Early and late complications of endoscopic oesophageal varices sclerotherapy

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Summary. We report the complications of perendoscopic sclerotherapy observed during treatment of oesophageal varices in 104 patients and 409 sclerotherapy sessions. Complications were related to each individual session and to the aim of the treatment (therapeutic or prophylactic). Major complications occurred in 17.3% of the patients treated: 13 cases of severe bleeding and 5 of oesophageal stricture. Conservative therapy stopped haemorrhage in all but 4 patients, who died of uncontrolled bleeding (3.8%). Three oesophageal strictures recovered spontaneously, while the remaining two required endoscopic dilations. Minor complications occurred after 102/409 sessions (24.9%). Epigastric and/or retrosternal pain developed after 17.6% of the sessions, oesophageal ulcerations after 12.5%, fever after 11.7% and transient dysphagia after 3.7%. Bleeding was observed only in Child's category C patients who underwent therapeutic treatment. The risk of bleeding remained unchanged until complete eradication of varices was achieved. The incidence of minor complications did not correlate with the progression or the aim of the treatment.

Key words: Oesophageal varices — Endoscopic sclerotherapy — Complications.

Endoscopic sclerotherapy (ES) is nowadays widely accepted for both elective and emergency management of oesophageal varices [6, 11, 20]. The costs, morbidity and mortality of this treatment compare favourably with other methods [3, 5, 7]. Complications are reported in approximately 1% to 35% of patients [8, 16]. They can appear immediately after the sclerotherapy session or later on. Complications can be of variable severity, and their development is not clearly correlated with any technical factor [7, 9, 18].

In this study we analysed the most common complications observed during sclerotherapy treatment. We also evaluated the appearance of complications in relationship to progressions and the aim of the treatment (therapeutic and prophylactic).

Patients and methods

We reviewed 104 patients retrospectively (77 males and 27 females), with a mean age of 51 years (range 2–79 years). Patients were classified according to Child's classification and varices were graded according to Paquet's scheme (Table 1).

The conditions responsible for portal hypertension are reported in Table 2. All patients had third to fourth grade oesophageal varices [11]. Treatment was initiated after one or more episodes of bleeding in 79 patients. Prophylactic sclerotherapy was performed in 25 patients whose varices were endoscopically classified as Paquet's 3rd-4th grade.

Sclerotherapy was performed under sedation by intravenous diazepam (0.1 mg/kg). Neuroleptanalgesia was performed after 102/409 sessions (24.9%). Epigastric and/or retrosternal pain developed after 17.6% of the sessions, oesophageal ulcerations after 12.5%, fever after 11.7% and transient dysphagia after 3.7%. Bleeding was observed only in Child's category C patients who underwent therapeutic treatment. The risk of bleeding remained unchanged until complete eradication of varices was achieved. The incidence of minor complications did not correlate with the progression or the aim of the treatment.

**Table 1. Clinical features (variceal grading and Child's classification) of the patients treated by oesophageal sclerotherapy**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Variceal grading (Paquet)</th>
<th>Child's classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3rd 4th</td>
<td>A  B  C</td>
</tr>
<tr>
<td>Prophylactic ES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>($n = 25$)</td>
<td>4 (16.0%) 21 (84.0%)</td>
<td>9  9  7</td>
</tr>
<tr>
<td>Therapeutic ES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>($n = 79$)</td>
<td>24 (30.4%) 55 (69.6%)</td>
<td>40  26  13</td>
</tr>
</tbody>
</table>


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formed by diazepam (5–10 mg), droperidol (2.5 mg IV) and ketamine (50–100 mg IV) in 6 paediatric patients alone.

Both endoscopes with a single, standard-sized biopsy channel and wide-channel instruments were used. Polidocanol (1%) was used as a sclerosant with an average 1.5 ml injected per puncture and a mean injected volume of 22.5 ml per session. The injection needle had a 23 gauge and a maximum length of 4 mm. Both intravascular and perivascular injections were given. Post-injection tamponade was not used. A total of 409 sclerotherapy sessions were performed. Oesophageal varices were considered cured after an average of 3.9 procedures per patient (range 2–6).

The prevalence of complications in the two study groups (therapeutic and prophylactic ES) has been analysed both cumulatively and in relationship with each single session. The amount of sclerosant injected was also considered. Bleeding, strictures and perforations were considered severe complications, as in other reports in the literature [7, 18]. In contrast, hyperpyrexia, transient dysphagia, oesophageal ulcerations and epigastric and/or retrosternal pain were considered minor complications.

Results

Major complications developed in 17.3% of the patients (18/104) and in 4.4% of the procedures (18/409). Major complications were 13 episodes of variceal bleeding and 5 oesophageal strictures (Table 3). Patients who experienced bleeding belonged to Child's classification C. In 9 cases, bleeding was successfully controlled by endoscopic and medical therapy; the remaining 4 patients died of continued, uncontrolled bleeding.

Bleeding did not occur in patients given prophylactic ES. Nine of 13 bleeding episodes (69.2%) occurred within the first two sessions of the treatment, with the highest incidence seen after the second session (Table 4). However, this value did not reach statistical significance when matched with the prevalence of haemorrhages seen after the other sessions (chi-square test).

Massive bleeding caused death in four cases. In the first of these patients, who had a large hiatal hernia, we were not able to control rebleeding in spite of administration of intravenous Glypressin, followed by emergency sclerotherapy. Subsequently, the patient underwent emergency oesophageal transection, but he died of hepatic coma in the early postoperative period. In the second patient, emergency sclerotherapy stopped variceal haemorrhages; nevertheless, he died in coma some days later. The other two patients experienced a massive upper gastrointestinal bleeding and died before they could be referred to our centre.

Oesophageal strictures developed in four patients given prophylactic ES and in one patient treated by therapeutic ES. In three cases a single endoscopic dilation was sufficient to relieve dysphagia. In all cases strictures developed as late complications in the final period of the treatment (3rd–4th session). Minor complications were observed immediately after 102 out of 409 endoscopic sessions (24.9%).

Fever (37°C–38°C) occurred in 48 cases (11.7%), and epigastric and/or retrosternal pain in 72 (17.6%) within the first 24–48 h of the treat-