood. To achieve optimal results the procedure had to be performed quickly and the injections had to be accurately placed. When performed during acute hemorrhage, the sclerosing technic was performed with close monitoring of pulse and blood pressure. A large bore

\* Varicocid is produced by the Combustinwerke Eulitz Co., 8031 Saefeld/0666, Germany and consists of alkaline salts of the fatty acids of cod-liver oil and 2% benzyl alcohol in 5% solution.

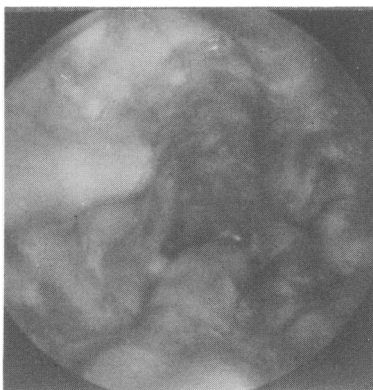


FIG. 2. Picture of varices in the terminal esophagus.

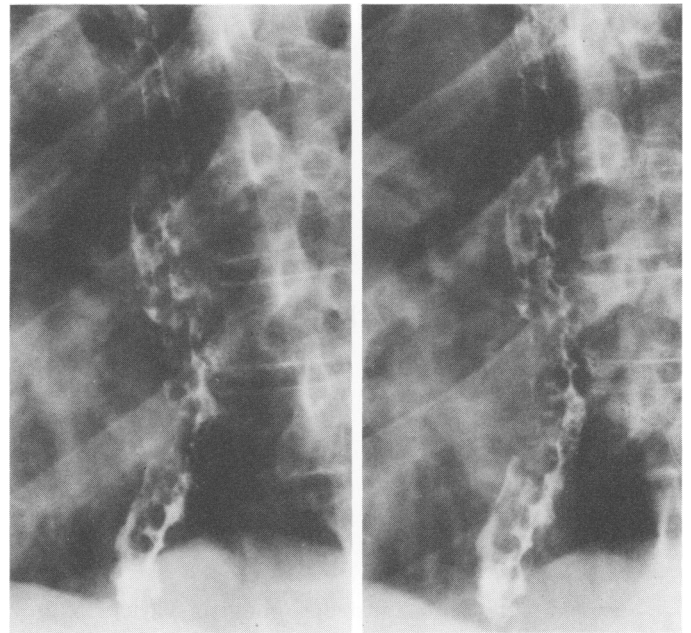


FIG. 3A. X-ray of the esophagus before sclerosing therapy in an acute (bleeding) instance.

intravenous catheter was placed to facilitate immediate and rapid transfusion when needed.

The endoscopic sclerosing procedure could be repeated at 3-day intervals. After three to four sessions an upper gastrointestinal radiographic series demonstrated the results.

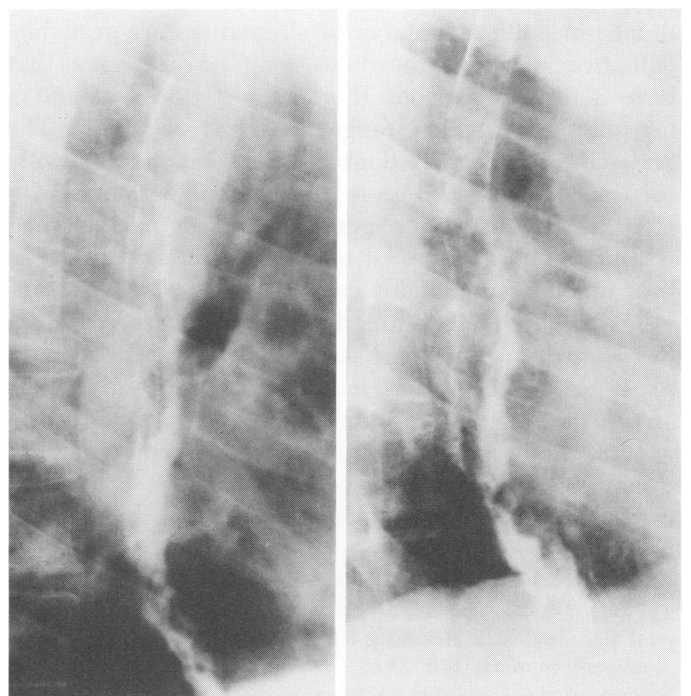


FIG. 3B. X-ray of the esophagus after therapy.

