Salivary Gland
Anatomic Anomalies and Foreign Bodies

AHNS Salivary Endoscopy Course

Nicholson Center Orlando, Florida

April 9, 2013

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3,000 page handout with videos/photos: search for "Iowa Protocols"

search: "AHNS Salivary Lectures 2013"

Disclosures

None

Anatomic Anomalies

Parotid:

- Normal ductal system
- Accessory lobe
- Anomalous drainage acquired and congenital

Submandibular

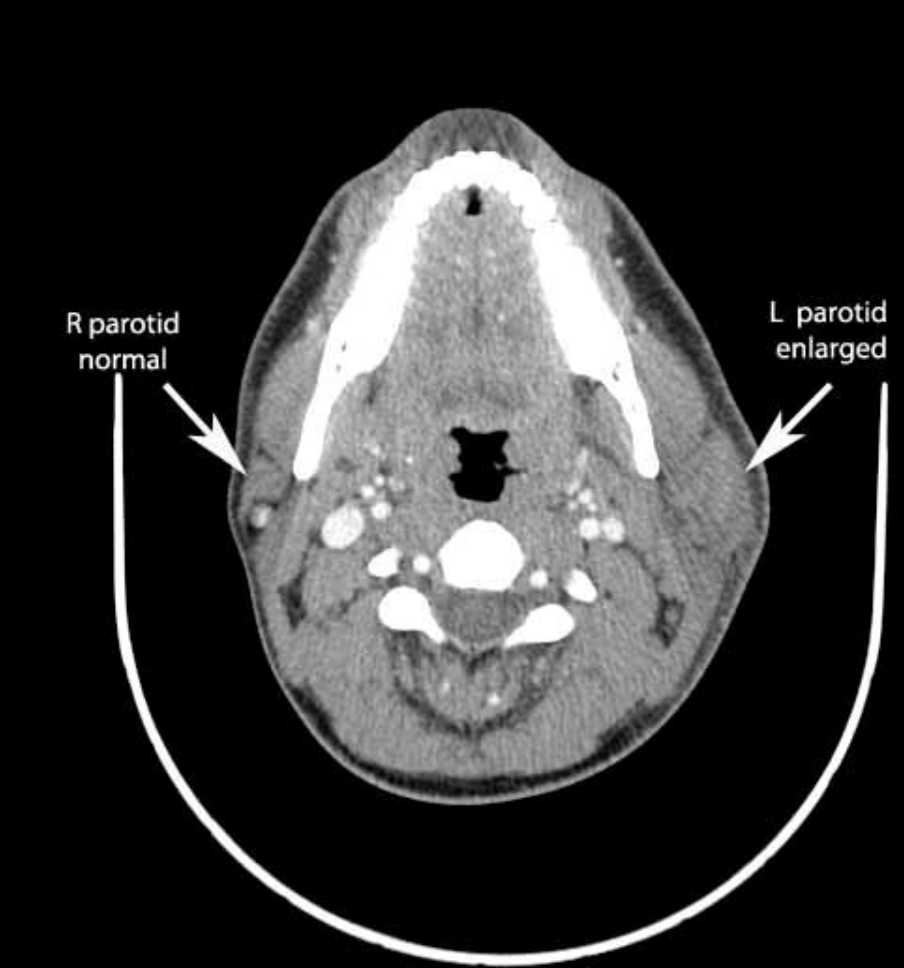
- Relationship to lingual nerve and sublingual gland

