

# Subcutaneous tissue changes after Hyaluronidase Injection in a patient with Lymphedema : A Case Report

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## Introduction

- **Lymphedema**
  - Chronic inflammation: accumulation of interstitial fluid
  - Excessive production of ECM components → local adipose tissue fibrosis
  - : **Adipose Hyaluronan as an active player**
- Complex decongestive therapy (CDT)
  - Mainstay of treatment
  - limited effect on fibrotic tissue
- **Hyaluronidase**
  - Increase tissue permeability, facilitate fluid reabsorption
- **Study aim** : Observe changes in fibrotic tissue after hyaluronidase injection in a patient with fibrotic lymphedema

## Methods

- **Patient**
  - 44 year old woman
  - Chronic left UEx lymphedema with evident fibrosis
  - (2024.12) NSM with implant d/t Lt. breast cancer
- **Intervention**
  - Hyaluronidase (Tergase, 1,500 IU, 1mL mixed with NS 2mL)
  - Ultrasound-guided Hyaluronidase was injected in left forearm subcutaneous layer
- **Outcome measures**
  - Limb circumference, Skin thickness
  - Skin & subcutaneous thickness by B-mode
  - Tissue stiffness(E/I) by Elastography
- **Assessment Methods**
  - Day 1 : Baseline assessment & injection
  - Day 7, Day 30 : Follow-up assessment at same anatomical location

