verts the fecal stream and gives temporary rest to the bowel, unlike with simple side-to-side ileo-transverse anastomosis.

Mean hospital stay in the four groups was comparable and was approximately 12 days. The complications are listed in the Table.

Table: Complications following surgery for typhoid ileal perforation

<table>
<thead>
<tr>
<th>Complications</th>
<th>Simple closure</th>
<th>MTA</th>
<th>Resection- ileostomy</th>
<th>anastomosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound infection, no.</td>
<td>21 (29.5%)</td>
<td>10</td>
<td>3 (50%)</td>
<td>4 (26.6%)</td>
</tr>
<tr>
<td>Abscess in abdomen, no.</td>
<td>7 (9.8%)</td>
<td>4</td>
<td>2 (33.3%)</td>
<td>2 (13.3%)</td>
</tr>
<tr>
<td>Intra-peritoneal abscess,</td>
<td>4 (5.6%)</td>
<td>2</td>
<td>5.8%</td>
<td>1 (6.6%)</td>
</tr>
<tr>
<td>Fistula</td>
<td>17 (23.9%)</td>
<td>10</td>
<td>23.3%</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>Septicemia</td>
<td>9 (12.6%)</td>
<td>7</td>
<td>9.8%</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>Fecal fistula, no.</td>
<td>5 (7%)</td>
<td>3</td>
<td>8.8%</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>Mortality</td>
<td>6 (8.4%)</td>
<td>3</td>
<td>8.8%</td>
<td>3 (20%)</td>
</tr>
</tbody>
</table>

Many surgeons have advocated bypass procedures to reduce the chances of reperitoneation and fecal fistula.1,2,3 This procedure allows rest to the diseased segment and prevents fecal matter from passing over the closed perforations. MITA is better than simple ileo-transverse anastomosis because it completely diverts the fecal stream for a temporary period.2,3 Postoperative barium studies in some of our patients showed that the lumen becomes patent where the purse-string suture had been applied.

The treatment of typhoid perforation should be individualized. The choice of operation depends upon the duration of the disease, general condition of the patient; site, size and number of perforations; and the condition of the terminal ileum. Modified ileo-transverse anastomosis appears to be a good choice of operation in selected cases of typhoid perforation.

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References

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Heavy metals in 'herbal' medicines

We read with interest the report on lead poisoning by Sood et al.1 We would like to congratulate the authors for highlighting the importance of good history-taking in arriving at a diagnosis, especially regarding intake of herbal medicines. At the adverse drug reaction monitoring cell in our department, we have also come across 9 patients in the year 2002 who reported with features suggestive of toxicity with heavy metals, with a history of taking herbal medicines. Analysis of the herbal medications (by inductively coupled plasma-atomic emission spectroscopy) that were being taken by the patients showed the presence of lead in two samples, mercury in one, and arsenic in one sample.

A case we would like to highlight is that of a woman who presented with thrombocytopenia. She had a history of repeated abortions for which she was taking an Ayurvedic medicine garbhakal ras. This formulation contains nagbhasma (lead), vangbhasma (tin), lobhasma (iron), hingale (mercuric sulfide) and three plants Cinnamonum zeylanicum, Elleria cardamomum and Cinnamonum tamal.2 Plasma of the patient showed 11.9 µg/dL arsenic, which is above the permissible limit (0.17 to 5), 17.9 µg/dL lead (permissible levels 10 to 25) and mercury below 5 µg/dL, i.e., below permissible limit. The tablet itself contained lead (10400 ppm), arsenic (7100 ppm) and mercury (34000 ppm). We then tested five different marketed preparations of Garbhakal ras and found arsenic in four of the five preparations, ranging from 1000 to 7100 ppm. The point to be noted is that arsenic is not an ingredient of this medication.