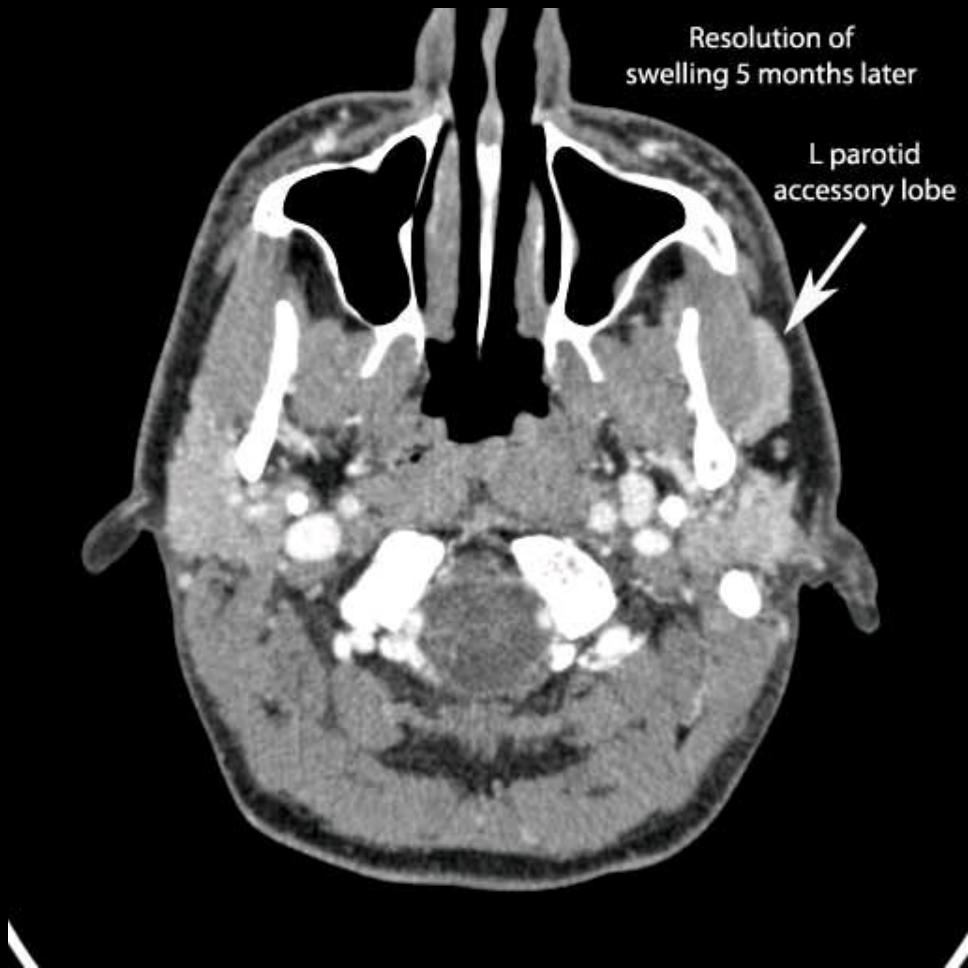
Sublingual

- Ducts of Rivinus
- Bartholin’s duct

Anatomic Anomalies

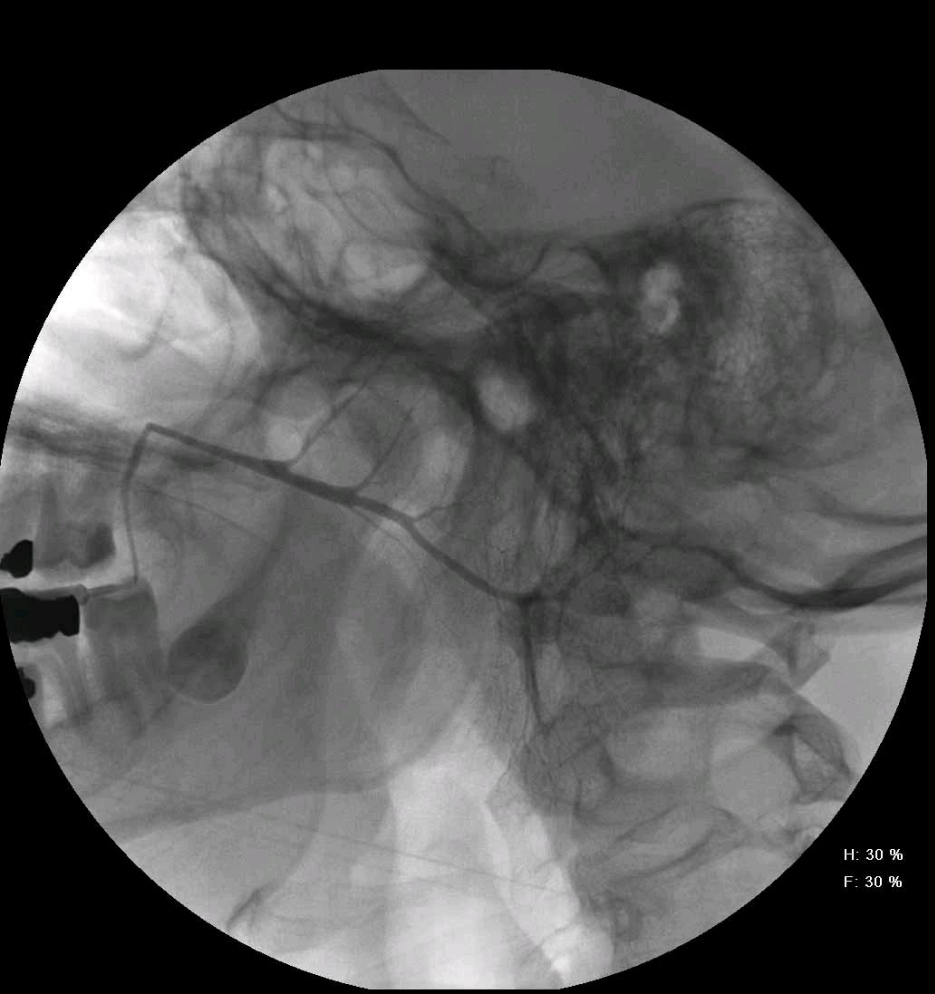
Parotid: Normal ductal system / Accessory Lobe

