Role of MR Sialography in the Diagnosis and Staging of Sjogren's Syndrome: Comparison with Salivary Scintigraphy

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Introduction

Sjogren's syndrome (SS) is a chronic autoimmune disease characterized by lymphoid infiltration of exocrine glands, especially lacrimal and salivary glands resulting in dryness of the eyes and the mouth. Salivary gland involvement is usually evaluated by X-ray sialography and labial gland biopsy(1). The usefulness of these two procedures, however, is hampered by the invasive nature of the procedures. On the other hand, salivary scintigraphy is a simple, noninvasive technique and is now included in the diagnostic criteria for SS in the European and Japanese community study group. MR imaging is also a noninvasive modality and recent advances of MR technique enable the direct visualization of the salivary gland duct and its branches without use of contrast medium (MR sialography)(2,3). In this study, we performed a comparative study of MR sialography and salivary scintigraphy in patients with clinically suspected SS to determine the role of MR sialography in the diagnosis and staging of this disorder.

Materials and Methods

MR imaging has been performed on a Magnetom Vision (Siemens) with a neck array coil. MR sialography was obtained using a heavily T2-weighted FSE sequence. Fat suppression and oblique imaging planes were available with this sequence. Imaging parameters were: TR/TE =9500ms/259ms, ETL=27, slicethickness=2mm, 18 contiguous sections, FOV=170×170mm, image matrix =270×512, NEX-4. All images generated were analyzed on the basis of MIP reconstructions. MR sialographic stages were determined according to the criteria of X-ray sialography proposed by Rubin and Holt. Salivary scintigraphy was performed after an intravenous injection of 296 MBq of 99mTc-pertechnetate. Scintigraphic staging was performed using the criteria proposed by Schall. 105 patients with clinically suspected SS were included in this study. A labial gland biopsy was performed in all patients and histopathologic grading was done by means of focus scores. Imaging findings of MR sialography and salivary scintigraphy were compared with the results of labial gland biopsy to compare the diagnostic and staging accuracy of SS.

Results

Abnormal findings including punctate, globular or cavitary appearances within the parotid glands induced by SS were well demonstrated on MR sialography. Decreased uptake and excretion of 99mTc-pertechnetate of the parotid and submandibular glands were noted in patients with SS. For the diagnosis of SS, MR sialography showed higher specificity and positive predictive value (PPV) (specificity 85%, PPV 92%) than salivary scintigraphy (specificity 60%, PPV 73%). For the staging of SS, although both modalities showed obvious correlation with the results of labial gland biopsy, MR sialography showed statistically higher correlation(p <.01).

Conclusion

It was shown that MR sialography is more accurate than salivary scintigraphy in the diagnosis and staging of SS. Our results suggest that MR sialography is worthwhile to be included in the diagnostic criteria for SS.

References