Percutaneous Transhepatic Embolization of Esophageal Varices Combined with Chronic Embolization of Splenic Artery in Bleeding Esophageal and Gastric Varices

SH. I. KARİMOV, A. R. AHTAEV, S. P. BOROVSKY

Summary: *Results obtained from the treatment of 125 patients with portal hypertension complicated with profuse bleeding from esophageal and gastric varices are presented. There were 88 men and 37 women. Conservative treatment using Blackmoore tube and vasoconstrictors was carried out in 20 patients. Bleeding was controlled only in 7. 13 developed reccurrent bleeding and they died the next day. Percuaneous transhepatic portography with occlussion of bleeding esophageal and gastric varices was done in 105. In 90 this method was combined with chronic embolization of splenic artery which made possible reduction in portal pressure by 50-65 mm water. In 29 patients with hepatofugal blood flow after endovascular intervention a catheter was left in the portal vein to was control embolized veins. Bleeding vessels was successful embolized in all of the patients. 29 died; of these 10 had a reccurent bleeding and 19 had a progressive hepatorenal insuficiency. Hospital mortality was 27.6%. 50 were observed for a long period of time (from 3 months to 8 years). Of these, 12 had a reccurent bleeding between 6 and 30 months, 38 showed obliteration of embolized veins stable. Our results showed that conservative treatment of esophageal bleeding was not effective, mortality remains still very high (65,0 %).*

We conclude that percutaneous transhepatic embolization of esophageal varices combined with chronic embolization of splenic artery is an effective procedure for bleeding, particulary in high risk patients with decompensated stage of liver cirrhosis.

Key Words Portal hypertensive bleeding, percutaneon transhepatic variceal oblitenation, splenic arterial emisolization.

Department of Surgery of the 2nd
Tashkent State Medical Institute

We have been performing percutaneous transhepatic portography with embolization of esophageal and gastric varices for controling profuse bleeding. (since 1984 in our surgery department) Because of its len traumetic effect and organpreservation it may be a method of choise in conditions when intervention is necessary, but in high risk cases it is not possible.

MATERIAL and METHODS

Results of 125 patients with bleeding esophageal and gastric varices with portal hypertension secondary to cirrhosis of the liver (100), thrombosis of the splenic and portal veins (10), Budd-Chiari syndrome (6) and mixed block (9). There were 88 men and 37 women, ranging in age from 14 to 79 years of age. Severity of patients' were evaluated according to their blood loss and function of the liver. 66 had at least 1 episode of previous bleeding controlled by hemotransfusion (The patients were divided into 3 groups): 1. Moderate blood loss (10-15% of CBV 6); 2. Severe (up to 30% of CBV) 3. very severe (more than 30% of CBV). Traditional conservative therapy was carried out in 20. Roentgenendovascular hemostatic interventions were performed in 105. A total of 226 endovascular interventions were performed.

CBV-circulatory blood volume

Fig.1. Percutaneous transhepatic portogram of bleeding esophageal varices in patient D. Before embolization of the left gastric coronary vein.

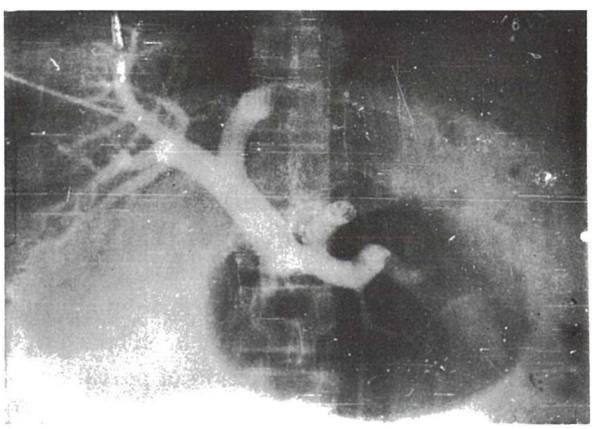

Fig.2. View after embolization. Vein is not contrasted.