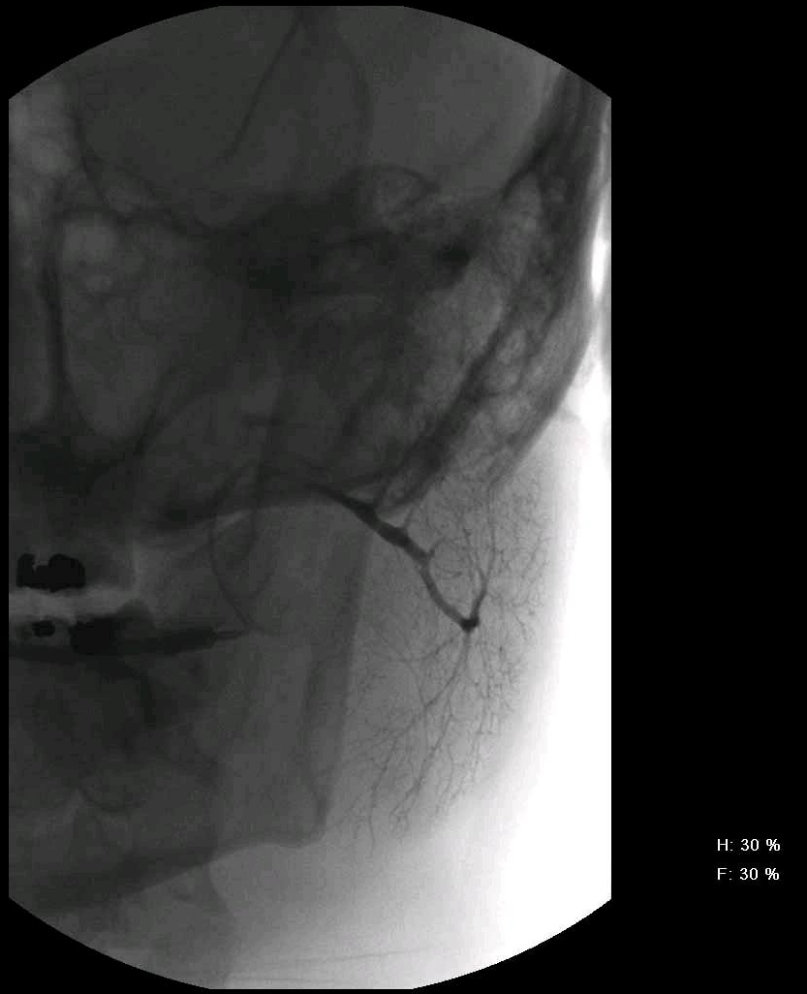




Anatomic Anomalies

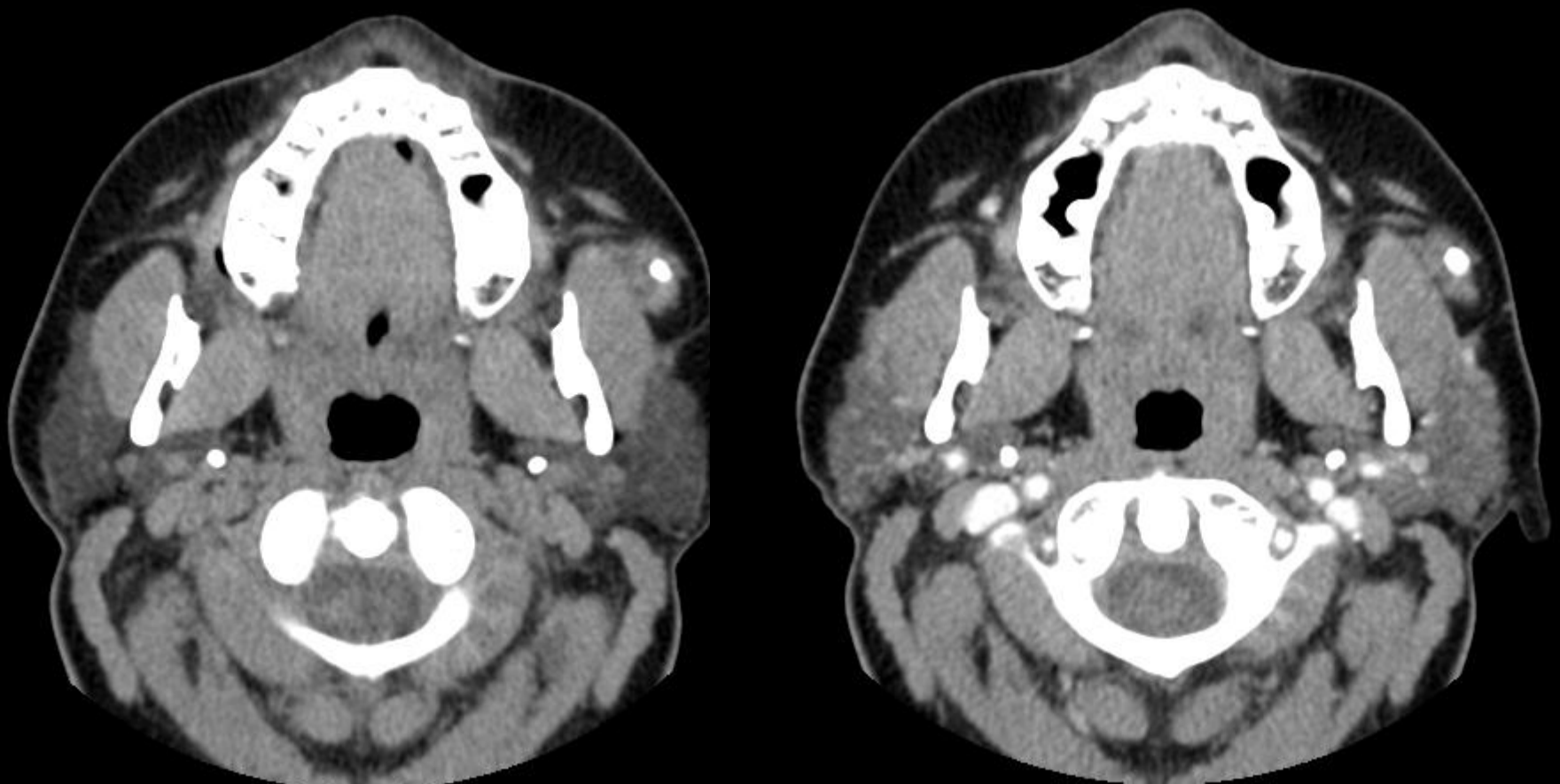
Parotid: Normal ductal system / Accessory Lobe





