CLINICAL EXPERIENCE IN ENDOSCOPIC OBTURATION OF GASTRIC VARICES WITH HISTOACRYL

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During the period from Aug. 1990 to Feb. 1991, a total of 14 gastric varices in ten patients were treated with an endoscopic intravariceal injection of Histoacryl, including (1) three cases of bleeding gastric varices and (2) seven cases of large gastric varices without active bleeding but with stigmata of recent bleeding. The results were as follows: Immediate hemostasis was achieved in all four active bleeding varices in three cases. The eradication of gastric varices was noted in six lesions, and the remaining four lesions could not be evaluated because the patients died before the extrusion of Histoacryl. There were no complications resulting from the Histoacryl injecton. Our study shows that Histoacryl obturation is a safe and effective method for achieving immediate hemostasis, and for the eradication of bleeding gastric varices. (Chinese J Gastroenterol 1991; 8: 249-253)

Key words: Histoacryl, endoscopy, gastric varices

INTRODUCTION

A postmortem diagnosis of gastric varices was reported by Stadelmann in 1913 [1]. Following this, the first antemortem diagnosis of gastric varices by roentgenologic methods was made in 1931 by Schatzki [2]. During the next 30 years, only occasional reports on gastric varices appeared in the literature [3-5]. Because of the success of sclerotherapy in the treatment of esophageal varices [6-9], attention has been given to the study of gastric varices in recent years. Tissue adhesive therapy was used for the first time by Gotlib in an endoscopic obturation of esophageal varices in 1981 [10] and was applied to gastric varices by Ramond [11-12] and Soehendra [13-14]. According to their experiments, hemostasis could be achieved quickly in instant of gastric variceal bleeding, and gastric varices were eradicated satisfactorily. This paper describes our experience in using Histoacryl (n-buty1-2-cyanoacrylate) to effect hemostasis and to eradicate bleeding gastric varices.

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PATIENTS AND METHODS

From August, 1990, to February, 1991, ten patients, who were proved endoscopically as having: (1) bleeding gastric varices, and (2) large gastric varices without active bleeding but with stigmata of recent bleeding, were brought into this study. There were eight men and two women, with ages ranging from 42 to 80 (mean 60) years. Eight patients were suffering from liver cirrhosis with positive hepatitis B surface antigen (hepatocellular carcinoma in five). In the two other patients, gastric varices were secondary to congestive heart failure. According to a modified Child's classification, three patients were class A, 4 patients class B, and three patients class C. They were classified into two groups: (1) group I, simple gastric varices, 2 cases, (2) group II, combined gastric and esophageal varices, 8 cases. For group I, we gave an injection of Histoacryl. For group II,

Histoacryl was used in gastric varices and active bleeding esophageal varices, with Sotradecol administered at the same time in nonactive bleeding esophageal varices. With informed consent from the patients, they were given premedication with an intramuscular injection of 20 mg of Buscopan and 50 mg of pethidine, and a lidocaine spray to the oropharynx for local anesthesia for non-active bleeding cases, and an intramuscular injection of Buscopan for active bleeding patients only.

Injections were performed with a forward viewing videoendoscope (Olympus GIF CV-100) and injector (U.S.A. Mill-Rose Lab. INC., needle length 5 mm). We mixed Histoacryl with Lipiodol in equal volumes (0.5 to 1.0 ml Histoacryl and 0.5 to 1.0 ml Lipiodol in each injection) in a 2 ml plastic syringe. Lipiodol lengthens the polymerization of Histoacryl and makes the mixture X-ray opaque. Immediate polymerization can be avoided only when Histoacryl was contacted with electrolyte-free liquid. Thereafter, distilled water, which is easy to inject from a small inner diameter catheter, was applied to fill the inner space of the injector. The biopsy channel of the endoscope and outer surface of the injector were rinsed with a 20% dextrose water solution to prevent the adhesion of the injector to the endoscope and to let the injector be drawn out easily after injection. For gastric varices, the choice of the injection points were adjusted just cranially to the bleeding point in active bleeding varices, and to the high tendency bleeding sites such as the anterior wall, the greater curvature of the cardia, or the tumorous-like varices in nonactive bleeding cases. For bleeding esophageal varices, Histoacryl should be injected at the point just caudally to the bleeding point. When the varix is punctured, the needle should be positioned precisely to the intravariceal position by injecting distilled water. A mixed solution of Histoacryl and Lipiodol should be injected into the varix rapidly and followed by 0.8 ml of distilled water. An immediate hardening and whitish discoloration of the varix will be invaribly noticed after Histoacryl is injected. The needle of the injector should be drawn out immediately after injection to prevent the adhesion of the inner cannular and the outer sheath. A continuous infusion of the catheter with distilled water is recommended to avoid occlusion of the channel, but occlusion is not always avoidable.