### Results

A total of 30 patients were treated with this technic—12 during acute hemorrhage and 18 during a free interval.

The acute hemorrhage was caused in nine instances by portal hypertension and cirrhosis. One of the patients bled on the fifth postoperative day after distal spleno-renal shunt. In two other patients the shunts had thrombosed.

The remaining 18 cases included the following: 13 patients with decompensated cirrhosis, one patient with a thrombosed proximal spleno-renal shunt, two patients with thrombosed mesocaval shunts, and two patients who had undergone splenectomy and had thrombosed portal veins (Table 1).

In all but one of the patients, the sclerosing therapy immediately controlled hemorrhage and radiologically a decrease in varicosities was demonstrated.

Six of the patients with acute hemorrhage died. Causes of death included: hepatic coma in four patients, myocardial infarction with aneurysm in one, and necrosis of the terminal esophagus with pyothorax in one.

Of the 18 patients treated during a free interval, 4 died in hepatic coma and in two instances hemorrhage

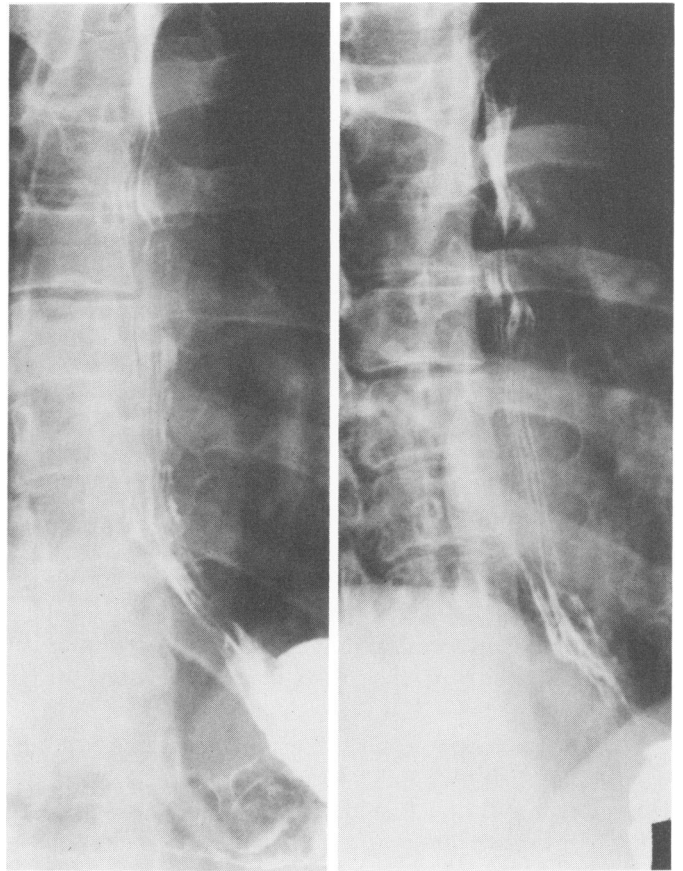


FIG. 4B. X-ray of the esophagus after therapy.