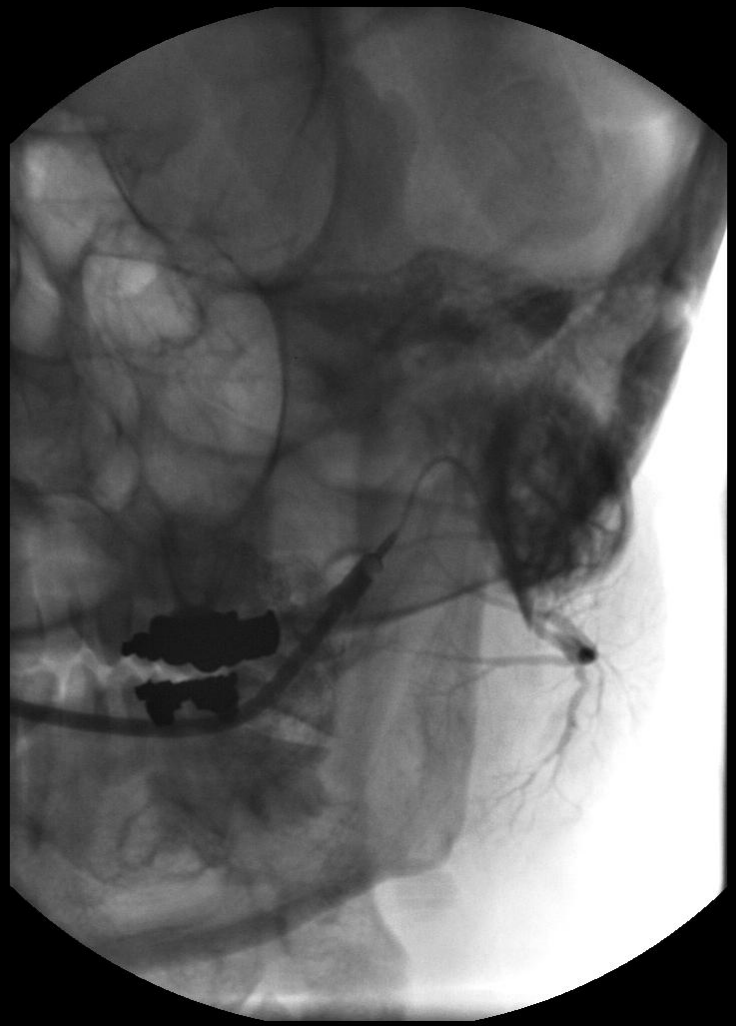
Anatomic Anomalies

Parotid: Accessory Lobe Stone



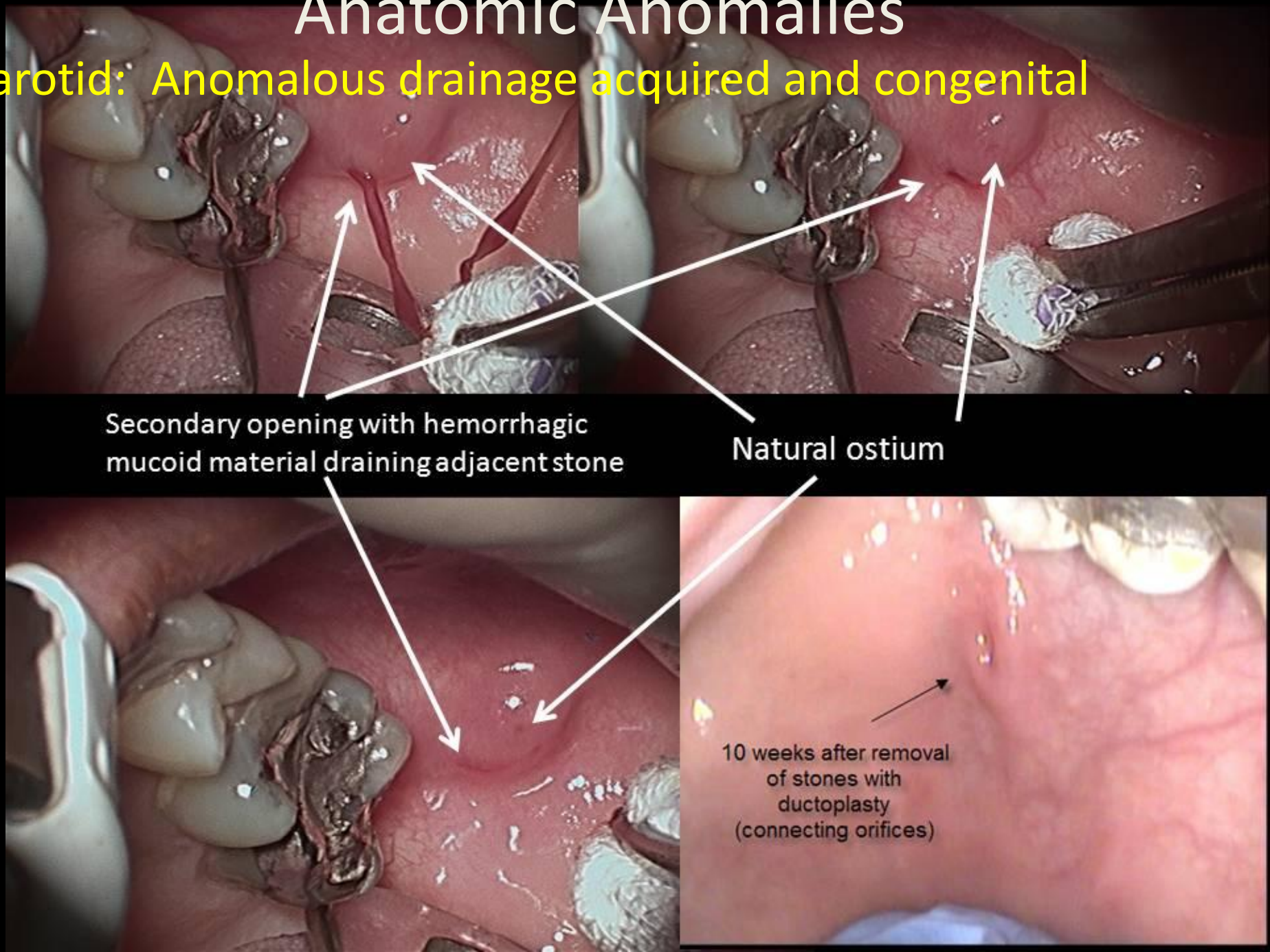
Anatomic Anomalies

Parotid: Accessory Lobe Stone



Anatomic Anomalies

