Homer's syndrome, outlining the appropriate imaging pathways for investigation of oculosympathetic palsy.

MATERIALS AND METHODS

Homer's syndrome is a rare condition that affects the sympathetic fibres to the eye anywhere along its tri-neuron circuit. We review the anatomy of the central, preganglionic and postganglionic neurons of the oculosympathetic pathway. The correlation between subtle clinical sub-features of this syndrome and potential lesion location is made, reviewing neurological, cervical and upper thoracic imaging from a large tertiary referral radiology department.

RESULTS

Imaging findings in acquired Homer's syndrome correlate well with the expected lesion location if a thorough clinical examination is performed. Targeting the most appropriate imaging modality can be achieved by considering the oculosympathetic pathway as a tri-neuron circuit.

CONCLUSION

The sympathetic pathway to the eye and its anatomical relations is an important consideration when undertaking radiological evaluation of an acquired Homer's syndrome in order to encompass a targeted investigation of the causative pathologies.

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CEREBROSPINAL FLUID LEAKS - WHAT THE RADIOLOGIST NEEDS TO KNOW

Jane Cunningham, Edel Kelliher, Joanna Pearly-Ti, Sarah Power, John Thornton, Paul Brennan, Seamus Looby

Beaumont University Hospital, Dublin 9, Ireland

BACKGROUND

Imaging is of vital importance in the evaluation of cerebrospinal fluid leaks which may occur either spontaneously or secondary to intracranial infection, tumours, trauma, ENT or neurosurgical procedures. In this pictorial essay, we highlight what radiologists need to know in order to make the diagnosis which is crucial to avoid complications of meningitis, cerebral abscess and encephalitis.

CONTENT

Leakage of CSF occurs when there is communication between the subarachnoid and extracranial spaces through defects in the dura and skull base. Patients present clinically with CSF rhinorrhea or otorrhea. Although the diagnosis can be confirmed by beta-2 transferrin assay of the fluid, radiological evaluation is critical to localise and characterise the osseous defect, exclude any underlying cause and evaluate for associated meningocele or encephalocele. MDCT of skull base with multiplanar reformatting is the preferred modality for initial evaluation, with CT cisternography reserved for complex cases with multiple osseous defects. MRI is useful in the assessment of meningoencephalocele. We present a number of illustrated examples of cases of CSF leaks to highlight the key imaging features and discuss optimal imaging strategies and scanning protocols.

RESULTS

We provide a comprehensive overview of the etiology, diagnosis and management of CSF leaks, as well as a pictorial review highlighting the key imaging features and potential pitfalls.

CONCLUSION

This educational exhibit aims to help radiologists accurately diagnose cerebrospinal fluid leaks which is essential to guide endoscopic and neurosurgical repair and thereby reduce the likelihood of serious infectious complications.

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EVALUATION OF MORPHOLOGIC CHANGES IN OPTIC NERVE IN GLAUCOMA USING 3 T MRI

Sasrilhakim Sidek1, Fadzila AR2, Norlisa Ramli3, Kartini Rahmat4, Norlina Ramli5, Sabril Hakim1

1Departments of Biomedical Imaging, University Malaya Research Imaging Centre and 2Ophthalmology, University Malaya, Malaysia.

PURPOSE

Glaucoma is thought to be an ocular problem. Here we assess if glaucoma disease causes anterograde degeneration of the optic nerve by using volumetric assessment with 3 T MRI.

METHOD AND MATERIALS

Forty four subjects (12 normal subjects, 18 mild glaucoma, 14 severe glaucoma, age 40 to 80 y.o.) underwent 3Tesla MRI. Images were acquired with FSPGR EDR Fast 1R 512 Freq 256 Phase 256 Zip Gradient Zoom Mode 3D. The mean duration of glaucoma disease from time of diagnosis to imaging was 14 days. The acquired images were post processed using DICOM (Digital Imaging and Communications in Medicine) format, converted to NIFTI (Neuroimaging Informatics Technology Initiative) format by MRI Convert version 2.0. Optic nerve volume was measured using NeuRoi software.

RESULTS

Mean bilateral optic nerve average volume are 361.2 mm³ (normal), 290.5 mm³ (mild) with ~19.6 % reduction and 186.9 mm³ (severe) with ~48.3 % reduction. Multiple comparisons show significant difference between normal and severe glaucoma groups (p=0.00) and between mild and severe glaucoma groups (p=0.004). No significant difference between normal and mild glaucoma groups (p=0.075).