TREATMENT OF ESOPHAGEAL VARICES

Treatment of esophageal varices

Proceedings of the Tokyo Symposium on the Treatment of Esophageal Varices, Tokyo, Japan, 21 – 22 January 1988

Editor:

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Preface

Methods of control of bleeding from ruptured esophagogastric varices have been a target of interest of many physicians and surgeons since establishment of the concept of portal hypertension in the 1930s. However, treatment of esophagogastric varices has always been one of the most controversial issues in surgery and this seems still to be so since the new development of endoscopic sclerotherapy in recent years.

Many surgical procedures have been proposed and performed in patients in the past; however, the most logical and appropriate method of treatment for varices has not been uniformly agreed. One important reason for this is probably because the treatment of varices in most cases is a symptomatic one and does not improve the eventual course of the original diseases of the liver causing portal hypertension and varices. When portal decompression operations were introduced in the 1940s, it was considered that the final sulution had been found; however, after 20 years of experience with these decompression procedures, they were abandoned by many surgeons because the mortality and morbidity associated with these operations were intolerably high and the results of controlled trials reported from many institutions had revealed that the patients' life expectancy was not improved by these shunt operations. In the late 1960s, selective shunt operations were introduced by Dr. Warren and by Dr. Inokuchi, and also the reappraisal and modification of direct operations on the esophagogastric varices were started and gradually became popular in Japan. Again 20 years have elapsed since the introduction of these new procedures, and now the long-term integrity of selective shunts is being questioned and the procedures are being modified again. Discrepancies in the results of direct operations reported from Japan and those reported from the United States and European countries have been significant, and non-shunting operations have not become popular in most of the Western countries.

Although controversies over the issue during the last four decades have mostly been over the methods of operation used by surgeons, since the recent development of endoscopic sclerotherapy controversy now exists between surgeons and physicians over surgery versus endoscopic sclerotherapy. In many institutions the recent development of sclerotherapy has had a great impact on surgeons as well as physicians. It seems that even selection of patients for surgery has been transferred to the hands of physicians from those of surgeons in many of the institutions in many countries.

Each doctor by nature, whether he is a physician or a surgeon, believes in his own treatment, which seems quite natural and is understandable, but often tends to become dogmatic in his selection of patients for a particular treatment. However, it is important to be thoroughly aware of up-to-date results with each method of

treatment and to analyse the data from other institutions critically but fairly in order to clarify and to solve the problems facing us. Only a scientific attitude and a critical mind will lead to the right conclusions.

We have invited almost all the prominent physicians and surgeons in Japan who have been engaged in this area so that the current trends in the treatment of varices in Japan will be dealt with comprehensively. We have also invited the most important physicians and surgeons from around the world who have been pioneers in the treatment of varices and have been actively engaged in this field, so that the current trends in other countries will also be well represented.

It is important that in solving this complicated and controversial issue that physicians and surgeons get together and exchange their results and ideas. Most of the practical problems in treating patients with varices have been brought up and discussed among the participants during the two-day symposium. I believe that the most recent results and solid data on treatment of esophagogastric varices from around the world are included in this volume. I sincerely hope that this information will be utilized in the future development of the treatment of varices and portal hypertension.

In the United States and in some of the European countries, liver transplantation is being performed as an ultimate form of treatment of bleeding varices in cirrhotic patients. Certainly, this may be a form of radical treatment for these patients, but liver transplantation still has its own problems and the number of patients to benefit from this radical approach will be limited.

Yasuo Idezuki

A note from the editor: The original manuscript by Dr. W. Dean Warren covering his talk at the symposium could not be included in this volume because of his severe condition due to the advance of his unrelenting illness. Those who attended the symposium should recall his invaluable endeavours and contributions to the symposium despite his severe illness. It is greatly appreciated that the authors, J.B. Lippincott Company and The Emory University Journal of Medicine have kindly permitted us to use the article by Henderson, Millikan and Warren which appeared in the Emory University Journal of Medicine as a substitute in this volume (Chapter 20).

