Long Term Follow up of Endoscopic Sclerotherapy

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Bleeding from esophageal varices due to portal hypertension is the commonest source of serious gastrointestinal bleeding in children. In India, portal hypertension is generally due to primary extrahepatic portal vein obstruction(l,2). The mortality after index hemetemesis in variceal bleeding is 30% and after recurrent varieeal hemorrhage is as high as 70%(3). Active bleeding esophageal varices are treated by blood transfusions, vasopressin infusion and balloon tamponade. The patients can later be taken up for either sclerotherapy or shunt surgery. Portal surgery is not only technical difficult(5) but has its own complications(6,7). Thus injection sclerotherapy of esophageal varices has become the choice of therapy for these patients.

We describe our experience with endoscopic sclerotherapy with surveillance upto 12 years in children with portal hypertension.

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Material and Methods

Fifty children with portal hypertension due to various causes and recurrent variceal bleeding were entered in the sclerotherapy programme from February, 1981 to February, 1993

An informed consent was taken from parents. Esophagogastro duodenoscopy was performed with either $GIFP_2$ or $GIFXP_{20}$. General anesthesia was given to the children below. 8 years of age. The varices were graded from I-IV as per the standard classification of Conn(8).

The sclerosant used was 1% polidocanol. Sclerotherapy was carried out at weekly intervals for first 3 weeks and later 3 weekly intervals till complete thrombosis was achieved. The amount of sclerosant was calculated as 1 ml per year of age (as 20 ml is used in adults). The injection was given paravariceally 1 cm apart, starting from the gastrooesophageal junction in a circumferential manner.

Total thrombosis was considered to have been achieved if no varices were seen at endoscopy on follow up. A near complete thrombosis was considered if short varices Grade MI were seen. Sclerotherapy was deemed to be a failure if there were two or more long varices of Grade II or One varix of Grades III or IV. Patients underwent

scopy at 6 monthly interval (or earlier in case of bleed) in order to diagnose development of fresh varices. The follow up period ranged from 3 months to 12 years *(Table I)*. The cause of death, if any, was recorded during follow up.

Results

The youngest patient was 7 months in subjects with extrahepatic portal vein obstruction (EHPVO) and 5 years in those with liver diseases. Forty children were below 10 years of age. Hemetemesis was the most common symptom and was seen in 47/50 patients. Splenomegaly was seen in 48 patients. Two patients had undergone earlier shunt surgery with splenectomy.

Out of the 45 patients with EHPVO, 1 had splenic vein thrombosis, the rest had portal vein thrombosis with cavernoma. The anatomic block was recognized by splenoportogram in 32 patients, in the rest it was diagnosed on ultrasound. Out of 5 cases of liver diseases 3 had cirrhosis of liver, 1 had non cirrhotic portal fibrosis (NCPF) and 1 had congenital hepatic fibrosis.

The number of injections required for total thrombosis or near total thrombosis were 3 to 5 in 22 patients, and 6 to 8 in 28 patients. The median number of injections was 6.

TABLE I–*Follow up After Complete/Near Complete Thrombosis*

Follow up	Number
3- 6 mo	9
6- 9 mo	4
9-12 mo	7
1 -5 yr	10
5-10 yr	12
10-12 yr	3

The episodes of bleeding reduced from 125 in 63.7 patient years to 14 in 101.4 years after initiation of sclerotherapy *(Fig. 1)*.

Complete thrombosis was seen in 20 patients out of which 1 died due to fundic variceal bleeding. Near total thrombosis was achieved in 25 patients who had 1 or 2 short length Grade II varices. Partial response was seen in 5 patients, out of which 1 died due to variceal bleeding, the other 3 are still on the sclerotherapy schedule. Out of the 50 patients, 44 did not bleed after complete thrombosis but 3 patients of EHPVO developed new varices on follow up scopy between 1-3 years.

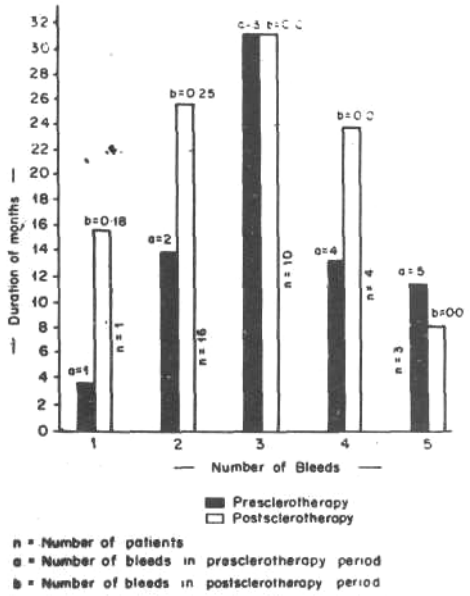

Fig. 1. The bar diagram shows the very low post sclerotherapy bleeds compared to the pre-sclerotherapy period in the same number of patients.

Four patients developed esophageal ulcers which did not bleed and five patients had fever due to transient bacteremia. One patient developed esophageal stricture which did not require dilation.

Discussion

Extrahepatic portal obstruction is a major cause of bleeding varices in childhood in India(4,5). In order to reduce the morbidity and mortality associated with frequent variceal bleeds and repeated blood transfusions, the management of this condition must be aimed at prevention of recurrent variceal hemorrhage. This could either be achieved by decompressing the portal venous system by selective shunts or through ligation of the varices or by obliteration of the varices by sclerotherapy(6-ll).

As the portal vein is replaced by a myriad of collaterals forming a portal cavernoma in portal vein thrombosis, portal surgery requires special surgical skills which is not available at most of the centres(4). Injection sclerotherapy can be mastered by any good endoscopist and is possible at any hospital even in towns.

Work carried out in the last decade indicates that injection sclerotherapy gives better long-term results than selective shunts. Warren *et al.* (13) found that the two years survival of sclerotherapy group was 84% whereas that of lienorenal shunt was 50%. The hepatic portal perfusion and liver function is better maintained by sclerotherapy (14).

In our series of 50 patients complete/ near complete thrombosis was achieved in 45 patients. Comparing the natural history of cirrhosis and patients with EHPO/after sclerotherapy, we found that episodes of bleeding from varices reduced dramatically in both the groups.

Follow up after complete thrombosis varied from 3 months to 12 years. To the best of our knowledge this is the longest follow-up of post-sclerotherapy patients in the country. As mentioned before, after complete thrombosis only 2 patients of EHPVO and 1 patient of cirrhosis developed fresh varices and required sclerotherapy. There was no development of fresh varices in any patient 3 years after complete thrombosis.

Our data indicates that injection sclerotherapy is a viable alternative to portal vein surgery in Indian children. It helps the young children of extrahepatic portal obstruction to lead a normal life. It is also a useful modality of treatment in patients of cirrhosis but the overal survival in this group depends upon the hepatocellular function.

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