Case 8515

MR sialography in Sjogren’s syndrome

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Patient: 50 years, female

Clinical History:
A 50 year old female presented with history of dry eyes and dry mouth of 1 year duration. She also complained of foreign body sensation in the eyes for the last year. Since 6 months she developed occasional episodes of pain over the jaw, especially during mealtime, which used to subside on its own or with mild analgesics. There was no history of fever or any purulent discharge in the mouth. She had no history of joint pains, photosensitivity or skin rash. Clinical examination revealed non-tender firm enlargement of parotid glands. The overlying skin appeared healthy with no redness or local rise in temperature. Intra-oral examination revealed a dry mouth with otherwise good oral hygiene. Her treating physician advised a high-frequency US examination of the parotids, which revealed mildly enlarged parotid glands demonstrating echotexture heterogeneity. No obvious sialolith or intra-parotid collection or mass was seen. Patient was further evaluated with MR-sialography using HASTE (MRCP) sequence on a 1.5 Tesla MR scanner. MR-sialography examination revealed bilateral diffuse intra-glandular duct ectasia. Stensen's ducts were normal in appearance. No sialolith was seen on either side. Both submandibular glands appeared normal. Based upon the imaging findings and relevant clinical history, diagnostic possibility of primary Sjogren's syndrome was considered. Further evaluation revealed a positive Schirmer's test. Antibodies pertaining to Sjogren's i.e. anti-Ro/SSA and -La/SSB antibodies were both positive as well as her ANA (antinuclear antibody) was positive confirming the clinical suspicion.

Discussion:
Sjogren's syndrome is an autoimmune disorder in which immune cells attack and destroy the lacrimal and salivary glands. It is relatively more common in women above forty years of age, and is characterized by dry mouth (xerostomia) and dry eyes (xerophthalmia), popularly known as sicca-symptoms. It may exist as a primary idiopathic condition or as a secondary association with rheumatoid arthritis, systemic lupus erythematosus, or progressive systemic sclerosis. Patients may develop a lymphoproliferative syndrome that includes lymphadenopathy and an increased risk of lymphoma. Traditionally, minor salivary gland biopsy and x-ray sialography have been considered the key modalities for diagnosing Sjogren's syndrome. Conventional sialography is an invasive procedure, which has been previously used for evaluating the ductal system of the major salivary glands. The study requires cannulation of the main salivary duct and injection of contrast media. Conventional sialography, since it involves cannulation of the salivary duct; may be associated with potential complications such as trauma to the ducts, failure to cannulate, painful overfilling of the ducts and retrograde infection. It is also contraindicated during acute infection because of possible exacerbation. Newer imaging modalities such as Ultrasound, CT and MRI are valuable cross-sectional techniques for imaging the salivary glands. MR sialography has emerged as the preferred imaging modality for evaluating the salivary ductal system for any obstructive or inflammatory pathology. MR-sialography
involves the use of heavily T2-weighted sequences such as RARE or HASTE which are similar to the ones used for MR-cholangiography (MRCP). Lately 3D-CISS sequence has been successfully used which has a higher in-plane resolution as compared to RARE sequence. These sequences are highly sensitive to fluid thus allowing saliva to act as a natural contrast material. The heavily T2-weighted sequences yield good quality sialographic images of the main duct and primary branching ducts. Various studies have shown that sialectasis, sialoliths and duct strictures can be well demonstrated with MR-sialography study. The main role of imaging in Sjogren’s syndrome is to stage the disease. On the basis of MR-sialography (similar to x-ray sialography), Sjogren’s can been staged into: (stage-1) Punctate sialectasis—the peripheral ducts exhibit punctuate dilatation <1 mm diameter; (stage-2) Globular sialectasis—the dilated ducts are between 1mm and 2 mm in size and irregular in appearance; (stage-3) Cavitative sialectasis—coalescence of cystic lesions produces a cavitatory appearance; and (stage-4) Destructive sialectasis—there is a bizarre pattern of pooling, possibly with stones in the gland. The patient discussed in this report had globular sialectasis suggestive of stage-2 disease.

To conclude, MR and MR-sialography is a promising technique for evaluation of the salivary glands. It can demonstrate well the signal intensity changes in the gland, delineate the ductal system and confirm and stage sialectasis.

**Differential Diagnosis List:** Sjogren's syndrome

**Final Diagnosis:** Sjogren's syndrome

**References:**


Figure 1

Description: Multifocal globular areas of high signal intensity are seen in both parotid glands. Origin:
Description: Multifocal globular areas of high signal intensity are seen in both parotid glands. Origin:
Description: Coronal images confirm the presence of globular sialectasis involving both the superficial as well as deep lobes of bilateral parotid glands. Origin:
Figure 3

Description: An oblique MIP image demonstrates well the globular duct ectasia as well as the normal appearance of the Stensens duct. Origin:
Description: On these T1-w images the parotid parenchyma on either side demonstrates a granular appearance secondary to heterogeneous signal characteristics. Normal parotid gland appears homogeneously hypointense on T1-w MR-images. Origin:
Description: Multifocal spherical areas of high signal intensity are evident, diffusely involving both parotid glands. Main parotid gland ducts appear normal in course and calibre. Origin:
**Description:** Multifocal spherical areas of high signal intensity are evident, diffusely involving both parotid glands (red arrows). Main parotid gland ducts appear normal in course and calibre (yellow arrows). **Origin:**