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Summary of general discussion on the treatment of esophageal varices

Treatment of esophageal varices
Y. Idezuki, editor

Chapter 1

Indications and early and long-term results of paravariceal immediate, elective and prophylactic injection sclerotherapy

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As so often happens, interest in an old technique has been renewed. Injection sclerotherapy was introduced in 1939 by Crawfoord and Frenckner [1] and in 1955 Macbeth [2] reported good results in 30 patients. A few other reports followed in ear, nose and throat journals but then shunt procedures became popular and have been an elective standard treatment for the past 20 years. Lately, however, surgeons have become disillusioned with shunt surgery, particularly for emergency bleeding. While Orloff et al. [3] still recommend emergency portacaval shunts, despite a mortality of 49% in the first 138 patients, shunting is an elective procedure in most centers. Even then the late encephalopathy has been found to be significant, and not only in those with very poor liver function. Against this background, Johnston and Rodgers and our group in 1973 [4, 5] published remarkably good results from sclerotherapy, controlling bleeding in 93 (92%) out of 117 patients with a total admission mortality of 18 (19%). Several other centers in Europe, South Africa and the United States then adapted the technique. However, around this time Warren and Inokuchi [6, 7] were starting their selective shunts, aimed at reducing the incidence of encephalopathy, so now is an opportune time in the treatment of this difficult disease to assess the role of injection sclerotherapy.

Stelzner and Lierse [8] noted that at the esophagogastric junction in rhesus monkeys (Fig. 1) the gastric subglandular veins pierce the muscularis mucosa to become subepithelial in position for the lowest few centimetres of the esophagus. Varices are useful collateral channels bypassing a venous block. It is only the few that happen to impinge on the esophageal mucosa that are dangerous and it is only these that need treatment [9]. Experiences in more than 1000 emergency endoscopies of the upper gastrointestinal tract in patients with liver cirrhosis and variceal hemorrhage have demonstrated that the source of bleeding can be found in the lower part of the esophagus in more than 90% of cases. This is the rationale for local sclerotherapy rather than larger operations to bypass or ligate all the collateral chan-

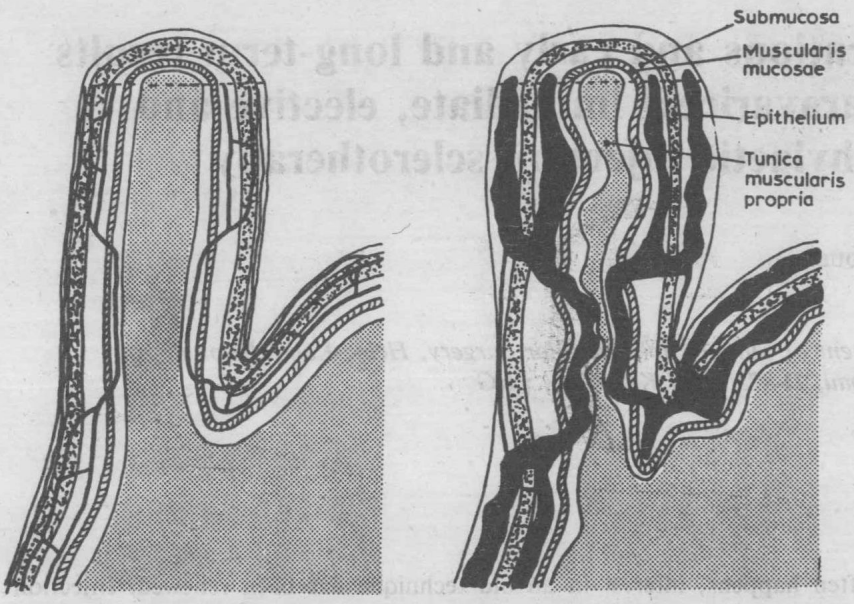


FIG. 1 Anatomical localization of esophageal varices in the lower part of the esophagus in rhesus monkeys; they are localized subepithelially.