Parotid: Anomalous drainage acquired and congenital



Anatomic Anomalies

Submandibular

- Relationship to lingual nerve and sublingual gland

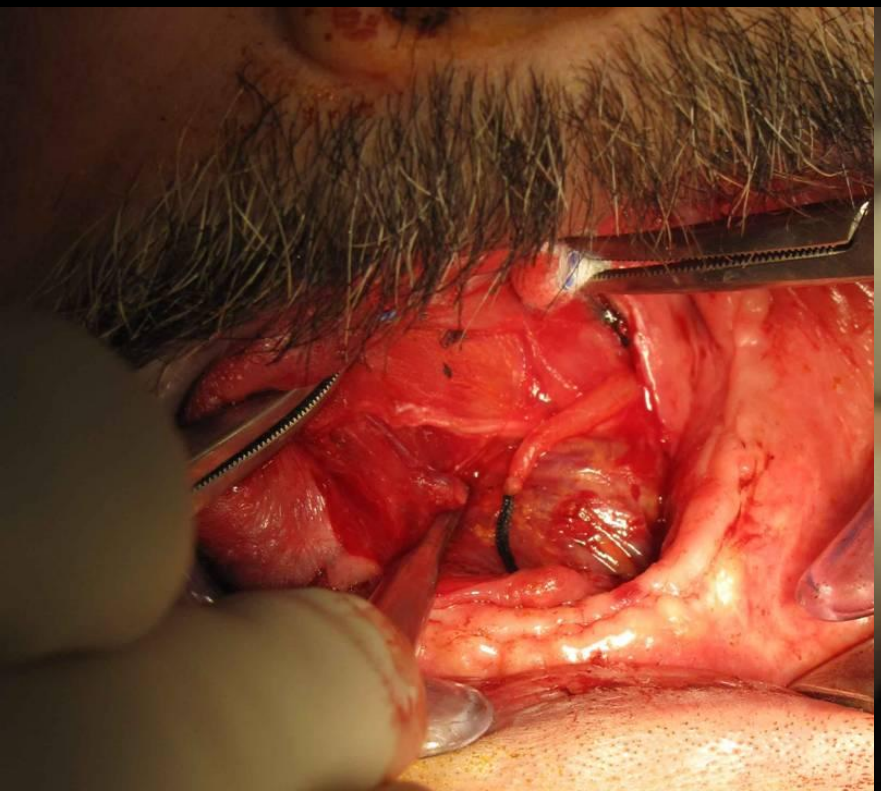
Sublingual

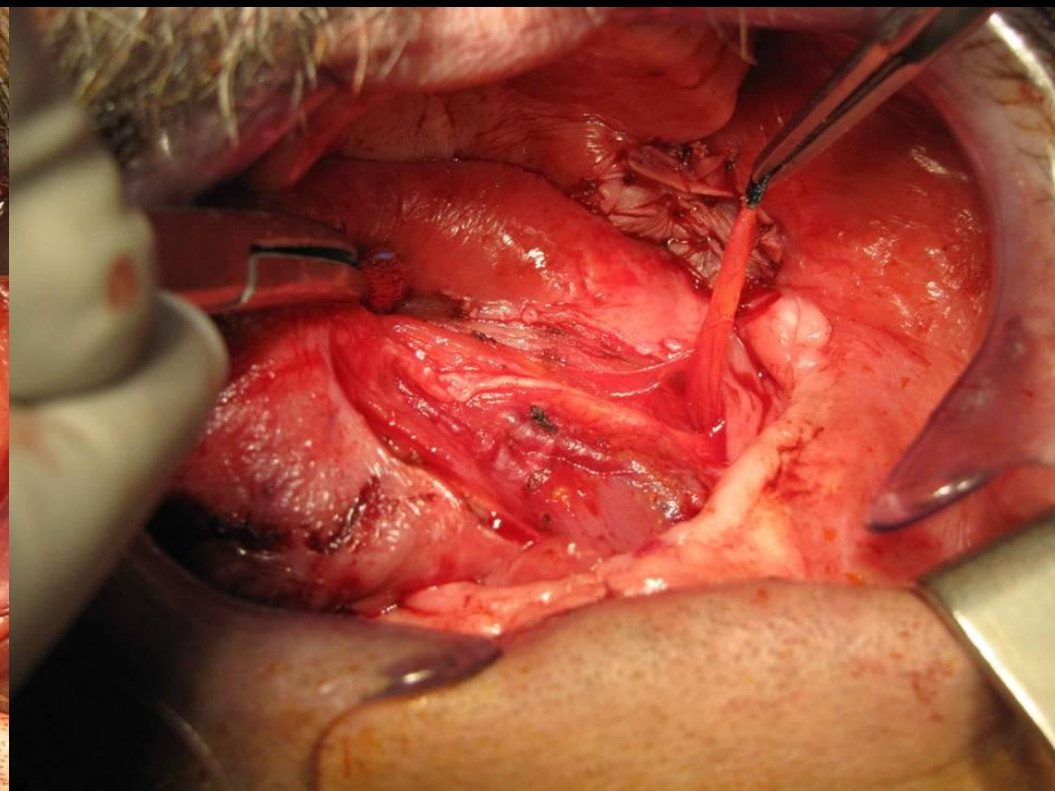
- Ducts of Rivinus
