Endoscopic diagnosis of antral webs in children

An antral web is a rare cause of obstructive symptoms with an unknown prevalence. It was first described in children in 1957, and there remains limited description of these anatomic anomalies in the literature [1–3]. Diagnosis may be delayed due to nonspecific symptoms and variable presentation. Upper gastrointestinal barium study is currently the standard investigation for evaluation, although diagnosis at the time of surgical intervention is not uncommon [1, 4, 5]. Children with an antral web may also undergo endoscopic evaluation that fails to diagnose the abnormality [4] because of a low level of suspicion and insufficient clinical training to identify this rare anomaly.

Endoscopic diagnostic criteria for antral web were described in 1969, and include

▶ Fig. 1 Examples of antral webs in children. a Circumferential diaphragm with a central aperture through which the true pylorus is seen. b Crescentic fold overhanging a long, narrow channel leading to the pylorus. c Circumferential redundant folds that did not resolve with full gastric insufflation or peristalsis.

▶ VIDEO 1

Video 1: Endoscopic diagnosis of antral webs in children, showing: (i) a false pylorus and antropyloric chamber created by a web; (ii) a partial web obscuring the pylorus; and (iii) a narrow and obstructing prepyloric channel created by a web.
As a small aperture of fixed size (1 mm–1 cm) with surrounding smooth mucosa and normal peristalsis distally. However, experience since that time has revealed that the anatomic defect of an antral web is a continuum. This heterogeneity is evidenced by the nine patients diagnosed with an antral web at our institution from 2005 to 2015 reviewed here (Table 1; Fig. 1a–c; Video 1). Once the web was identified in our patients, surgical (or endoscopic) resection led to resolution of symptoms.

As shown in these patients, an antral web may be mistaken for the pylorus, the prepyloric channel created by the web may be traversed without recognition of its obstructive nature, and a partial web may be seen as a gastric fold. Because of the rarity of this anatomic abnormality, a high index of suspicion and thorough evaluation of the antpyloric region are required when endoscopy is carried out for feeding intolerance.

Table 1 | Patients diagnosed with an antral web at the Children’s Hospital of Wisconsin from 2005 to 2015. Only one patient was diagnosed by barium study prior to endoscopy.

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>Age at diagnosis, months</th>
<th>Sex</th>
<th>Symptoms</th>
<th>Duration of symptoms, months</th>
<th>Prior upper GI findings</th>
<th>Prior ultrasound</th>
<th>EGDs, n</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>139</td>
<td>Male</td>
<td>Emesis, FTT</td>
<td>131</td>
<td>Normal</td>
<td>None</td>
<td>&gt;5</td>
<td>Improved emesis; continued oral aversion</td>
</tr>
<tr>
<td>2</td>
<td>131</td>
<td>Male</td>
<td>Emesis, weight loss, pain</td>
<td>24</td>
<td>Large stomach, otherwise normal</td>
<td>None</td>
<td>3</td>
<td>Improved emesis; improved body mass index; improved pain</td>
</tr>
<tr>
<td>3</td>
<td>27</td>
<td>Male</td>
<td>Emesis, FTT and dependent on gastrostomy tube</td>
<td>26</td>
<td>Normal</td>
<td>None</td>
<td>2</td>
<td>Improved emesis; full PO feeding 3 months after surgery</td>
</tr>
<tr>
<td>4</td>
<td>45</td>
<td>Male</td>
<td>Emesis</td>
<td>10</td>
<td>Normal</td>
<td>None</td>
<td>2</td>
<td>Improved emesis</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>Male</td>
<td>Emesis</td>
<td>5</td>
<td>Pylorospasm</td>
<td>Normal</td>
<td>1</td>
<td>Improved emesis</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>Male</td>
<td>Emesis, weight loss</td>
<td>2</td>
<td>Normal</td>
<td>Normal</td>
<td>1</td>
<td>Improved emesis; improved weight-for-length</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Male</td>
<td>Emesis</td>
<td>0.5</td>
<td>Normal</td>
<td>Normal</td>
<td>1</td>
<td>Improved emesis</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>Male</td>
<td>Emesis, weight loss</td>
<td>6</td>
<td>Normal</td>
<td>Normal</td>
<td>1</td>
<td>Improved emesis; improved weight-for-length</td>
</tr>
<tr>
<td>9</td>
<td>95</td>
<td>Female</td>
<td>Abdominal distension, dependent on gastrojejunostomy tube</td>
<td>7</td>
<td>Gastric outlet obstruction</td>
<td>None</td>
<td>1</td>
<td>Improved emesis; increased PO feeding</td>
</tr>
</tbody>
</table>

EGD, esophagogastroduodenoscopy; FTT, failure to thrive; PO, by mouth; GI, gastrointestinal.

Competing interests

None

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References


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