TABLE 1 Different groups treated by paravariceal endoscopic sclerotherapy (01.01.1969 – 01.09.1987; n = 1761) at the Department of Surgery, University of Bonn, and the Heinz-Kalk Hospital, Bad Kissingen, FRG

Group I	:	Acute and uncontrollable variceal hemorrhage (n = 540 – 232 (group Ia) = 308)
Group Ia	:	Prospective evaluation (n = 232; 01.01.1982 – 01.01.1987)
Group II	:	Acute variceal hemorrhage – prospective controlled randomized trial (n = 22 (43); 01.01.80 – 01.01.81)
Group III	:	Elective treatment of variceal hemorrhage (n = 1016)
Group IVa	:	Prophylactic treatment of esophageal varices 1. Prospective controlled randomized trial (n = 36; 01.01.78 – 01.01.80)
Group IVb	:	2. Prospective evaluation (n = 82; 01.01.80 – 01.09.86)
Group V	:	Acute and elective treatment of variceal hemorrhage in childhood (n = 65; 01.01.72 – 01.09.87)

nels. Our group has performed the method of paravariceal injection for more than 17 years and collected experience on more than 1750 patients, divided into 5 different groups (Table 1). The classification according to Child-Pugh [10, 11] is shown in Table 2.

Endoscopic sclerotherapy of esophageal varices is a therapeutic procedure to treat bleeding esophageal varices and to prevent further variceal bleeding. This procedure involves the passage of an esophagoscope, visualization of the esophageal varices and injection of a sclerosing agent into the varices or into the area surrounding the varices – paravariceally. The mechanism of injection sclerosis to control variceal hemorrhage is not understood completely, and involves a series of pathological events. The sclerosing agents are thought to damage the intima of varix and to cause intraluminal thrombosis followed by necrosis, polymorphonuclear leucocyte in-

TABLE 2 Sclerotherapy of the esophageal wall in esophageal varices: total number and classification after Child-Pugh (n = 1761; 01.01.1969 – 01.09.1987 Department of Surgery, University of Bonn, and Heinz-Kalk Hospital, Bad Kissingen)

