

Diagnostic Accuracy of Lymphoscintigraphy for Lymphedema

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Introduction: Lymphedema is the chronic enlargement of tissue due to inadequate lymphatic function. Diagnosis is made by history and physical examination and confirmed with lymphoscintigraphy. The purpose of this study was to (1) assess the accuracy of lymphoscintigraphy for the diagnosis of lymphedema and (2) determine characteristics of patients with false-negative tests.

Methods: Patients referred to our lymphedema program with “lymphedema” between 2009-2016 were analyzed. Subjects were assessed by history, physical examination and lymphoscintigraphy. Patient age at presentation, duration of lymphedema, location of disease, gender, previous infections, and lymphedema type were recorded.

Results: The study included 228 patients. Lymphedema was diagnosed clinically in 170 subjects and confirmed by lymphoscintigraphy in 162 (117 primary lymphedema, 45 secondary); 58 patients were thought to have a condition other than lymphedema and all had negative lymphoscintigrams (95% sensitivity, 100% specificity). A subgroup analysis of the 8 patients with clinical lymphedema but negative lymphoscintigrams was performed: all had primary lymphedema. Four patients were male, 7 involved the lower extremity, and 3 had prior infections. Mean duration of disease prior to lymphoscintigraphy was 8 years (range 1 month to 32 years). Lymphedema type, duration of disease, and infection history were not different between patients with true positive and false negative lymphoscintigrams ($p=0.5$). Two patients with a false-negative result underwent repeat lymphoscintigraphy 2.5-3 years later and exhibited a positive study consistent with lymphedema.

Conclusion: Lymphoscintigraphy is very sensitive and specific for lymphedema. There are no significant predictive factors for false negative studies although all these patients had primary lymphedema. A patient with a high clinical suspicion of lymphedema and a negative lymphoscintigram should be treated for the disease and undergo repeat lymphoscintigraphy over a year later.