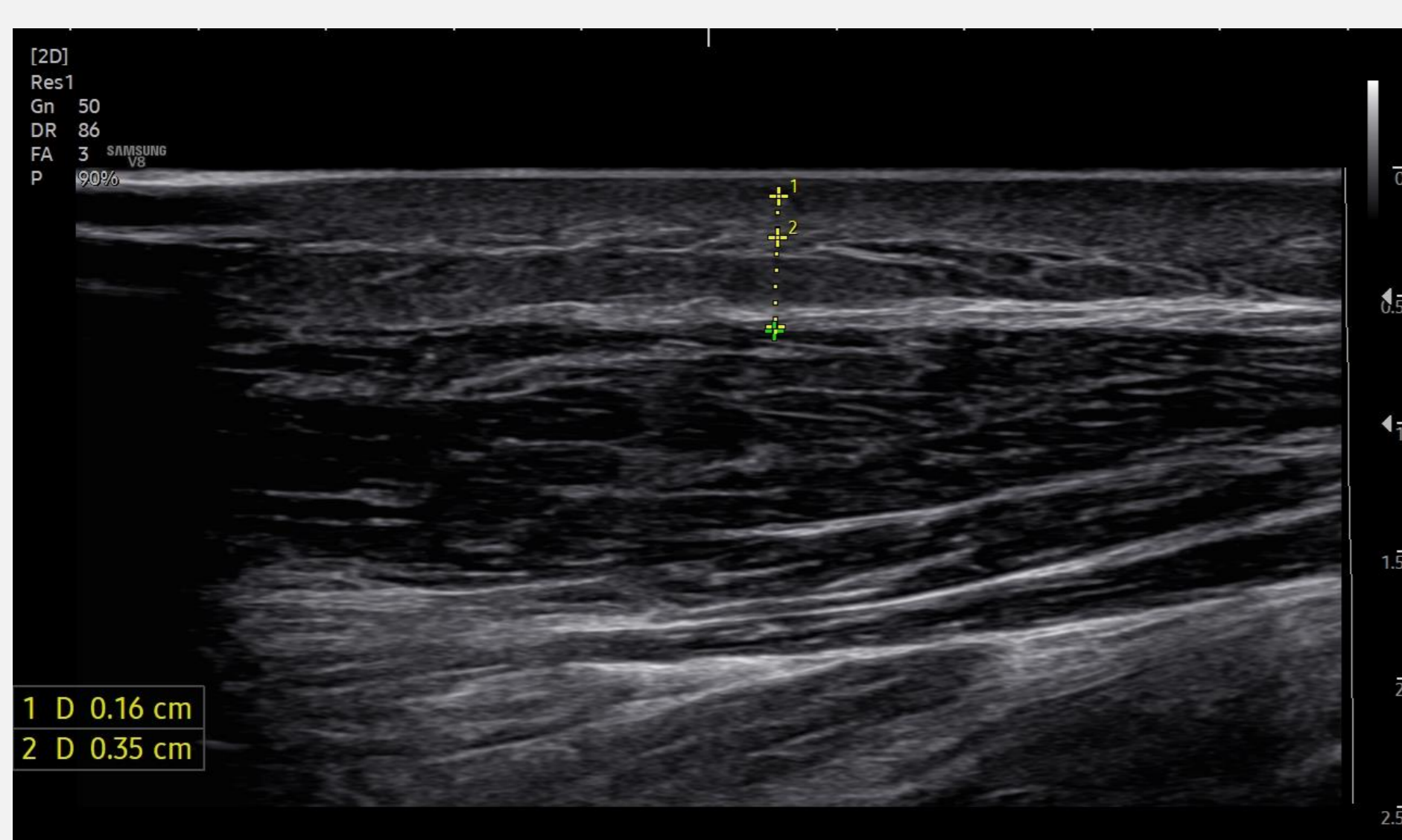


Figure 1. Skin & subcutaneous thickness by Ultrasound B-mode

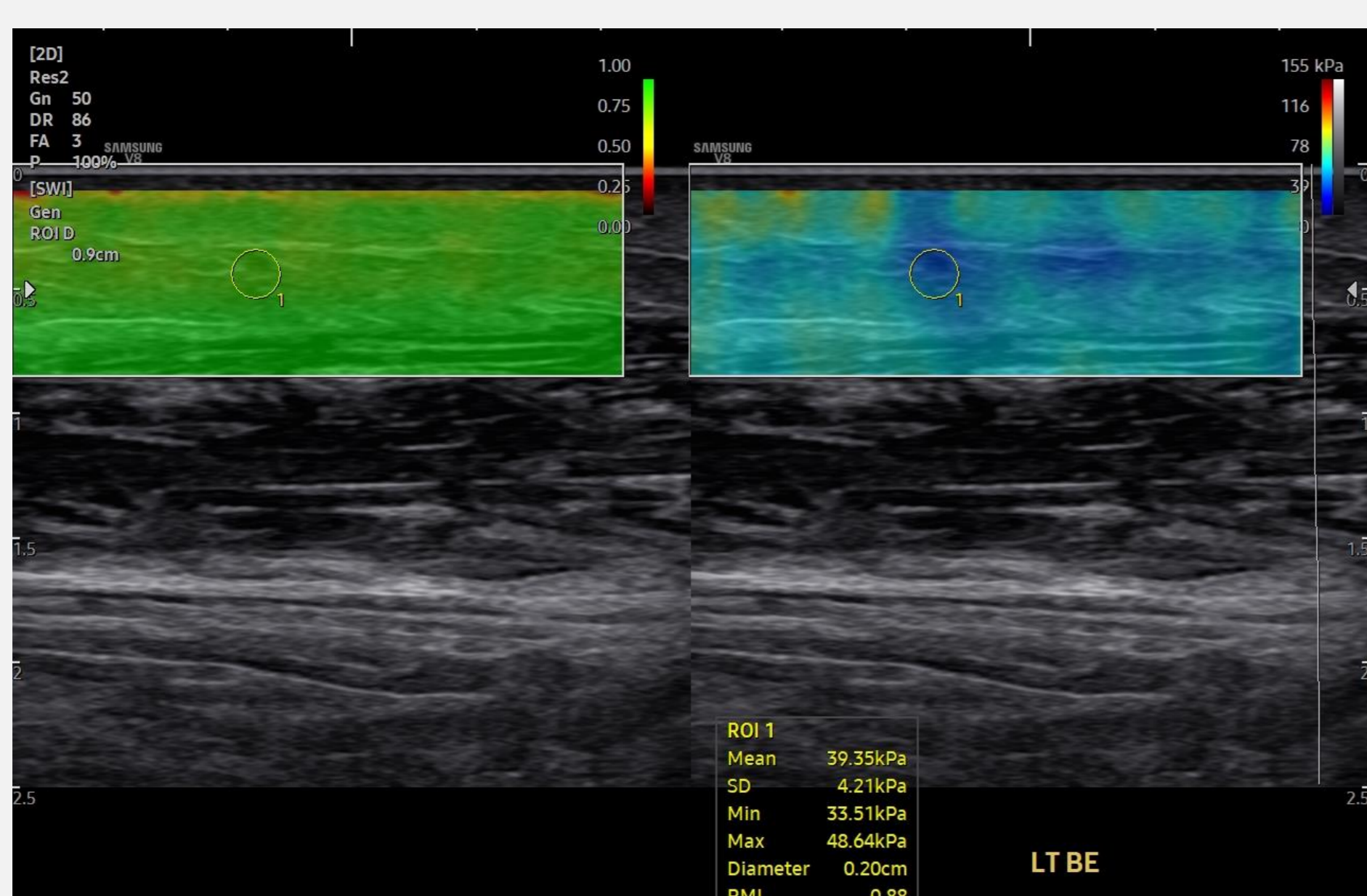


Figure 2. Tissue stiffness (E/I) by Ultrasound Elastography

## Results

- **Limb circumference**
  - No meaningful change at Day 30 compared with Day 1
  - Side-to-side difference decreased slightly (Affected side - contralateral side)
- **Skin thickness**
  - No progressive reduction
- **Subcutaneous thickness**
  - Affected site : Progressive decrease from Day 1 to Day 30
- **Tissue stiffness (E/I)**
  - Marked reduction with the lowest value at Day 7
  - Partial rebound at Day 30, remaining below baseline
- No procedure-related adverse events were observed