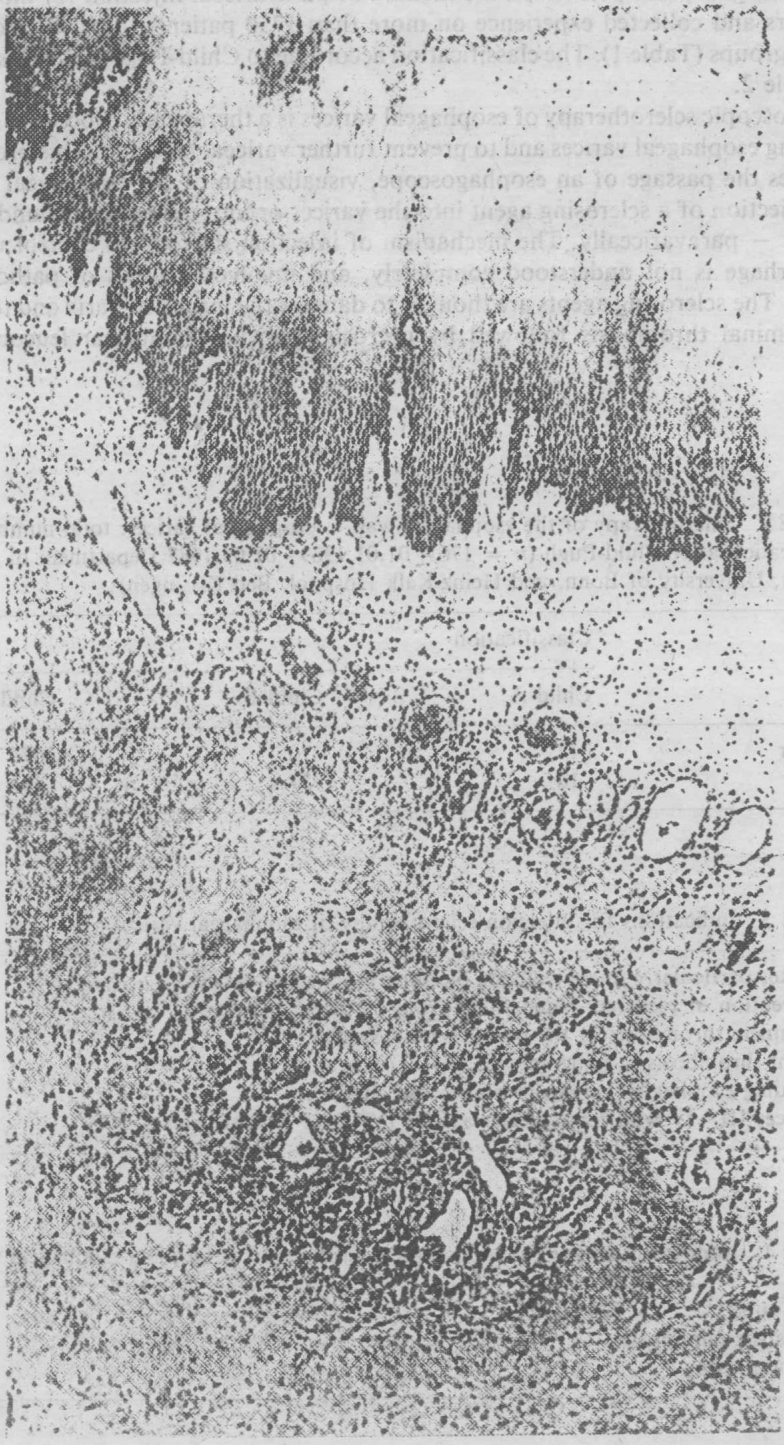
	Classification		
	Child A	Child B	Child C
Number	317	370	1074
Percent	18	21	61

TABLE 3 Indications for injection sclerotherapy of esophageal varices

1. Acute, particularly uncontrollable bleeding esophageal varices
2. Prevention of recurrent hemorrhage from esophageal varices
3. Complete thrombosis of the portal venous system
4. Shunt thrombosis in patients with intrahepatic block
5. Bleeding esophageal varices in babies and children
6. Varices III – IV with teleangiectasias and IVP over 30 cmH_2O

TABLE 4 Additional devices for endoscopic sclerotherapy of bleeding esophageal varices

Flexible tube
Balloons for tamponade
X-ray monitoring



filtration, and localized inflammation. This, in turn, is thought to progress to intravascular fibrous organization, intimal thickening and perivenous fibrosis. By using the paravariceal approach the varices as collaterals are protected by scar tissue and thickening of the epithelium and mucosa and still perfused (Fig. 2).

The technique to perform endoscopic sclerotherapy is not standardized. Physicians differ in the indications for treatment. Our main indications are listed in Table 3. We must consider several different points. Will injection sclerotherapy be performed during the acute hemorrhage as emergency treatment or will it be performed after conservative management with vaso- or glycylpressin or balloon tamponade or only if this conservative management is not effective? Will it be applied as long-term management to prevent recurrent bleeding or are there indications for its prophylactic use (Table 4)? Is it suitable for all patients without respect to their liver function or should it only be chosen for patients with decompensated liver function, especial-

