SARCINA VENTICULARI IS A POSSIBLE CAUSATIVE MICROORGANISM OTHER THAN H. PYLORI IN GASTRIC OUTLET OBSTRUCTION PATHOGENESIS
Our case

- 55 years old male, Farm worker, married, from Ibb
- Heavy Smoker, Khat chewer, non-alcohol drinker
Present history

• The patient complaining of progressive abdominal pain & distension for many years which was been aggravated in the last 2 months.
• He sought medical advice more than once & took multiple H.pylori regimens with little benefits.
• In our hospital he had done EGD –oscopy & diagnosed as post bulbar stenosis due to complicated duodenal ulcer. Biopsy was taken.
Gastric biopsy

- Chronic gastritis & duodenitis associated with few H.pylori & many Sarcina ventreculari
What is Sarcina ventriculi?

- *S. ventriculi* are gram-positive, obligate anaerobic with carbohydrate fermentative metabolism, and is able survive in very low pH environment.
- Bacteria first documented in the human gastrointestinal tract in 1842.
- It was isolated from stool of mainly vegetarian.
- A well-known cause of gastric dilatation and death of few animals as cats and horses.
- Eight cases were isolated from human gastric specimens have been reported. It has been implicated in the development of gastric ulcers, emphysematous gastritis and gastric perforation.
<table>
<thead>
<tr>
<th>Case No.</th>
<th>Age</th>
<th>Sex</th>
<th>Clinical Findings</th>
<th>Endoscopic Findings</th>
<th>Histologic Findings</th>
<th>Treatment</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14</td>
<td>M</td>
<td>Abdominal pain CT showed pneumoperitoneum.</td>
<td>Not done</td>
<td>Diffuse acute hemorrhagic gastritis and Sarcina organisms</td>
<td>Gentamicin and metronidazole</td>
<td>improved after 5 d and patient discharged</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Intraoperatively there was gastric perforation and peritonitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>M</td>
<td>Chronic nausea, vomiting</td>
<td>Esophagitis, duodenal lesion</td>
<td>Chronic superficial gastritis and ulcer with Sarcina organisms</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>F</td>
<td>Vomiting, hematemesis Abdominal X-ray showed dilated stomach with intramural air</td>
<td>Gastric inflammation, blackening of mucosa, cobblestone appearance</td>
<td>inflammatory infiltrate with Sarcina organisms and gas bubbles</td>
<td>Imipene, fluconazole and omeprazole</td>
<td>complete normalization after 6 mths</td>
</tr>
<tr>
<td>4</td>
<td>58</td>
<td>F</td>
<td>Nausea and vomiting</td>
<td>Gastritis, food bezoar, inflammatory mass in duodenum</td>
<td>Active chronic gastritis with Sarcina organisms</td>
<td>Partial gastrectomy for obstruction</td>
<td>Treated for adenocarcinoma of pylorus</td>
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</table>
Clinical, endoscopic and histological features of the eight reported cases of Sarcina ventriculi in the literature

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<tbody>
<tr>
<td>5</td>
<td>44</td>
<td>F</td>
<td>Dyspepsia and substernal burning</td>
<td>Gastric ulcer and retained food</td>
<td>Inflammatory gastric ulcer with Sarcina organisms</td>
<td>Omeprazole, ranitidine, metoclopramide</td>
<td>Symptoms improved</td>
</tr>
<tr>
<td>6</td>
<td>36</td>
<td>M</td>
<td>Nausea, vomiting, epigastric pain in the setting of narcotic use</td>
<td>Retained food</td>
<td>Sarcina organisms without other histologic abnormalities</td>
<td>Received jejunostomy for malnutrition</td>
<td>Repeat biopsy negative for Sarcina organisms</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>F</td>
<td>Dysphagia in the setting of esophageal atresia status post gastric pull through</td>
<td>Retained food, anastomotic stricture</td>
<td>Reflux esophagitis, Sarcina organisms</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>8</td>
<td>46</td>
<td>F</td>
<td>Epigastric pain in the setting of pancreatic adenocarcinoma status post pancreatic-duodenectomy</td>
<td>Retained food and bile</td>
<td>Active chronic duodenitis with Sarcina organisms</td>
<td>No treatment</td>
<td>Continues spasms after 1 mo</td>
</tr>
</tbody>
</table>
Sarcina

- Acute hemorrhagic gastritis
- Chronic superficial gastritis and ulcer
- Emphysematous Gastritis
- Malignancy
- Duodenitis
- Without other histologic abnormalities
A few doesn't mean its not there!

- We speculate that these organisms are present in more cases of active esophagitis/gastritis than are currently documented and that increased awareness will lead to greater recognition.
Three reported cases with interesting findings

- All are reported in 2013
- In wide range of age groups
- Two show features of gastritis complicated by gastric outlet obstruction, one with threatening diarrhea
- Two relieved after anti-Sarcina regimens
A 73-year-old male presented for further evaluation of iron deficiency anemia. He had a history of medically refractory gastric ulcers in his 20s.
underwent antrectomy and gastrojejunostomy (Billroth II) along with truncal vagotomy in 1985

continued to be anemic since the surgery in spite of oral iron replacement

Gastric biopsies revealed marked inflammation with ulcer bed with abundant *Sarcina* organisms

The patient was treated with metronidazole 250 mg tds and ciprofloxacin 250 mg bid for 1 wk, along with daily sucralfate.

a repeat EGD 3 months later showed improvement of gastric erythema, and absence of food bezoar, absence of *Sarcina* & disappearance of symptoms
2nd Case

Pediatric siblings with metachronous presentations of severe *H. pylori* gastritis/duodenitis with coexisting Sarcina. These presented four months apart with pyloric obstruction secondary to severe gastritis/duodenitis.
PCR findings

- PCR examined the presence of PDC gene; pyruvate decarboxylase gene
- This occurs in few bacterial species including S. ventriculi & not in H. pylori.
- Amplification of PDC gene was isolated from the brother’s esophagus & gastric biopsies with 96% match.
- Amplification from his sister sample was negative; non-viable.
Acknowledgement

• To Dr. Hamed Al-Hadi who provides me with the microbiological basis
3rd CASE

A 48-year-old female was diagnosed with congenital chloride diarrhea CLD in her early childhood. Suddenly she felt feverish, had stomach cramps, vomiting & extensive watery diarrhea. Sarcina was cultured from her blood with excellent improvement after antibiotic treatment.
Conflicts

By stamder

Pathogen

Note

Sarcina ventriculi synthesizes very long chain dicarboxylic acids in response to different forms of environmental stress

A work for researchers!
Note: Sarcina is not a normal inhabitant of human stomach.

Its detection in gastric biopsies must be reported.

It is a possible etiological factor in gastric outlet obstruction and/or delayed gastric emptying & other pathologies.
THANK YOU FOR LISTENING
Thank you
For listening