Table 5. Follow-up in the EIS and EVL Groups

	EIS (n=29)	EVL (n=32)	P value
Duration of follow-up (months)	12.3 ± 3.5	11.9 ± 3.2	NS
Varices recurrence	2	4	NS
Mortality cases	6	5	NS
Bleeding related	2	1	
Hepatic failure	2	3	
HCC	2	1	
Child's A/B/C (%)	0/25/50	0/17/43	

which included 2 who had developed of hepatocellular carcinoma. In the EVL group, 1 patient died of variceal bleeding and 4 of hepatic failure, including 1 of hepatocellular carcinoma.

DISCUSSION

In 1989, Stiegmann et al.[5] reported on an initial series of patients treated with EVL for esophageal varices that had bled previously. The method was adapted from a technique used for hemorrhoids. Stiegmann stated that EVL did not have as great a potential for serious complications as did EIS. Such complications include bleeding from treatment-induced ulcers, the occurrence of esophageal strictures and occasionally, esophageal perforation, mediastinitis, or pericarditis. The initial data suggested that the new technique compared favorably with the reported therapeutic effectiveness of EIS, and that it appeared to be at least as safe. Since that time, several large randomized trials[9-12] have been published comparing the safety and efficacy of variceal ligation with variceal sclerotherapy. Most of these reports have shown some statistically significant advantages to variceal ligation, although the specific benefits vary, depending on the study. The incidences of complications in these studies vary widely too. The study by Gimson et al.[10] found no significant difference between the 2 groups. However, Laine et al[11] noted a clear decrease in complications and more rapid obliteration of varices. In Hashizume's study[12] from Japan, there were significantly fewer complications of pyrexia, retrosternal pain, and pleural effusion with EVL, but there were more early ulcers. In these studies, the frequencies of treatment-induced complications associated with EVL were significantly lower than those associated with EIS. The ulcers in the EVL group were much fewer than the corresponding figure reported in other trials comparing both methods.[10,11,13] In those studies, the incidence of post-EVL ulceration ranged from 90% to 100%. The reason for this discrepancy is unclear, but the definition of complications in trials of endoscopic variceal therapy varied. Although ulceration was common in the EVL group, the ulcers were small and rarely associated with symptoms. Young et al.[13] showed that esophageal ulcers occur commonly after EVL, but they are much shallower and heal more rapidly (14 vs. 21 days) than those after EIS. Stiegmann et al.[9] did not classify these as complications. It is true; however, that our patients' esophageal ulcers were diagnosed during endoscopic follow-up performed at least 2 weeks after endoscopic treatment. The lower stricture rate in our trial may be attributable to the routine use of prophylactic sucralfate in both groups after treatment; this decreases the frequency of stricture formation after EIS.[14] Sucralfate may also reduce rebleeding from treatment- induced ulceration.[15] The other systemic complications of EIS are pyrexia, retrosternal pain, and pleural effusion. Systemic complications caused by dissemination of sclerosant remain a problem, particularly as related to respiratory failure[16] and kidney failure.[17] EVL eliminated or diminished such complications because the sclerosant was not injected into the body. The efficacy of EVL for treating esophageal varices is much the same as that of EIS; patients with esophageal varices can be treated with relatively safety and with fewer complaints of chest pain.

During active variceal bleeding, injection sclerotherapy achieved hemostasis more regularly than did pharmacological therapy alone.[18,19] In this trial, EIS and EVL were equally effective in patients with active bleeding at the time of first endoscopy. However, recurrent bleeding in these emergency cases and in electively treated cases was less common after EVL than after EIS before the varices were completely eradicated. The most likely reasons for the lower rebleeding rate in the EVL group are that F1-sized varices can be rapidly reduced and that smaller varices might not bleed. Stiegmann at el. also reported a lower rebleeding rate and fewer treatments in the eradication of varices.[9]