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MALIGNANT OTITIS EXTERNA: CLINICAL ROLE OF 99MTC-HMPAO-WBC SPECT/CT

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BACKGROUND-AIM

Malignant otitis externa (MOE) is a potential life-threatening osteomyelitis of the temporal bone that can spread involving the close soft tissues, cranial nerves and adjacent skull base classically caused by Pseudomonas Aeruginosa. CT conventional scanning is a fast and economical instrument in the initial assessment of patients with malignant external otitis. Petrous apex involvement was constantly associated with cranial nerve palsies, usually the lower cranial nerves. However, CT results of temporal bone in itself were not closely correlated to the clinical outcome of the patients. Therefore, CT and/or MRI should be supported by routine imaging for initial diagnosis of malignant otitis externa. Aim of this study is to evaluate and compare the clinical presentation and radiological/scintigraphic findings of cases of MOE, to describe the scintigraphic results as well as to analyze their correlation with the clinical pattern and at last to evaluate the possible role in assessing treatment response disease recurrence. We propose a treatment algorithm based on our team experience.

METHODS

Two adult male and diabetic patients evaluated for MOE at Othologic Group, Piacenza, between 2013 and 2014 were studied. Diagnosis was confirmed with the documented presence of all the required Cohen criteria. Both have performed laboratory tests, culture with isolation of Pseudomonas Aeruginosa organism and biopsy of external auditory canal with local anaesthesia. Carcinoma was excluded by histological examination. Patients were investigated by computerized tomography (CT), magnetic resonance imaging (MRI) and ^{99m}Tc-HMPAO-WBC scintigraphy. The latter was performed with high-resolution SPECT/CT 24 hours late acquisition, according to standard recommended protocols. We debated example case reports with the various radiological and scintigraphic findings and outlined a protocol for rational investigation.

RESULTS

Both studies showed clear evidence of sites, extension and degree of activity of septic processes, better outlined moreover from CT side of "ibrid" SPECT/CT late images. This had led to detailed structural and functional data ("in vivo" septic images), more complete ad useful for the oto-neurosurgeon, if compared to separate CT, fundamental for correct prognostic stratification and follow-up. Guided by SPECT/CT imaging results, patients were treated with oral quinolone therapy in combination with an intramuscular anti-pseudomonial cephalosporin and local antibiotic ear drops (aminoglycosides or fluoroquinolones). Treatment lasted 12 weeks including treatment of recurrences.

CONCLUSION

These results suggest that ^{99m}Tc-HMPAO-WBC SPECT/CT provides an accurate imaging modality for diagnosis and follow-up of temporal and facial osteomyelitis, when existing clinical or postoperative bone changes make it difficult to detect active osteomyelitis by conventional CT scan. Routine ^{99m} Tc-HMPAO-WBC scintigraphy, integrated with SPECT/CT acquisition, further should be the investigation of choice in the follow up of these cases for better localizing the disease and assessing response to treatment and recurrence.