



RESEARCH ARTICLE

Staging and clinical correlations of lymphoscintigraphy for unilateral gynecological cancer-related lymphedema

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Abstract

Background: This study was to investigate the lymphoscintigraphy findings for the diagnosis and severity in unilateral gynecological cancer-related lymphedema (GCRL) and to correlate lymphoscintigraphy stages with the clinical findings.

Methods: Patients with unilateral GCRL who underwent lymphoscintigraphy were staged using the presence of ileo-inguinal lymph nodes, distal-lymphatic ducts, and dermal backflow findings. Taiwan Lymphoscintigraphy Staging (TLS) was divided into three patterns and seven stages: normal drainage (L-0); partial obstruction (P-1, P-2, and P-3); and total obstruction (T4, T-5, and T-6). Correlations between clinical lymphedema severity and TLS were evaluated using analysis of variance and multivariable linear regression analyses.

Results: A total of 141 patients with unilateral GCRL were divided as follows: 6 (4.3%) in normal drainage, 56 (39.7%) in partial-obstruction, and 79 (56%) in total obstruction. Cellulitis episodes, circumferential difference, and computed tomography (CT) volumetric difference were shown to be statistically different between TLS stages ($P < .001$ for all). Total obstruction stages were the most significant factors associated with the severity of circumferential difference ($\beta = 19.72, 25.54, 32.42$, respectively; $P < .05$) and CT volumetric difference ($\beta = 36.04, 45.12, 52.78$, respectively; $P < .01$).

Conclusions: Total lymphatic obstruction was present in 56% of unilateral GCRL. Lymphoscintigraphy stages were statistically correlated with episodes of cellulitis, circumferential difference and CT volumetric difference in unilateral GCRL.

KEYWORDS

gynecologic cancer-related lymphedema, lower limb lymphedema, lymphedema microsurgery, lymphedema grading system, lymphoscintigraphy staging system

1 | INTRODUCTION

Extremity lymphedema is a devastating sequela of cancer treatments that produces an adverse health impact including recurrent cellulitis

and morbidity, and drastically affects the patient's psychosocial well-being and quality-of-life.¹⁻³ Approximately, 88 000 women in the United States are diagnosed with gynecological cancer each year, including endometrial, ovarian, cervical, or vulvar/vaginal cancer.^{4,5} It was estimated that 10% to 49% of patients treated for gynecological cancer with pelvic lymph node dissection and postoperative radiotherapy develop gynecological cancer-related lymphedema