Salivary Gland and Duct Anatomy

- Parotid Gland and Stensen’s Duct
- Submandibular Gland and Wharton’s Duct
- Sublingual Gland and Duct System
- Minor Salivary Glands

Function of Salivary Glands

- Food digestion
  - Lubrication
  - Clearance
- Tooth protection
- Taste
- Antimicrobial function
**Embryology**

- Ectoderm origin
  - Surrounded by mesenchyme
- 6-8 weeks of life
- Originate at duct orifice
  - Parotid develops around and between facial nerve
- Salivary tissue becomes encapsulated
  - Parotid encapsulates last; only in parotid - lymphatic system is contained within parotid tissue prior to encapsulation

**Parotid Gland**

- Largest and 1st to develop
- Serous acinar cells
  - Purely serous
- Parotid fascia
- Borders
  - Lateral Skin
  - Medial Parapharyngeal space
  - Superior Zygomatic arch
  - Posterior EAC
  - Inferior Styloid/carotid/jugular
  - Anterior Masseter

**Duct Ultrastructure**

- Parotid Gland

**Parotid Gland**

- Tail
- Accessory parotid
  - 20%
  - seromucinous
Parotid Gland

- Arterial supply
  - External carotid
    - Maxillary
    - Superficial temporal
    - Transverse facial
- Venous drainage
  - Retromandibular
    - Maxillary
    - Superficial temporal
  - External jugular
  - Internal jugular

Parotid Gland

- Nerve Supply
  - Parasympathetic
    - IX- preganglionic
      - LSP (ovale) to otic ganglion
    - Postganglionic
      - Auriculotemporal
  - Sympathetic
    - Superior cervical ganglion
      - Via external carotid plexus

Surgical Nerves

- Facial nerve
- Greater Auricular

Facial Nerve
### LSD Classification


<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Lithiasis</td>
<td></td>
</tr>
<tr>
<td>Stenosis</td>
<td></td>
</tr>
<tr>
<td>Dilation</td>
<td></td>
</tr>
<tr>
<td>L0</td>
<td>no stones</td>
</tr>
<tr>
<td>L1</td>
<td>floating stone</td>
</tr>
<tr>
<td>L2</td>
<td>fixed stone totally visible</td>
</tr>
<tr>
<td>- A.</td>
<td>&lt;8 mm</td>
</tr>
<tr>
<td>- B.</td>
<td>&gt;8 mm</td>
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<tr>
<td>L3</td>
<td>fixed stone partially visible</td>
</tr>
<tr>
<td>- A</td>
<td>palpable</td>
</tr>
<tr>
<td>- B</td>
<td>non-palpable</td>
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</tbody>
</table>

### LSD: Stenosis


<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>S0</td>
<td>no stenosis</td>
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<tr>
<td>S1</td>
<td>diaphragmatic</td>
</tr>
<tr>
<td>S2</td>
<td>Unique (main)</td>
</tr>
<tr>
<td>S3</td>
<td>Diffuse (main)</td>
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<tr>
<td>S4</td>
<td>Generalized</td>
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</tbody>
</table>

### LSD: Dilations


<table>
<thead>
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<tbody>
<tr>
<td>D0</td>
<td>none</td>
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<tr>
<td>D1</td>
<td>unique</td>
</tr>
<tr>
<td>D2</td>
<td>multiple</td>
</tr>
<tr>
<td>D3</td>
<td>generalized</td>
</tr>
</tbody>
</table>

### Stensen’s Duct

- **Diameter:** 3 mm
- **Length:** 6 cm
- **Papilla:** 0.5 mm
- **Main:** 1.4 mm
- **Primary**
- **Secondary**
- **Tertiary**
- **Terminal**
Endoscopic Duct Anatomy

Main

Primary

Endoscopic Duct Anatomy

Secondary

Tertiary

Transillumination

Stensen’s Duct

- Key points in the duct
  - Papilla
  - Buccinator
  - Masseter
  - Accessory
  - Intra-parotid

Location of Stones within the Parotid Gland

- distal Stensen’s duct
- hilum
- stones within the parotid
- 20%

PMID: 24932900.

Papilla

Stensen’s Duct

Masseter

Submandibular Gland
SMG

- Submandibular triangle
  - Level 1
  - Borders:
    - Mandible
    - Digastric
    - Mylohyoid
      - Superficial lobe
      - Above mylohyoid
      - Deep lobe
- Seromucinous

Submandibular Gland

- Arterial Supply
  - Facial artery
- Venous drainage
  - Facial vein
    - Hayes-Martin Maneuver
- Nerve supply
  - Parasympathetic
    - VII (nervous intermedius) to Chorda Tympani
    - Lingual nerve via submandibular ganglion
  - Sympathetic- superior cervical ganglion

Wharton’s Duct

- ~ 4 mm
- 5 cm in length
- Papilla

Location of stones within the submandibular duct

Sialodochoplasty
Sublingual Gland

- Unencapsulated
- B/t mylohyoid and geniohyoid/genioglossus
- Within sublingual space
- Mucous secreting
- Ducts of Rivinus
  - 8-10 ducts opening into FOM
- Bartholin Duct which joins Wharton’s Duct
Thank you!