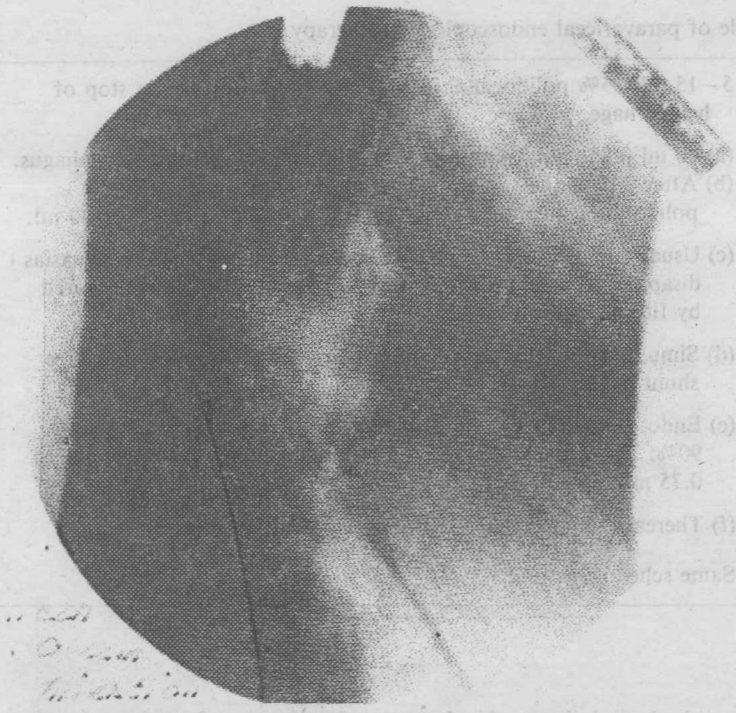


FIG. 3 X-ray control of paravariceal or submucosal injection of sclerosant diluted by contrast medium; the X-ray picture is taken three minutes after injection; all injected substance is still localized in the injection areas and has not entered the systemic circulation.

FIG. 2 Histological specimen of the terminal esophagus after paravariceal endoscopic injection sclerotherapy and resection of 3 cm terminal esophagus; esophageal varices are still perfused.

ly Child C patients? Can the results of endoscopic sclerotherapy be improved if this type of treatment is combined with other methods such as drugs, laser or shunt operation and performed as acute or long-term management? Are additional devices necessary for endoscopic sclerotherapy of esophageal varices such as an additional tube, which is recommended by the King's College Hospital in London, or different types of balloon or is X-ray monitoring during injection necessary or advisable? We prefer to do it by free-hand technique without special devices. We only sometimes check the localization of injection if it is para- or intravariceal by X-ray monitoring (Fig. 3). The schedule of our method of paravariceal endoscopic sclerotherapy is shown in Table 5.

Furthermore, physicians and surgeons differ (Table 6) with regard to volume of sclerosing agent, the type, number, place, depth and frequency of injections, the type of endoscope and anaesthetic and attractive supportive measures.

TABLE 5 Schedule of paravariceal endoscopic sclerotherapy

1. Acute:	5 – 15 ml 0.5% polidocanol in portions of 1 ml up to the stop of hemorrhage.
2. Elective:	(a) 40 ml 0.5% polidocanol in 40 portions in the terminal esophagus. (b) After 7 days the same; if there are no ulcerations, take 1% polidocanol; in the case of ulcerations wait or inject only 20 ml. (c) Usually 1 – 6 sessions using the same schedule till teleangiectasias disappeared and epithelium and mucosa are completely covered by fibrous tissue. (d) Simultaneous selection of the patients for elective and selective shunt operation. (e) Endoscopic control after 4 months and resclerosis if necessary 90%. Inject per session 0.5 or 1% polidocanol in 40 portions of 0.75 ml. (f) Thereafter endoscopic control every 4 – 12 months.
3. Prophylactic:	Same schedule as in 2.

TABLE 6 Differences in the techniques of endoscopic sclerotherapy of esophageal varices

1. Different substances for injection, e.g. polidocanol, ethanolamine, etc.
2. Volume per injection
3. Place and depth of injection: intra-, para- and combined injection
4. Schedule of sclerotherapy, e.g. injection once per week, etc.; control after 3 – 4 months
5. Type of endoscope, rigid or flexible
6. Methods of compression during injection