Infectious lesions of the GI tract: new entities and pitfalls

Case 3

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Case

- 67-year old woman
- recurrent symptoms of gastroesophageal reflux

Treatment:
- hiatalplasty with gastropexy
- PPI and physical rest

https://eref.thieme.de/cockpits/ciRadio0001/0/coRadOGW00190/4-13722
Case

after 3 months:

• readmitted for a routine gastroscopy
• symptoms of gastroesophageal reflux
Gastroscopy:

- gastroesophageal junction: two erosions
- gastric antrum: signs of biliary reflux and small hematin-covered erosions
- oxyntic and duodenal mucosa: normal
- inversion vision showed a recurrence of the hiatus hernia
3 months post OP

Barium swallow study:
atonic stomach with delayed gastric emptying

DIAGNOSIS???
Diagnosis

*Clostridium (Sarcina) ventriculi* associated erosive esophagitis

Reactive gastropathy

16S ribosomal RNA gene amplicon sequencing (Bx esophagus):

- 31% of reads to *Clostridium ventriculi* (best match to *C. ventriculi*, GenBank acc. no. LC101492.1, identities: 253 bp from 253 bp (100%)) in addition to other taxa, like *Streptococcus, Lactobacillus*, etc., typically found in the upper GI tract

**Treatment:** PPI and domperidone
15 months post OP

Control gastroscopy:
• stomach with food rests
• small erosion at the ora serrata
Microorganisms only in oxyntic mucosa biopsies without erosions or ulcerations
16S ribosomal RNA gene amplicon sequencing (Bx esophagus):

- *Clostridium ventriculi* not found

**Treatment:** PPI and domperidone
C. (S.) ventriculi

• first described by Goodsir (1842) in the stomach
• the appearance of a wool-pack or of a soft bundle bound with cord
  ➢ Sarcina ventriculi (Latin- package, bundle)

• Suringar (1866) – cubical form

Suringar WFR. Arch Néeri Sci Exact Natur 1866
Canale-Parola E. Bacteriol Rev 1970
Sarcina

- S. maxima
- S. ventriculi

Holt SC, Canale-Parola E. J Bacteriol 1967
C. (S.) ventriculi

- a gram-positive, obligate anaerobe, acidophilic coccoid bacterium

- recently reclassified to the genus *Clostridium (Clostridium ventriculi)*

- uses carbohydrate fermentation as its main energy source

Smit J. J Pathol Bacteriol. 1933
C. (S.) ventriculi

- predominantly women
- 3 - 73 years

- esophageal strictures, delayed gastric emptying, gastroparesis or gastric outlet obstruction

Clinical symptoms:
- nausea
- vomiting
- weight loss
- Anorexia
- abdominal pain
C. (S.) ventriculi

- **Endoscopy:** often food residues with gastritis, gastric ulcers and esophagitis
**C. (S.) ventriculi**

- **Histology:** H&E, PAS

- characteristic morphologic presentation as tetrads or packets of eight measuring 10μm in diameter

- result of cell division in at least two planes

- usually found on the mucosal surface, embedded in an ulcer bed or floating in luminal debris
C. (S.) ventriculi

- CAVE!
  - can be quite sparse and therefore not visible on all re-cuts
C. (S.) ventriculi

- severe and even fatal cases
  - in the veterinary literature
  - in humans (emphysematous gastritis)

➢ need for antibiotic treatment?
Differential diagnosis

- Micrococcus spp.
- Candida albicans

- Diagnostic confirmation to rule out the morphological differential diagnosis by 16S rRNA sequence analysis
Micrococcus spp.

- M. Luteus – most common
- M. Lylae
- M. Antarcticus
- M. Endophyticus
- M. Flavus
- M. Terreus
- M. Yunnanensis
Micrococcus spp.

- gram-positive, oxidase-positive, strictly aerobic coccus
- genus *Micrococcaceae*
- 1 to 1.8 mm
- usually occur in irregular clusters, tetrads, and pairs

https://microbewiki.kenyon.edu/index.php/Micrococcus
Micrococcus spp.

- harmless saprophytes
- can be opportunistic pathogens for the immunocompromised patients

**EPIDEMIOLOGY:**

- Worldwide, ubiquitous
  - **Humans** - exposed skin of face, arms, hands, and legs
  - **Animals** – skin
  - In soil, marine and fresh water, plants, fomites, dust, and air
Candida albicans

Candidiasis, Thrush, Moniliasis
Fungi - oval, budding yeast, pseudohyphae, occasional true hyphae

Genus: Saccharomycetaceae

part of normal human flora
• endogenous spread
• by contact with excretions of mouth, skin, and faeces
• from mother to infant during childbirth

Candida albicans

Risk factors
➢ Immunosuppression
➢ Chemotherapy
➢ Steroids
➢ Major abdominal surgery

Clinics:
• dry mouth
• difficulty swallowing (pain, discomfort)
• nausea
• vomiting
• weight loss
• chest pain
Candida albicans

**Gastroscopy:** ulcers or pseudomembranes/whitish plaques in esophagus, gastrointestinal tract

Summary

• *Sarcina ventriculi* – *Clostridium ventriculi*
• esophageal strictures, delayed gastric emptying, gastroparesis or gastric outlet obstruction
• **H&E**- characteristic morphology as tetrads or octets

*CUT DEEPER LEVELS!!!*

**DDx:**

- Micrococcus spp.
- Candida albicans
THANK YOU FOR YOUR ATTENTION