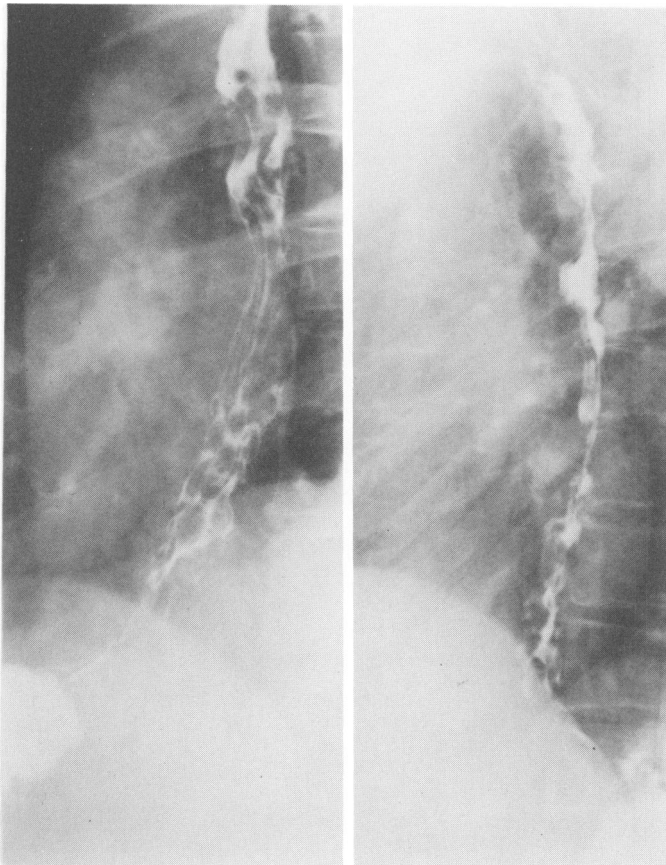


FIG. 4A. X-ray of the esophagus before sclerosing therapy in a chronic case, *i.e.* the interval free of hemorrhage.

from varices in the fornix could not be stopped (Table 2).

Eighteen patients were alive after the final sclerosing treatment for periods ranging from 3 months to 3 years.

### Discussion

Sclerosing of esophageal varices is applicable in a variety of clinical situations. When used during massive,

TABLE 1. *Diagnosis of the 30 Cases of Gastroesophageal Varices Managed Using the Esophagosopic Sclerosing Method.*

I. Acute bleeding from gastroesophageal varices (12 cases)	
1) Decompensated liver cirrhosis with portal hypertension:	9
2) Thrombosed portocaval shunt (liver cirrhosis):	1
3) Thrombosed spleno-renal shunt (liver cirrhosis):	1
4) Spleno-renal shunt without thrombosis six days after operation (liver cirrhosis):	1
II. Gastroesophageal varices during the interval free of bleeding (18 cases)	
1) Decompensated liver function with portal hypertension:	13
2) Thrombosed mesenterio-caval shunt:	
prehepatic block:	1
liver cirrhosis and portal vein thrombosis:	1
3) Splenectomy and portal vein thrombosis:	2
4) Thrombosed spleno-renal shunt (prehepatic block):	1

TABLE 2. *Mortality of 30 Patients following the Endoscopic Sclerosing Therapy of Esophageal Varices. Twelve Patients Were Treated during the Acute Hemorrhage and 18 Patients in the Free Interval.*

I. <i>Acute cases: 6</i>	
1) Liver coma:	4 cases
2) Cardiac infarction:	1 case
3) Necrosis of Esophagus	1 case
II. <i>Chronic Cases 6</i>	
1) Liver coma:	4 cases
2) Hemorrhage from gastric varices	2 cases

uncontrollable variceal hemorrhage, it permits immediate hemostasis in almost all instances. The sclerosing technic is also used during the "free interval" in patients with decompensated liver function, in instances of shunt occlusion and in patients with pre-hepatic block, in whom shunting is anatomically impossible. In these patients, remission of the varices can be demonstrated by upper gastrointestinal radiography. Endoscopically, the technic results in a thickening of the esophageal mucosa, covering the site of the varices, and prevents further bleeding.

Since this technic is purely a palliative measure, and does not in anyway decompress the portal system, the patients must be evaluated clinically and radiologically at 3- to 6-month intervals. If hemorrhage recurs or the varicosities increase, the sclerosing therapy must be repeated. The method is not applicable to paraesophageal or gastric varices.

Complications of this technic include acute hemorrhage from gastric varices, and necrosis of the esophagus. The latter may be partly the result of lesions caused

by pressure when the Sengstaken tube is used before or after sclerosing. Careful procedural technic can minimize the incidence of the latter complication.

### Summary

The technic of sclerosing the wall of the esophagus for treatment of bleeding varicosities of all origins has proven useful because of its hemostatic and thus life-saving results during acute hemorrhage. When shunt procedures are not feasible because of poor hepatic function or anatomical abnormalities, the sclerosing therapy can be applied during the "free interval." Disadvantages of this palliative technic include the enhancement of life-threatening hemorrhage from gastric varices and the necessity for careful follow-up study. Sometimes repeated sclerosing injections are necessary according to the findings at follow-up studies performed at regular intervals.

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