- Bartholin’s duct

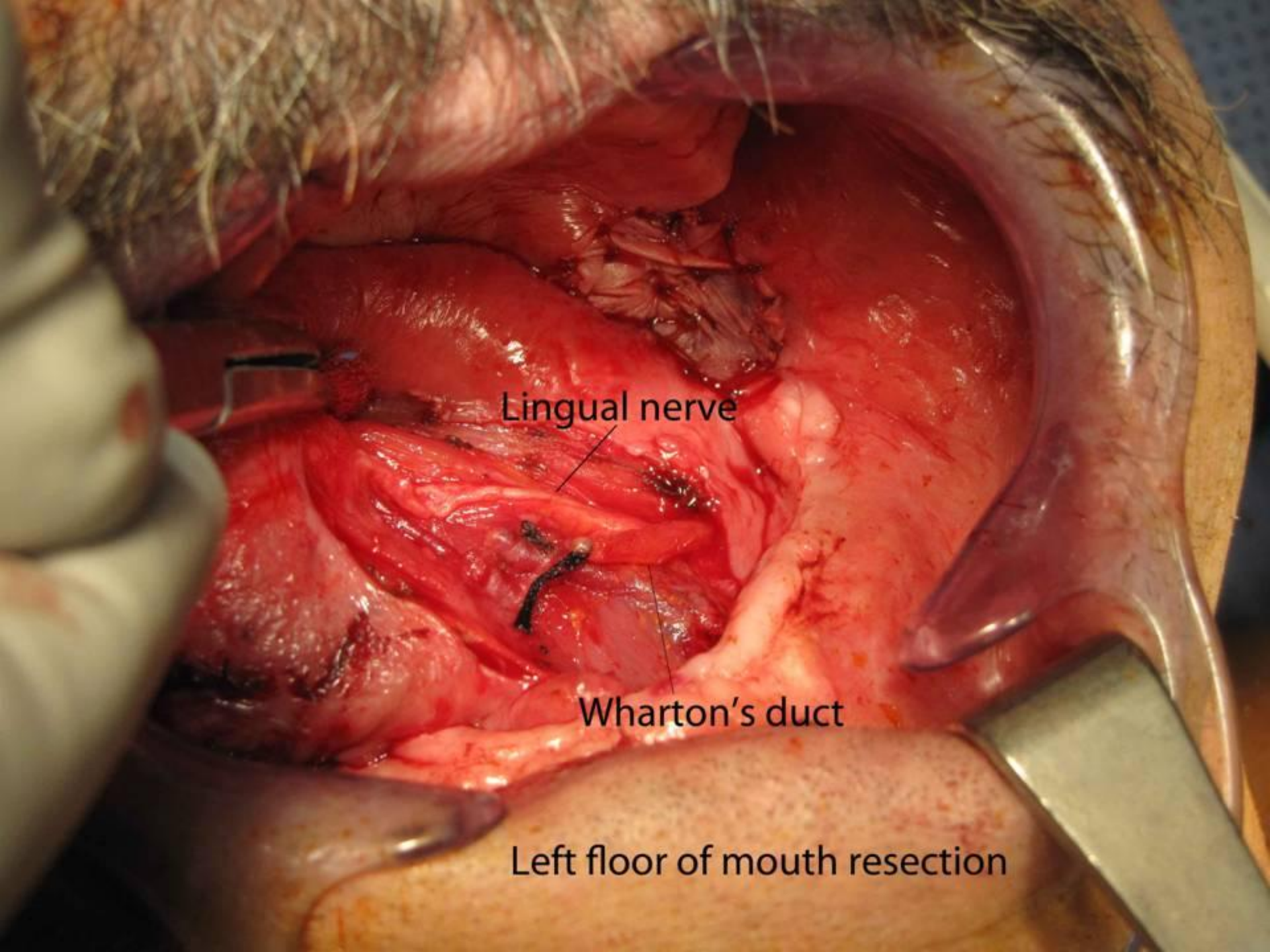
Anatomic Anomalies

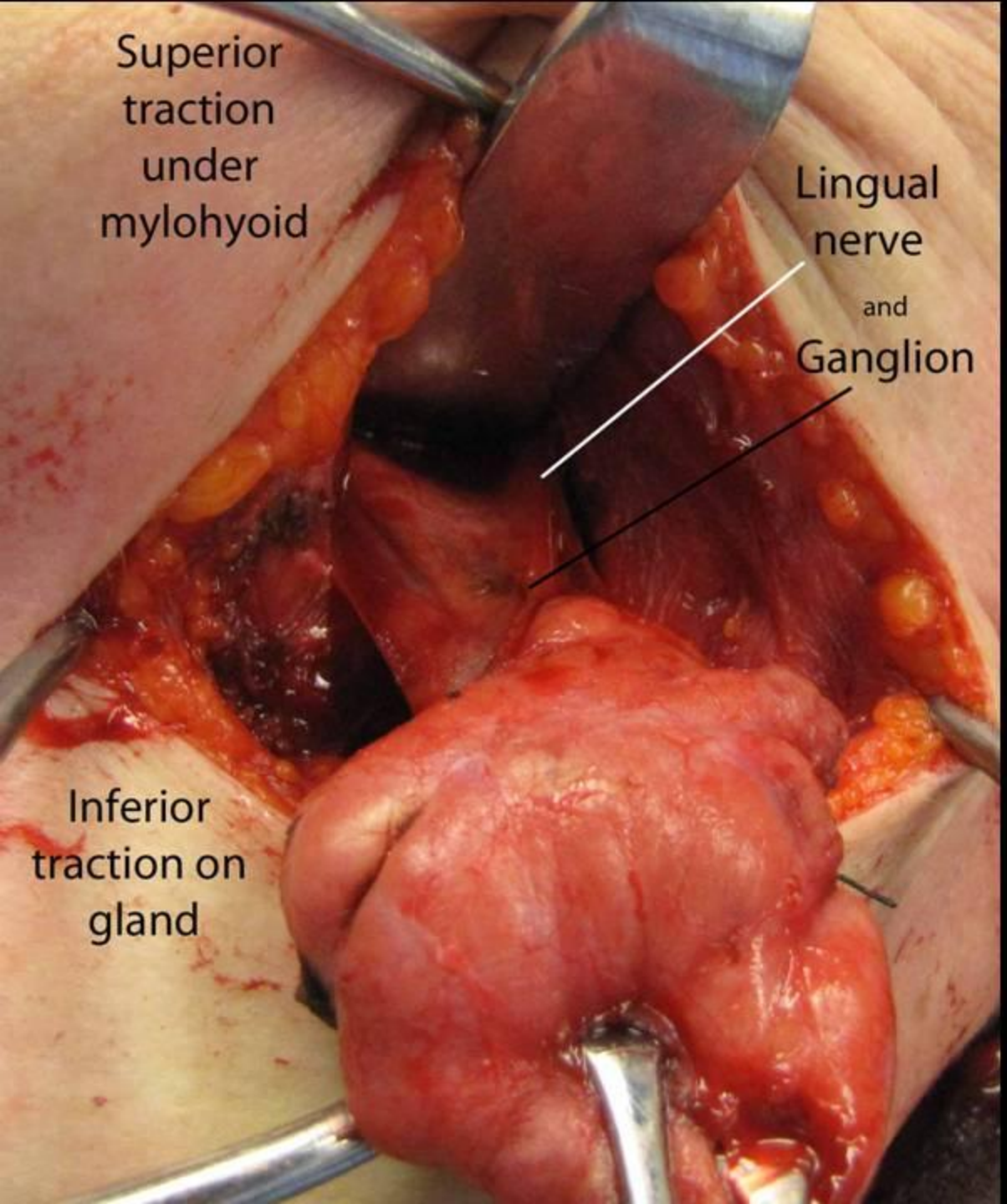
Submandibular

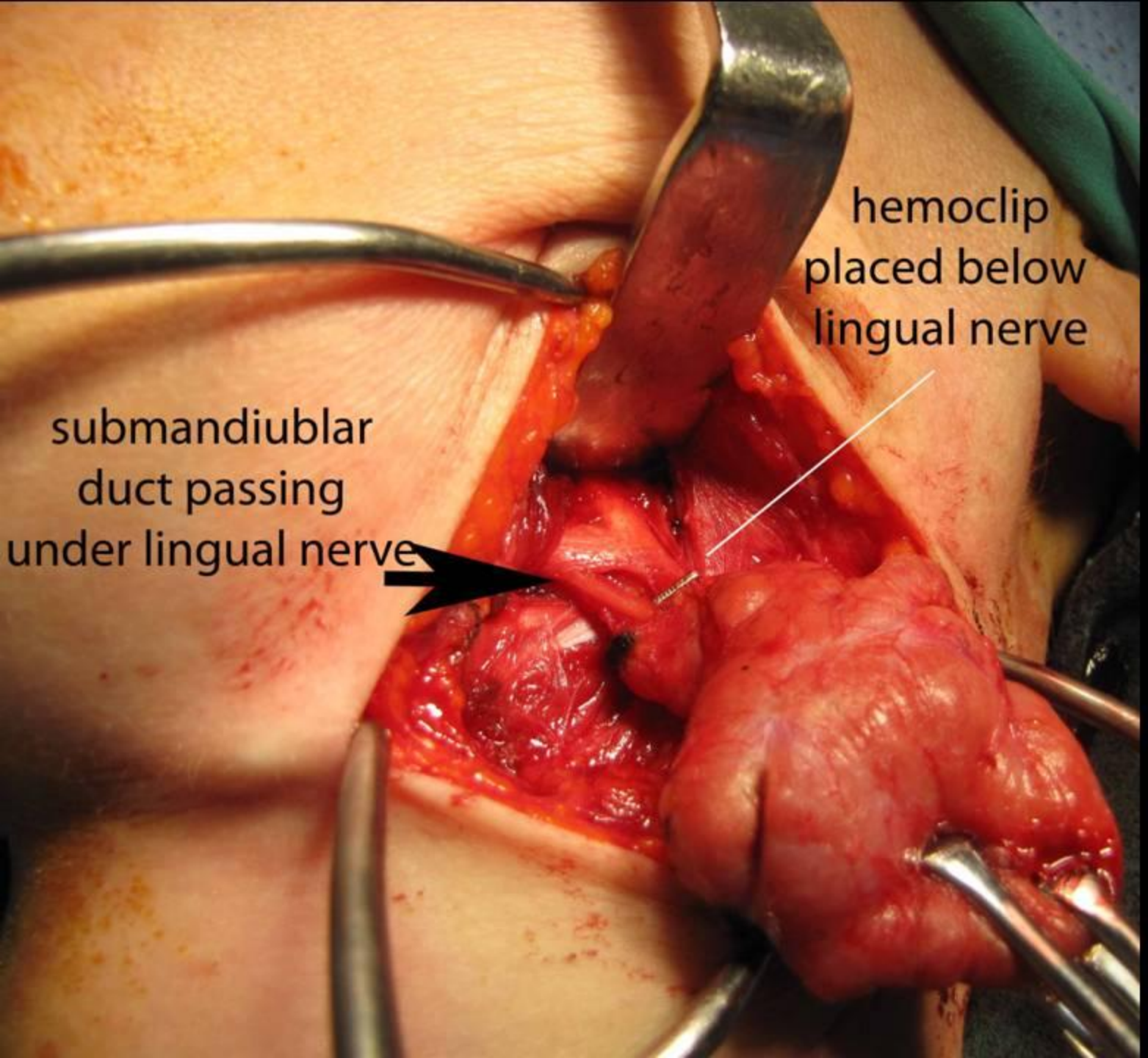
Relationship to lingual nerve and sublingual gland

