

April 2012

## SALIVARY GLAND SWELLING

The salivary glands are mainly found in the oral cavity and consist of the paired major glands – parotid (PG), submandibular (SMG) and sublingual (SLG) as well as multiple small and scattered minor salivary glands found throughout the aerodigestive tract.

Approximately 1.5L of saliva is produced each day and it plays a role in lubricating food and dental/oral hygiene. At rest the SMG and SLG produce about 75% of saliva however, if stimulated by food, (either eating or thinking about it) the PG produces about 95% of the saliva.

Swelling +/- pain of the major salivary glands may present as an acute or chronic problem for patients and usually involves the PG or SMG. A good history is often instructive with regards to chronicity, uni or bilaterality of the condition, any relationship to eating, any history of autoimmune disease, medications, and so on.

In the past radiology was limited to plain radiographs and sialography, however now there are other and often better imaging options available.

Generally the first best step is ultrasound. This enables evaluation of the gland parenchyma and vascularity and can also assess for any duct dilatation, either within the gland or of the main ducts. The size and position of any calculi can often be detected.



Fig 1. Ultrasound showing dilated submandibular duct.

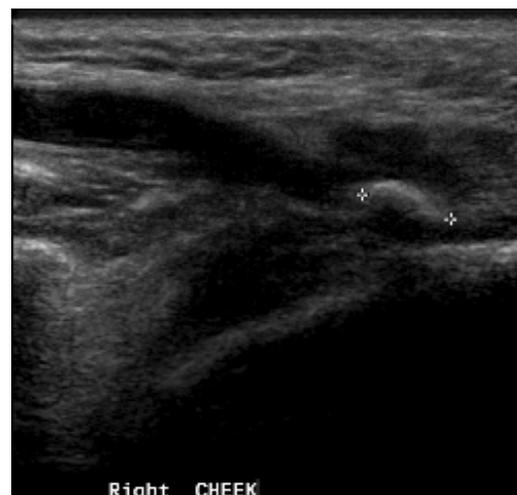


Fig 2. Ultrasound showing parotid duct stone.

CT can also be used to assess inflammatory disease or calculi but is more often used to evaluate the focal painless salivary gland mass. Ultrasound can also be useful in this scenario particularly in younger patients where radiation exposure may be a consideration.

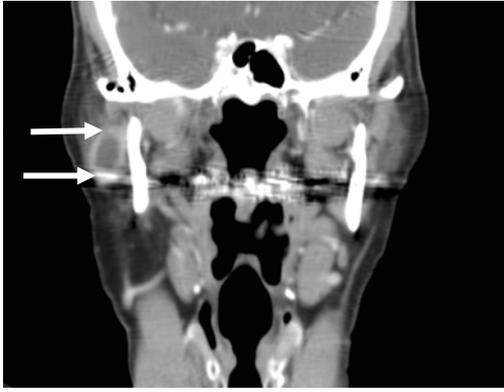


Fig 3. CT shows mass lesion anterior superficial lobe of parotid ( arrows)



Fig 4. Sialogram showing stone in submandibular duct.

Sialography demonstrates fine ductal anatomy but has several disadvantages for the patient as it is invasive, requires contrast and may trigger an inflammatory episode or reactivate latent infection. There is also a recognised failure rate due to inability to cannulate the opening of the main duct.

Improved MRI techniques are now able to show sufficient detail of duct and acinar anatomy such that sialography is increasingly reserved as a third line or specialist requested investigation.

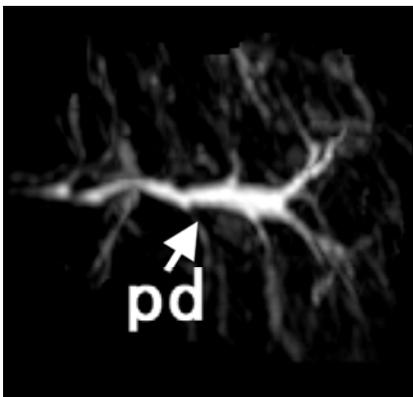


Fig 5. MR sialogram showing dilated parotid duct.

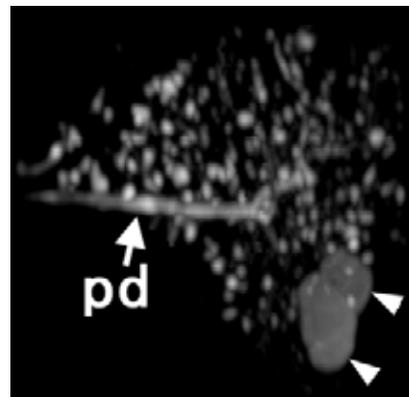


Fig 6. Parotid MR sialogram – shows the classic “low hanging fruit” appearance of Sjogrens syndrome.

**Kate O'Connor**



Subtle labial tear seen on noncontrast study



3T coronal inversion recovery sequence through the right temporal lobe and hippocampus.

### 3T at Northern

Our new 3 Tesla Siemens MR Scanner at the Northern Clinic has been up and running for 3 weeks now and we are seeing some superb images, particularly high resolution images of small structures.

The musculoskeletal radiologists have been particularly impressed with the improved detail we are achieving with the TFCC, the acetabular labrum and articular cartilage as well as the anticipated benefits for imaging fingers and toes.

The neuro radiologists have been delighted with their scans especially the quality of the TMJ and temporal lobe imaging.

The advantages of having one of the few 70cm widebore scanners in the city have become apparent already with the improved tolerance and reduced need for sedation in claustrophobic patients who describe much less of a feeling of enclosure. Obviously, as patient sizes continue to increase, the basic requirement for a larger aperture to accommodate the larger individuals can't be overstated.