Sialadenitis without Stones

- Bacterial sialadenitis
- Radioactive Iodine (RAI) effects
- Autoimmune Disease
- Other

Case

- 43 year old female
- Bilateral Parotid swelling
- In tact VIIth nerve 1/6
- No discrete mass
Differential Diagnosis of Gland Enlargement:

Is there pus in the duct?

- Yes
  - Bacterial Sialadenitis
- No
  - Other categories

Bacterial Sialadenitis

- Erythema
- Tenderness
- Pus in duct
- Dehydrated
- Diabetic
- Elderly
- Often unilateral
- “Surgical Parotitis”

Salivary Duct Stenosis

- Types
  - Inflammatory
  - Web associated
  - Fibrous

- Causes
  - Allergic
  - Infectious
  - Granulomatous
  - RAI associated
  - Autoimmune

RAI

- RadioActive Iodine Sialadenitis
Radioiodine (I\textsubscript{131})

- Key treatment modality for management of benign and malignant thyroid disease
- Utility is due to propensity of thyroid follicular cell uptake
- I\textsubscript{131} beta emissions cause cellular necrosis

Papillary Thyroid Carcinoma

\textbf{Increasing incidence of differentiated thyroid cancer in the United States, 1988-2005}
Chen A. et al; Cancer, 2009

\textbf{I\textsubscript{131} Radiation Sialadenitis}

- Salivary glands also concentrate iodine through selective sodium/iodine symporter
- Symporter most prevalent in ductal epithelial cells
- I\textsubscript{131} creates a dose-related injury to salivary glands
- Serous glands and acini are more susceptible than mucinous acini: Parotid = serous
- Parotid gland more affected than submandibular or sublingual salivary glands
**Radiation Sialadenitis**

- $^{131}$I injury causes:
  - acute and chronic inflammation
  - duct lumen narrowing and *striction* formation
  - altered saliva, *mucous plugs*
- Salivary *stagnation*; obstructive symptoms
- Pain, gland swelling; exacerbated by meals
- *Xerostomia*, taste alteration
- Clinical incidence and severity variable

**Morbidity and Quality of Life**

  - $n = 145$ well-differentiated thyroid cancer patients
  - Dose dependent increase in sialadenitis
    - ( $>150$ mCi $^{131}$I 2.47 times more likely)
  - Reduced oral and overall QOL if received $>150$ mCi $^{131}$I

**Incidence – $^{131}$I Sialadenitis**

**Van Nostrand; Oral Dis, 2011**

- Variable

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**Prevention – Lack of consensus**

**Van Nostrand, Oral Diseases, 2011**

- Hydration
- Sialagogues
- Discontinuation of anticholinergic meds
- Gland massage
- Anti-inflammatory meds
- Cholinergic meds
**Therapy**

- Medical
  - Hydration
  - Gland massage
  - Heat
  - Anti-inflammatory medication
  - Cholinergic medication
- Intervventional
  - Sialendoscopy
  - Sialadenectomy

**Technique**

- Introduction of diagnostic sialendoscope
- Ductal lumen inspected thoroughly
- Duct flushed with copious saline irrigation
- Confirmation of gland engorgement

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**Pale mucosa with ductal stenosis, ductal debris and mucous plugs**

**Post-irrigation Gland Swelling**
Radiation Sialadenitis - Sialendoscopy

- Nahlieli, Nazarian; Oral Diseases, 2006
  n=15 (100 mg hydrocortisone)
  100% symptom-free

- Kim et al; Laryngoscope, 117, 2007, 133-136
  n=6
  50% symptom-free

- Bomeli et al; Laryngoscope, 2009
  n=12 (40 mg triamcinolone in 5cc NSS)
  75% improved symptoms

Pre-treatment Patient Characteristics


| Variable                      | Total
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<tr>
<td>Age, mean (range), y</td>
<td>51 (25-69)</td>
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<tr>
<td>Sex</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Male</td>
<td>0 (0)</td>
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<tr>
<td>Thyroid pathology diagnosis,</td>
<td>16 (5-675)</td>
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<tr>
<td>Papillary carcinoma</td>
<td>7 (64)</td>
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<td>Medullary carcinoma</td>
<td>3 (27)</td>
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<td>Graves disease</td>
<td>1 (8)</td>
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<td>Time from recalled Sialadenitis</td>
<td>11 months</td>
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<td>Cumulative antibiotic course,</td>
<td>3 (100-200)</td>
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<td>(range)</td>
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<td>Affected glands</td>
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<td>Parotid (n=5)</td>
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<tr>
<td>Unilateral</td>
<td>2 (40)</td>
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<td>Bilateral</td>
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<td>Submandibular (n = 1)</td>
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<td>Unilateral</td>
<td>1 (0)</td>
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<tr>
<td>Bilateral</td>
<td>0</td>
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<tr>
<td>Dorsal parotid and submandibular</td>
<td>0 (0)</td>
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Values are given as number (percentage), unless otherwise indicated.

De Luca et al; Br J OMFS, 52(7), 2014
n=30 (“hydrocortisone solution” irrigation)
77% improved symptoms
f/u 2wks – 84 months

Prendes et al. Arch OHNS, 2012

11 patients
- all patients had previously attempted and failed conservative management
- 7/11 (64%) of patients had been treated with a least one course of antibiotics for an episode of presumed bacterial sialadenitis - median time after I\textsuperscript{131} 16 months
Treatment Results

Proposed Mechanisms of Benefit

- Instrument dilation of papilla and duct
- Saline hydraulic dilation of ductal system
- Flushing of debris from duct
- Additional benefit of steroid irrigation and dosing of steroid irrigant is unclear

Summary

- Sialendoscopy for $^{131}$I induced sialadenitis provides therapeutic benefit for most patients with symptoms recalcitrant to conservative medical therapy
- Effective in providing a sustained period of patient-reported improvement in symptoms
- Further experience with this treatment modality, its timing, and long-term outcomes data are needed

Autoimmune

- Sjogrens
Sjogren’s Syndrome

Primary
• Inflammation of salivary glands
• Lacrimal gland involved
• Keratoconjunctivitis sicca

Sjogren’s Syndrome

Secondary:
• Associated with connective tissue disease-
• RA
• SLE
• Scleroderma
• Dermatomyositis

Sjogren’s Work-up

Primary
• SSA and SSB
• SS rho and SS la
• “Sjogrens Antibodies”

Secondary
• ESR
• ANA
• RF
• CBC
• EBV
• Quantitative immunoglobulins

Sjogren’s Imaging
Primary Sjogren’s: 20 Years

Salivary Gland Biopsy
Gomes, JOMFS, Jan-Mar, 2012

• Minor salivary gland
  – ~50% sensitivity
• Parotid tail biopsy
  – ~100% sensitivity

Sjogrens Treatment

• Symptomatic treatment
• Xerostomia
  – Dental caries
    • Flouride
    • Dental hygiene
  – Artificial saliva
  – Sialogogues
  – Pilocarpine
  – Role for Sialendoscopy with irrigation

Systemic treatment
• Corticosteroids/antibiotics
• Surveillance for non-Hodgkin lymphoma

Other-viral: Mumps

Other-viral: Mumps
Other- viral: HIV

Other
- Pneumoparotitis
- Alcoholism
- Bulemia
- Sarcoid

Conclusion
Sialendoscopy with or without steroid irrigation can be a diagnostic and therapeutic treatment in cases of:
- RAI sialadenitis
- Sjogren’s
- HIV

Differential includes:
- Viral and other pathologies

OHNS Faculty and Residents
Thank you!