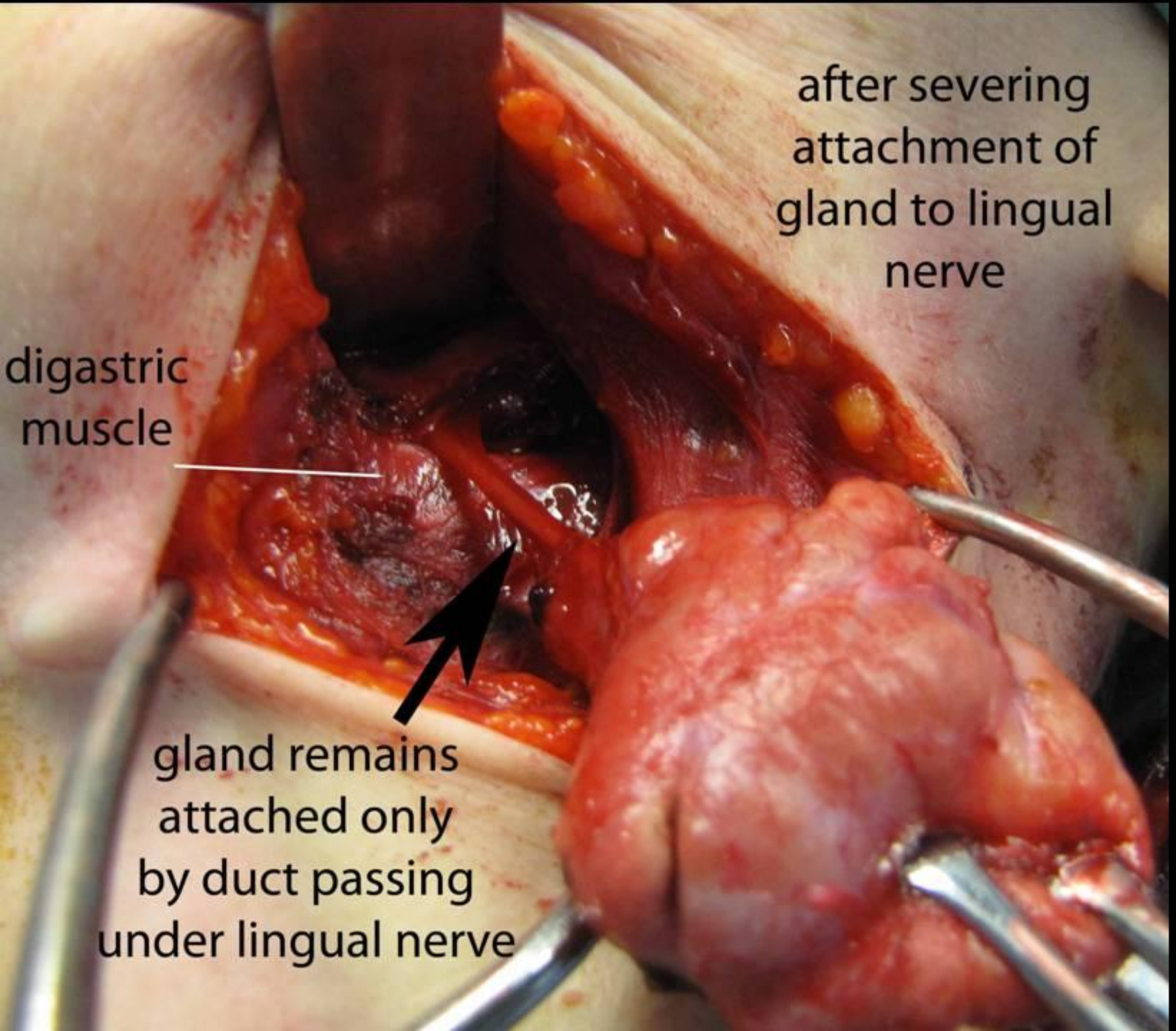





Lingual nerve
Wharton's duct
Left floor of mouth resection


Superior traction under mylohyoid
Lingual nerve
and
Ganglion
Inferior traction on gland


hemoclip
placed below
lingual nerve
submandiublar
duct passing
under lingual nerve


after severing attachment of gland to lingual nerve
digastric muscle
gland remains attached only by duct passing under lingual nerve