After the initial injection, endoscopic examinations were performed two, four, eight, and twelve weeks later in the cases of gastric varices until the extrusion of the injected mixture from these varices. If bleeding recurred, endoscopy was carried out as soon as possible for diagnosis and concurrent injection therapy.

RESULTS

The patients were followed until June, 1991 or until their death, whichever came first. After the first treatment, bleeding recurred seven times in three cases. In the first case, the patient suffered from massive hematemesis from a unknown source followed by respiratory failure. The second case there was hepatocellular carcinoma (HCC) with tumor thrombi in the main portal vein, complicated by three recurrences of bleeding that were controlled by an endoscopic injection of Histoacryl in the first two episodes (1 gastric and 1 esophageal). The third patient, a case of HCC and tumor thrombi in the common hepatic duct, experienced three recurrences of bleeding that were controlled by repeated Histoacryl obturations in the first two episodes (1 gastric and 1 esophageal). Panendoscopy was not feasible in treating the last episode for all three of these patients due to their poor general condition. Including incidences of rebleeding, fourteen gastric varices were treated in total. As to the outcome of these varices, all four cases of active bleeding varices (three in the first examination and one in rebleeding), hemostasis was achieved immediately after the Histoacryl obturation (Fig. 1), with subsequent eradication in one varix. For nonactive bleeding varices, seven of ten varices were eradicated. The effect of Histoacryl obturation could not be evaluated in six gastric varices because these patients expired before the extrusion of Histoacryl. Spinal X-rays and endoscopy were

used regularly to follow the serial change of gastric varices after the Histoacryl obturation until eradication or until the patient died. We found initial hyperemic change in these varices (Fig. 2). followed by gradual extrusion (by our description, disintegration) (Fig. 3) of the mixed material of Histoacryl and Lipiodol. The spinal X-rays revealed radiopaque shadows of this mixture at the injected area (Fig. 4). Finally, this mixed substance was extruded from gastric or esophageal mucosal walls and passed out in the stool. The onset of disintegration took nine to 49 days (mean 26 days) and the time for extrusion was 21 to 77 days (mean 56 days) in gastric varices.

Concerning the outcome of these cases, four patients died in hospital (massive bleeding in three cases, sepsis in one), and three at home (hepatic encephalopathy in two cases, a cerebral vascular accident in one). No death occurred as a result of the Histoacryl injection per se. With the Histoacryl obturation, there were no complications such as fever, epigastralgia, and ulceration, which were often observed in sclerotherapy with Sotradecol.

DISCUSSION

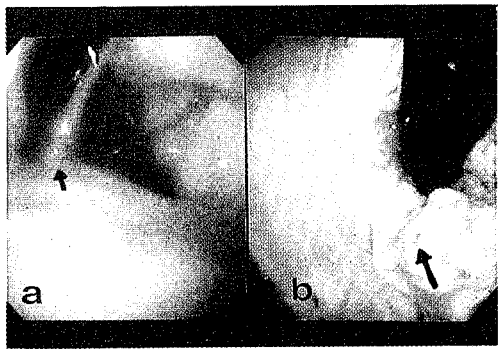

Fig. 1: (a) Active bleeding of gastric varices at cardia (short arrow).
(b) Immediate hemostasis of bleeding of the gastric varices after Histoacryl obturation (long arrow).

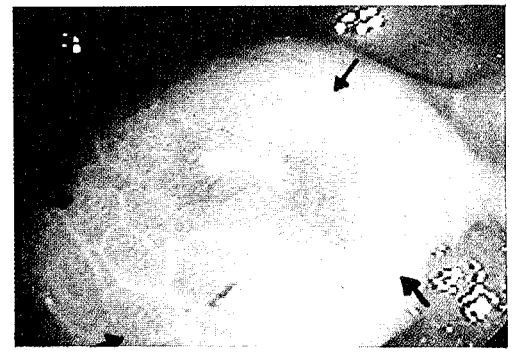

Fig. 2: Hyperemic change of treated gastric varices (arrow).