Approach to the treatment in such patients was as follows: on the background of intensive therapy, emergency esophagogastrofibroscopy was performed to detect a source and localization of bleeding followed by transit control of the bleeding by Blackmoore-Sengstaken ture. Simultaneously a complex intensive therapy of hepatic insufficiency and correction of hemostasis were carried out. These measures were undertaken during 3-4 hours in reanimations conditions. Roentgendovascular interventions were carried out as follows: diagnostic angiography, celiacomesentericography, percutaneus transhepatic portography (Fig. 1), embolisation of esophageal varices cobined with chronic embolisation of celiac trunk branches. The former was undertaken if patient's (general) condition was stable. The procedure was completed with control portography (Fig. 2), portometry and obliteration of the hepatic punction channel. Percutaneous transhepatic portography was carried out by a method described by Lunderquist and Vang (1974), taking into occunt the portal vessel anatomy wich was evaluated by reversal splenomesentericography. Embolisation of esophageal and gastric warices was performed with a modifited Gianturku coils, haemostatic sponge, teflon velvet, mixture of glucose and spirit, injected via the left coronary vein and short gastric veins. Hepatopetal bloodflow was observed in 40 patints, hepatofugal in 33, and partly hepatopetal in 26. In postembolisation period intensive treatment of the liver function, correction of anemia and prevention of hepato-renal insufficiency were carried out.

RESULTS

Of the patients with profuse esophageal bleeding and portal hypertension 99 had percutaneous transhepatic embolization of esophageal and gastric varices. In addition chronic embolization of the celiac trunk branches was performed in 90. Conservative therapy in 20 included injection of pituitrin up to 200 units/day, hemostasis, protease inhibitors, hamotransfusion, mechanical hemostasis, protease inhibitors, hemotransfusion, mechanical hemostasis with a Blackmoore-Sengstaken tube. Such approach was successful only in 7 (35,5%). 13 patients died: 11 had uncontrolled bleeding and 2 because of hepatargy, mortality amounted to 65,0 %. Before endovascular hemostasis of bleeding varices wes carried out preembolization preparatory treatment during 3-4 hours. However, hepatorenal insufficiency and posttransfussion complications. Were observed after the embolization. Keeping in mind that everything we have said we reexamined the approach and preparation in patients. We tried to control bleeding by con-

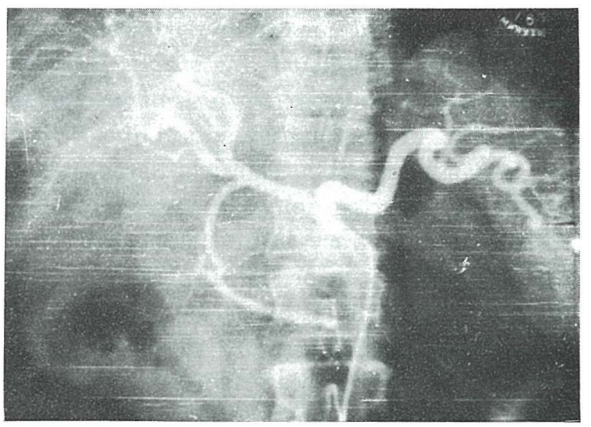

Fig.3. Celiacogram of bleeding from esophageal varices in patient. Before embolization of the splenic artery.

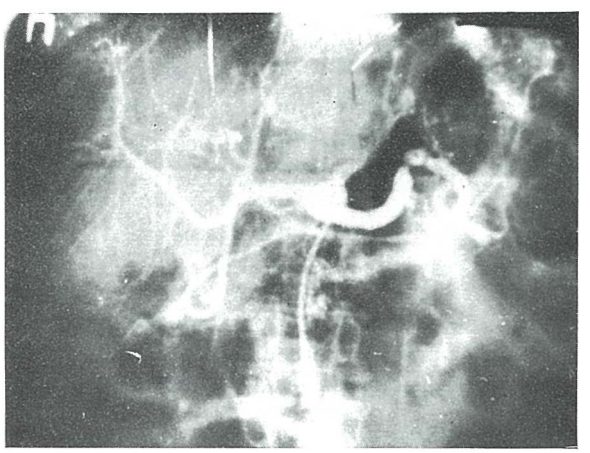

Fig.4. 2 years after embolization of the splenic artery.