There are several issues that emerge from these cases. Firstly, heavy metals may be present in these "Ayurvedic" or herbal preparations either because they are supposed to be there, as in herbomineral preparations (bhassmas), or because herbal medicines, that are supposed to contain only plants, have metals in them as impurities (e.g., pesticide residues). The problem with the first category of medicines is that the process of preparation of bhassmas is a complex procedure. The method of preparation described in Ayurveda for each of these bhassmas is unique in terms of raw material requirements and processing methodology, including critical parameters like temperature, duration required for process, and number of cycles of heating (shodhan).

If this process is not followed meticulously, there is a possibility of formation of toxic compounds.3

It is estimated that about 80% of the Indian population consume Ayurvedic medicines, often self-prescribed. There is also a general misconception that Ayurvedic drugs are safe compared to allopathic drugs: they are therefore preferred by patients for liver and pancreatic diseases, irritable bowel syndrome, chronic constipation, and many more GI disturbances. Hence, it

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is necessary to re-emphasize the point made by Sood et al. that history of intake of medicines from alternative systems of medicines should form an inherent part of history-taking. It is also important to educate patients regarding the dangers of self-prescribing of even “herbal” medications and to inform their doctors regarding the intake of such drugs.

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References

Barotrauma: a cause of hemobilia

The most common cause of hemobilia in the Western world is iatrogenic, mostly as a consequence of percutaneous liver procedure; this is followed by noniatrogenic trauma, most commonly road traffic accidents. We report a patient with hemobilia caused by barotrauma who was successfully managed with transcatheter embolization (TAE) of hepatic artery by cyanoacrylate.

A 10-year-old boy had an injury over the abdomen when a firecracker exploded while he was leaning over it. He had severe right upper abdominal pain, which subsisted within a day. Two days later he had episodes of hematemesis. Examination revealed mild pallor; there were no external injury marks. Endoscopy revealed blood in the duodenum. Ultrasonography was normal. Contrast-enhanced CT scan showed pseudoaneurysm in relation to the hepatic artery. The patient continued to have episodes of melena and was transfused six units of blood. Transarterial catheterization was done via the femoral route, right hepatic artery was selectively catheterized (Fig) and cyanoacrylate embolization was done as close to the lesion as possible. A subsequent film showed complete embolization and presence of glue cast in the region of the pseudoaneurysm. The hemobilia stopped completely. The patient was discharged after 72 hours. One year later he is symptom-free.

Hemobilia after blunt trauma is relatively uncommon. To the best of our knowledge this is the first case of hemobilia after a blast by firecracker leading to barotrauma. The blast could have led to shock waves that caused shearing force in the liver area involving the branch of the hepatic artery, leading to formation of pseudoaneurysm. Associated parenchymal injury predisposes to bile stasis. Bile has been shown to inhibit fibrin formation and granulation in liver wounds. This expanding pool of necrotic tissue may eventually erode into hepatic blood vessels allowing fistula formation.

The portal vein should be patent if TAE is to be attempted and hepatic sepsis is a relative contraindication for TAE. The reported mortality and morbidity rates after TAE are lower than with surgery.

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References

Brunneroma causing gastric outlet obstruction

We read with interest the report by Waghollkar et al. of a young patient presenting with melena due to chronic bleeding from a Brunneroma. We wish to report a lady who presented with chronic gastric outlet obstruction due to circumferential Brunner gland hyperplasia of the proximal duodenum.

A 40-year-old housewife presented with 8-year history of episodes of non-bilious vomiting, each lasting 3-4 days. Clinical examination revealed visible peristalsis in the lower abdomen. Relevant biochemical and hemotological investigations were normal. Upper gastrointestinal endoscopy on at least two occasions earlier were reported as normal.

In the present admission, endoscopy showed a large stomach with a narrow first part of duodenum and inability to pass the scope beyond; a few superficial erosions were seen. Barium series showed a massively dilated stomach with a smooth narrowing at the pyloro-duodenal junction (Fig).

Fig: Glue cast in region of hepatic artery pseudoaneurysm between them and bile ducts.