Salmonella Typhimurium Carotid Artery Mycotic Aneurysm
X. Li¹, D.B. Duncan², N. Singhal¹

¹Division of Infectious Diseases, Department of Medicine, McMaster University
²Division of Microbiology, Department of Pathology and Molecular Medicine, McMaster University

Case
- 72-year-old immunocompetent woman admitted with 3 weeks of right neck pain and swelling leading to odynophagia and stridor
- PMHx: PVD, COPD, DLD, IBS
- No travel history, no pets, no trauma
- No fever or other systemic symptoms
- MRI/MRA: right pseudoaneurysm at proximal carotid artery with mass effect (Figure 1)
- Urgent repair of artery with Dacron graft, only pathology sent without cultures
- Post-op persistent right-sided Horner’s syndrome, left-sided weakness, and remained afebrile
- POD#7 develops acute pain and swelling at graft site
- Underwent emergency evacuation of hematoma and redo repair with saphenous vein graft
- tissue culture and pathology was sent

Investigations
<table>
<thead>
<tr>
<th>Investigation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Cultures</td>
<td>Negative</td>
</tr>
<tr>
<td>Lyme Serology</td>
<td>Negative</td>
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<tr>
<td>VDRL</td>
<td>Negative</td>
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<tr>
<td>Echocardiogram</td>
<td>No vegetations</td>
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<tr>
<td>CT-A Chest/Abdomen</td>
<td>No arteritis or aneurysms</td>
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<tr>
<td>MRI Head</td>
<td>Subacute infarcts right MCA, bilateral PCA</td>
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<tr>
<td>Tissue Pathology</td>
<td>acute neutrophil inflammation, focal fibrinoid vessel wall necrosis, occlusive thrombosis and focal atherosclerotic plaque</td>
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</tbody>
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Diagnosis
- Carotid tissue culture: *Salmonella enterica* serovar Typhimurium
- *Salmonella Carotid Artery Mycotic Aneurysm*

- On further questioning: patient endorsed gastroenteritis 6 weeks prior to onset symptoms

Treatment & Outcome
- Ceftriaxone 2g IV q24h x 6 weeks
- Addition of combination Ciprofloxacin x 2 weeks
- Eventual resolution of right neck mass without further graft failure
- Sequelae included subacute infarcts, vocal cord paralysis, cognitive and functional decline

Treatment: Surgical + Medical

Outcomes: high peri-operative mortality, better long-term outcomes

Discussion
- “Mycotic aneurysm” first coined by Dr. William Osler in 1885 to describe an infected aneurysm, historically from Syphilis, TB, and endocarditis
- Risk of endovascular infection from *Salmonella* bacteremia is 9-25% in persons over 50

Extracranial Carotid Artery Mycotic Aneurysm
- Epidemiology: approx. 100 cases in 2013 (20/decade)
- Microbiology: *S. aureus*, *Streptococcus* (25%), *Salmonella* (10%)
- Symptoms: painful pulsatile cervical mass, fever, Horner’s, dysphonia, dysphagia
- Complications: rupture, hemorrhage, septic emboli, neurologic sequelae
- Treatment: Surgical + Medical
- Outcomes: high peri-operative mortality, better long-term outcomes

Salmonella Mycotic Aneurysm
- Pathogenesis: GI tract > transient bacteremia -> infection of atherosclerotic plaques (abdominal aorta 88%)
- Symptoms: fever, abdominal / back pain, gastroenteritis resolved, stool positive (65%)
- Complications: osteomyelitis, fistulas, abscess
- Treatment: Surgical + Medical

Conclusions
- *Salmonella spp* should be remembered as a rare cause of extra-vascular mycotic aneurysm including the carotid artery
- It may present without obvious infectious symptoms
- Risk factors include atherosclerosis and PVD
- Important to ask if recent/resolved gastroenteritis
- Culture and pathology are key to making diagnosis

References