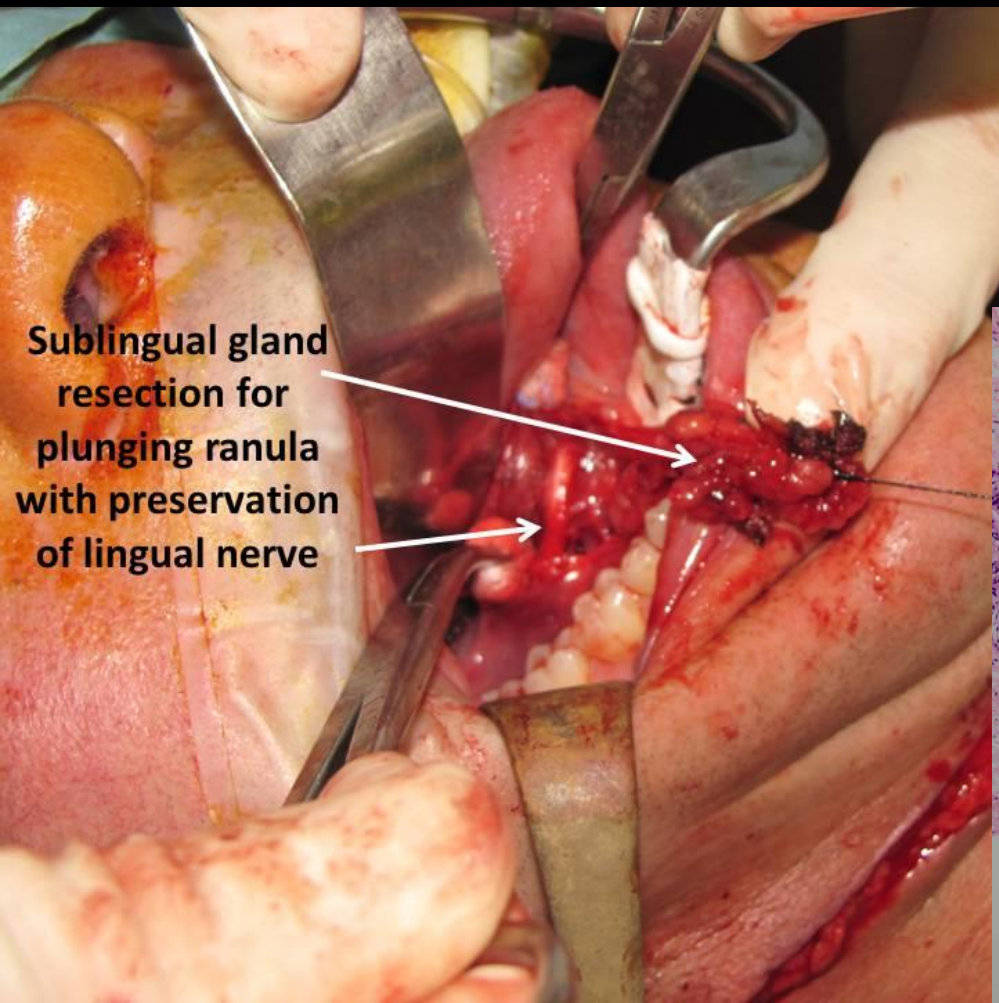
Anatomic Anomalies

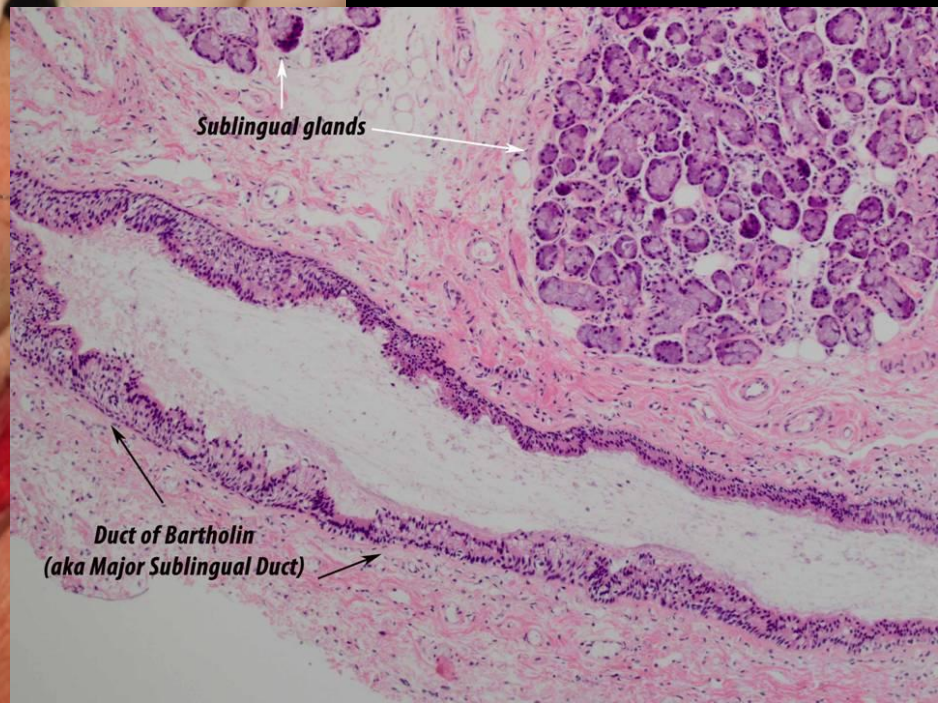
Sublingual glands secrete directly

through mucosa into FOM via multipel ducts of Rivinus

and

Bartholin's duct that empties into the Wharton's duct





Salivary Foreign Bodies

Philosophy: Endogenous v **Exogenous**

Sialolithiasis theories:

1.Intracellular microcalculi excreted in canal as nidus to calcify

2. “Mucus plugs’ as nidus to calcify

3. “aliments, substances, or bacteria in the oral cavity migrate into the salivary ducts for further calcification”

Marchal et al: Retrograde Theory in Sialolithiasis Formation arch Otolaryngol 127, Jan 2001 pp 66-68

Published reports

Blade of grass	Pin needle	Piece of broom straw
Hair brush thistle	Vegetable fiber	Fingernail
Fish bone	Limb of shrimp	Feather
Shrapnel	Piece of Hair	5 Cases of Fish Bones
Fish bone	Vegetable nidus	Wood-like strands

Su et al: Sialoendoscopic management of submandibular gland obstruction Caused by intraglandular foreign body. Vol. 114 No. 5 November 2012

Salivary Foreign Body Examples:

Parotid: percutaneous welding slag

Submandibular: migrated stent (20 gauge angiocatheter)

"google" or "bing" or otherwise search: "Iowa Protocols" then search in the protocols:

"foreign body"

or

"sialendoscopy"

Iowa Head and Neck Protocols

Submandibular Duct Foreign Body (retained salivary stent)

return to: Sialendoscopy *SEE IMAGES AND VIDEO BELOW*

History: Retained 20 gauge angiocatheter in submandibular duct placed after ductoplasty with stone removal. Time frame below:

May-June: Firm swelling right submandibular gland with pain intensified with meals associated with 'slimy type of strong salty taste in mouth'

June 22: Transoral right submandibular sialodochoplasty under local anesthesia with heavy sedation. Placement of 20 gauge angiocatheter until stone encountered, incision over angiocatheter into duct through floor of mouth mucosa with removal of stone.Angiocatheter secured with purse-string suture

perceived reaction to suture material with loss of control of stent recessed into duct; symptoms of swelling and pain markedly improved

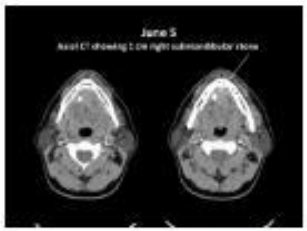
July 13: Transoral right submandibular duct exploration under local anesthesia with sedation in effort to remove retained angiocatherr. Cannulation of duct orifice successful as was entry into duct through floor of mouth incison through previous scar overlying previous entry site into duct. Intra-operative radiography identified successive images demonstrated further postioning of catheter tip deeper into gland

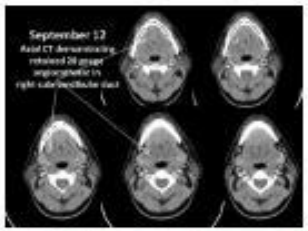
no further acute swelling or pain of the gland but noting once a week or so perception of discomfort identifying that 'all is not right with that gland'

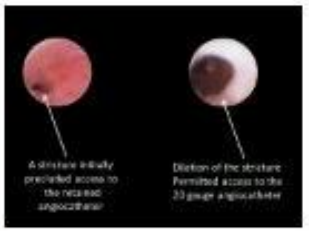
Nov 26 Referral to the U of Iowa - options discussed: observation / submandibular gland resection / sialendoscopy with transoral endoscopic removal

Dec 5 Right submandibular sialodochoplasty with duct dilation and removal of 3 cm foreign body (20 gauge angiocatheter tip)

Click on image to enlarge; advance to next with cursor over right mid boder







Parotid Sialogram with Sialendoscopy for Foreign Body Removal

return to: Sialograms and Sialography, Sialendoscopy

see video at bottom of page

75 yo man relates that 2 years ago while running machinery he had a piece of metal enter into his left cheek at the corner of his mouth through the skin and had no problems from it at that time. A year later (one year ago) he (confirmed by his wife) related that he had an upper molar on the left infection that occurred coordinate with some swelling in his salivary gland. This episode was treated with antibiotics as well as a dental manipulation that allowed for both to resolve. Debate ensued about the etiology of the foreign body as either displaced dental amalgam (suggested by radiologist) versus slag from welding injury (supported by the patients wife as more consistent with timing). Further intermittent painful swelling of the left parotid gland warranted sialography followed by sialendoscopy with removal of the foreign body.

Click on image to enlarge, hover over right mid-lateral margin to expose arrow to advance to next image.

L parotid sialogram with metallic density foreign boyd in midportion of duct

foreign body seen to move near puncta

PA projection showing foreign body move back to mid-duct

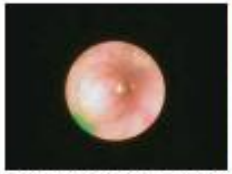
some retained contrast in abnormally large (post-obstructive dilation) duct lemongrass

dilation of left parotid duct over 0.018 in microangio guide wire

metallic foreign body visualized in duct via sialendoscopy

foreign body grasped with 4-wire 0.4 mm basket

metallic foreign body removed with basket (still inside illumated sialendoscope)



clear lumen confirmed with sialendoscope at end of case through stent prior to kenalog placement

stent (6 Fr pediatric nasogastric feeding tube trimmed at both ends) secured with two 6-0 nylon sutures

view of stent at end of case

Procedure: Left parotid sialendoscopy with