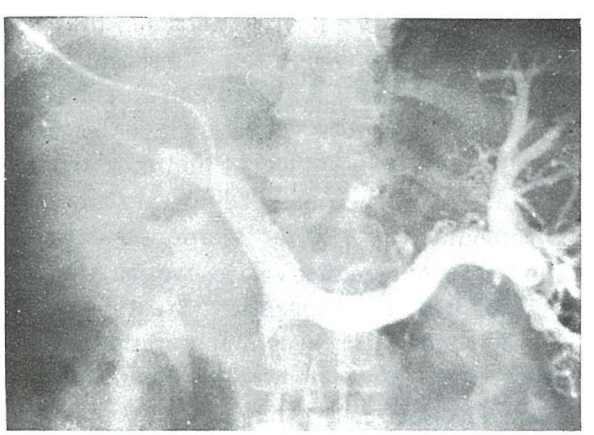

Fig.5. Control portogram of the splenic artery in patient 2 yers after embolization of esophageal veins. Obliteration in the vessels has preserved.

servative measures and on the 2 or 3d day when patient's condition became stable a delayed embolisation was carried out.

Such approach made endovascular interventions for patients easier and reduced the rate of complications and mortality. In 29 of the cases endovascular interventions ended in leaving a catheter in portal vein for intraportal infusion therapy and repeated embolization in reccurent bleeding. This procedure was done especiolly in patients with hepatofugal blood flow. Catheterization lasted 5-7 days. This method allowed us to perform reembolization of varices in reccurent bleeding at the postembolization period. All the patients obtained portomanometry before and after embolization. After embolization portal pressure had increased in 87 (87%) immediately after obliteration of gastroesophageal varices up to 67-120 mm water. Taking into account the routes of blood outflow into the portal circulation and the purpose to reduce portal pressure and prevent a reccurent of bleeding, we performed chronic embolization of splenic artery in 90 patients, which resulted in the reduction of portal pressure up to 50-65mm water. Of 105 patients 29 died (27,6%); of these 10 had a reccurent bleeding and 19 had a progressive hepatorenal insufficiency under controlled bleeding. 50 patients were observed from 3 months to 8 years. They had control angiography which include celiacography, percutaneous transhepatic portography with portomanometry (Fig. 3,4,5). 38 patients showed complete obliteration of embolized veins, of them 27 had reccurent bleeding from short gastric veins and embolization had been carried out. Reduction in portal pressure ranged from 90 to 110mm water and amounted to 260-320mm. Celiacography showed recanalization of previously embolized splenic artery in 17. Reembolization with a modified Gianturku coil was performed. 19 patients had embolization of the left gastric artery for prevention of bleeding as they had blood redistribution in celiac trunk system via

the left gastric artery with hypervascularization of gastroesophageal region. In addition all of the patients had a control esophagogastrofibroscopy which showed a regression of phlebectasy

DISCUSSION

Profuse bleeding from esophageal varices in portal hypertension is the most complicated and unresolved problem in clinical medicine. While the main clinical and diagnostic aspects have been studied well enough, a choice of method of treatment remains a matter of discussion. Mortality after conservative treatment, and surgery amounted correspondingly to 20-56,4 % and in patients with decompensated cirrhosis it raised up to 90%. So the purpose of our study was to evaluate the effectivity, of endovascular interventions in profuse bleeding from esophageal and gastric varices. of 20 patients treated with conservative therapy 7 had survived (35,3%). Of 99 patients who had transhepatic embolization of gastric and esophageal varices 59 had survived (57,8%).

Approach to the treatment and preparation of such patients is of great importance. Delayed embolization of esophageal and gastric varices performed in our clinic, enabled us to reduce complications significantly. As embolization of the varices did not reduce portal pressure, but on the contrary increase it in addition we carried out chronic embolization of the splenic artery with a modified Gianturku coil. Leaving a cathather in the portal vein, particularly in patients with hepatofugal blood flow, enabled us to control portal dynamics and gived an opportunity for reembolization in a reccurent bleeding. Long-term follow-up findings were satisfactory in all 50, except 12, in which a reccurent bleeding occured. Control percutaneous transhepatal portography showed a complete obliteration of previously embolized veins. So, following the principles of embolization of bleeding varices developed at our clinic, we were able to achieve effectiveness up to 96,5%, 12 patients had a reccurent bleeding at hospital.

Stable clinic effect and prevention from reccurent esophageal varices can be obtained by a systematic step-by-step performance of roentgenendovascular interventions during a long-term observation period.

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