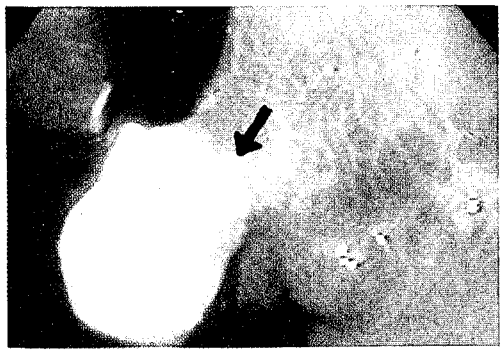

Fig. 3: Disintegrating of treated gastric varices (arrow).

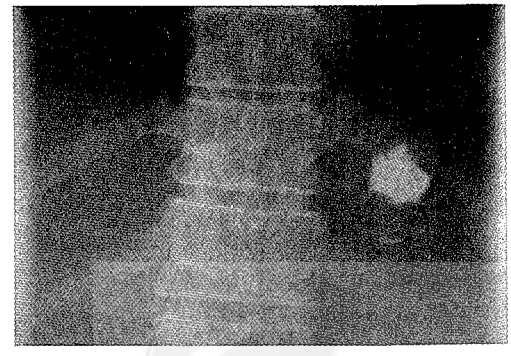

Fig. 4: Spine X-ray film show radiopaque shadow of the mixture of Histoacryl and Lipiodol at injected site (arrow).

It has been thought that gastric varices bleed less frequently but more profusely than esophageal varices [15-17] and respond poorly to a balloon tamponade treatment [18]. For the management of gastric varices, surgical treatment was the only choice before 1981. But a high operative mortality rate and subsequent encephalopathy has led people to seek other more satisfactory methods. Since 1982, several groups have reported their experience with an injection sclerotherapy for gastric varices using sclerosants [16,19-21] or absolute alcohol [17]. Their results show variable hemostatic rates but high rebleeding rates (from 36% to 87%) in intravariceal injections and a high incidence of ulceration in paravariceal injections. Since 1981 Gotlib [10], Ramond [11-12], and Soehendra [13] used a tissue adhesive agent, isobuty1-2-cyanoacrylate (Bucrylate), to perform endoscopic obturation for gastric varices. Recently, an unpublished animal study shows that liver sarcoma was induced in rats after an intraperitoneal injection of large doses of Bucrylate [22], the production of bucrylate was discontinued by the manufacturer and replaced by a substitute, Histoacryl (n-buty1-2-cyanoacrylate) [23]. Histoacryl was first utilized in the endoscopic hemostasis of gastric variceal bleeding by Soehendra [14]. In his study, 31 cases of acute bleeding of gastroesophageal varices were treated with Histoacryl. Among these patients, four cases were endoscopically diagnosed as fundal varices. The result showed initial hemostasis in all patients. Although recurrent bleeding occurred seven times in four patients, all were controlled with reinjection of Histoacryl. No patient died from bleeding. In our study, active hemorrhage from gastric varices was stopped immediately by injections of Histoacryl in all three varices during the first treatment. Recurrent bleeding was found in a gastric varix in one patient and from esophageal varices in two patients, These cases of recurrent bleeding were further controlled by Histoacryl obturation. Histoacryl obturation was a satisfactory treatment for achieving immediate hemostasis of gastric variceal bleeding. Although there were recurrences of bleeding, there was no evidence that the bleeding was induced by the injection per se.

We conclude that Histoacryl obturation is a safe and effective treatment to achieve immediate hemostasis and the eradication of bleeding gastric varices.

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用Histoacryl經由內視鏡閉塞胃靜脈瘤的臨床經驗

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1990年8月到1991年2月，經由內視鏡診斷為胃靜脈瘤的病人共10位，其中3位為出血性胃靜脈瘤，另外7位為大的胃靜脈瘤併最近上消化道出血而無確定的出血源，均接受經內視鏡胃靜脈瘤注射Histoacryl治療。治療結果顯示3位病人的4次急性出血皆可達到立即止血的效果；6位病人的8條胃靜脈瘤可達根除的效果，另4位病人的6條靜脈瘤無法評估是否根除，因為這4位病人在Histoacryl尚未從注射部位脫落前就去世。注射Histoacryl後未發生任何併發症。Histoacryl閉塞是一種安全而有效的方法，對於出血性胃靜脈瘤有立即止血與根除作用。（中消醫誌 1991；8：249—253）

關鍵語：胃靜脈瘤、組織粘膠、泛內視鏡