



Background

- Genital lymphedema (GL) is a condition that affects women whose lymphatic system is damaged as a result of gynecological cancer treatment.
- Swelling of the genital region causes sensation of heaviness, tension, and urinary difficulty, which can significantly deteriorate patients' quality of life.
- However, not much is known about GL and little attention is paid to GL compared to lymphedema of the lower extremities, which is due to the lack of appropriate evaluation tools for GL.
- A readily available and convenient evaluation tool for GL is needed to raise the interest of physicians and to provide early diagnosis and timely treatment.

OBJECTIVE

- This study aimed to identify the clinical characteristics of patients with GL secondary to gynecologic cancer treatment and to evaluate the usefulness of computed tomography (CT), a routine follow-up study for gynecologic cancer, for GL evaluation.

METHODS

- Study Design**
 - Retrospective study
- Study population**
 - Seventy-eight patients who referred for surveillance of lower extremity lymphedema and pelvic floor dysfunction after surgery for gynecologic cancer.
 - Divided into two groups according to the presence of GL
- Computed Tomography**
 - Soft tissue changes in patients with GL
 - "honeycombing" and "taller than wide" appearances of fat lobules in genital region.

RESULTS

Table 1a. Baseline characteristics of study population (N=78)

Variables	Patients with GL (n=43)	Patients without GL (n=35)	p-value
Age	52.3 ± 14.2	51.8 ± 11.1	0.91
BMI(Kg/m ²)	23.1 ± 3.1	21.8 ± 3.5	0.06
Cancer type			
Cervical	25	18	
Endometrial	10	12	
Ovary	3	3	
Vaginal	1	0	
Tubal	2	1	
Others	2	1	
Prognostic stage			
I	17	16	
II	8	5	
III	14	13	
IV	4	1	
Pelvic LN dissection			
Number of lymph nodes	27.2 ± 18.8	25.3 ± 14.5	0.6
+	38	26	
-	5	9	
Radiation therapy			0.62
+	34	26	
-	9	9	
Chemotherapy			0.05*
+	28	15	
-	15	20	

*The level of significance was set at p<0.05

- Forty-three of 78 patients (55.1%) presented with GL.
- Twenty-nine of 43 patients (67%) with GL exhibited combined lower extremity lymphedema, which was significantly different from patients without GL (p=0.02).
- There was no significant difference between groups in urinary and fecal incontinence.

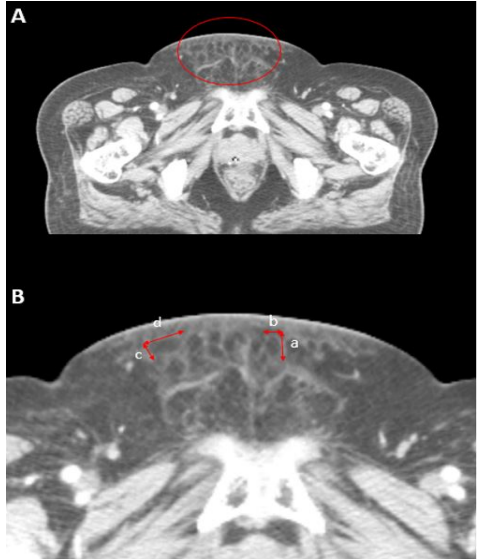


Figure 1. Representative CT images of "honeycombing" and "taller than wide" appearance: (A) The circle contains both the "honeycombing" and "taller than wide" appearances. (B) An enlarged image of the area enclosed by the box in (A). The height of the fat lobule is measured as "a" and its width as "b.". Perineum in which the a/b ratio is >1 are defined as having a "taller than wide" appearance (positive). In contrast, perineum in which the ratio is lower <1 (e.g., -c,d) are defined as having a "wider than tall" appearance (negative).

Table 1b. Pelvic floor dysfunction and lower extremity lymphedema of study population (N=78)

Variables	Patients with GL (n=43)	Patients without GL (n=35)	P-value
Modified Oxford Grading of Pelvic muscle			
0	1	0	
1	2	5	
2	6	4	
3	11	12	
4	11	7	
5	7	2	
Uncheckable	5	5	
Lymphoscintigraphy			
Normal	5	4	
Abnormal	13	3	
Lower extremity lymphedema			0.02*
+	29	14	
-	14	21	
Urinary incontinence due to GL			0.57
+	32	24	
-	11	11	
Fecal incontinence due to GL			0.42
+	16	10	
-	27	25	

Table 2. Computed tomography findings of soft tissue changes in genital region (N=78)

Variables	Patients with GL (n=43)	Patients without GL (n=35)
Honey combing only	21	13
Taller than wide only	0	0
Honey combing & Taller than wide	15	0
None	7	22

- In CT image analysis, 36 of 43 patients with GL (83.7%) showed soft tissue changes on CT images, whereas only 37.1% of patients without GL.
- In particular, "taller than wide" appearance was only observed on CT images of patients with GL.

CONCLUSION

- More than half of the patients referred for evaluation of lower extremity edema or pelvic floor dysfunction after gynecologic cancer surgery presented clinical signs of GL.
- Most of the GL patients had abnormal findings on CT images and showed different characteristic findings from patients without GL.
- Therefore, GL is not an uncommon complication of gynecologic cancer patients, and CT scans can be helpful in diagnosing GL.