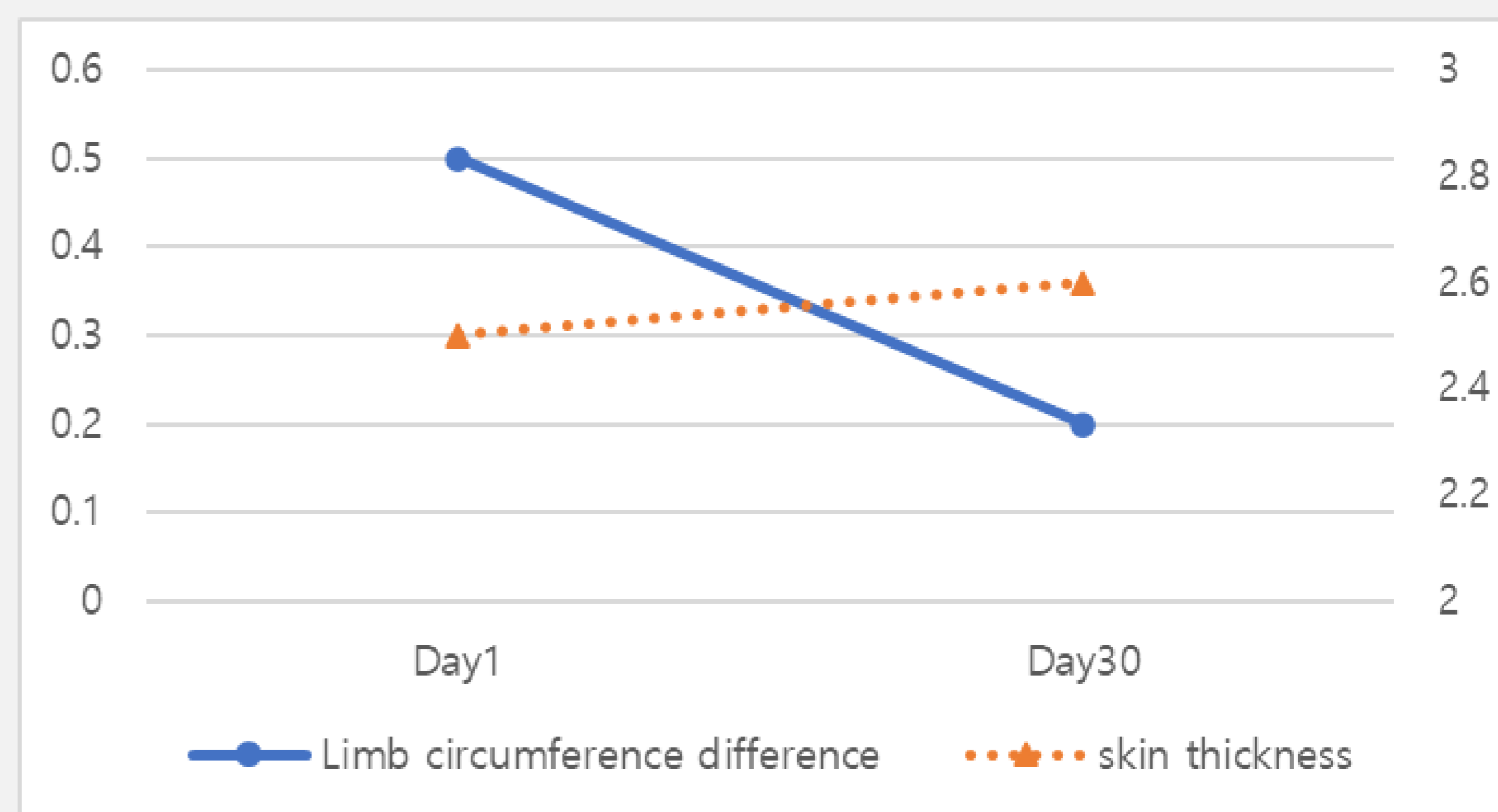


Figure 3. Serial changes in limb circumference difference (A) and skin thickness (B) at 5cm distal to elbow crease

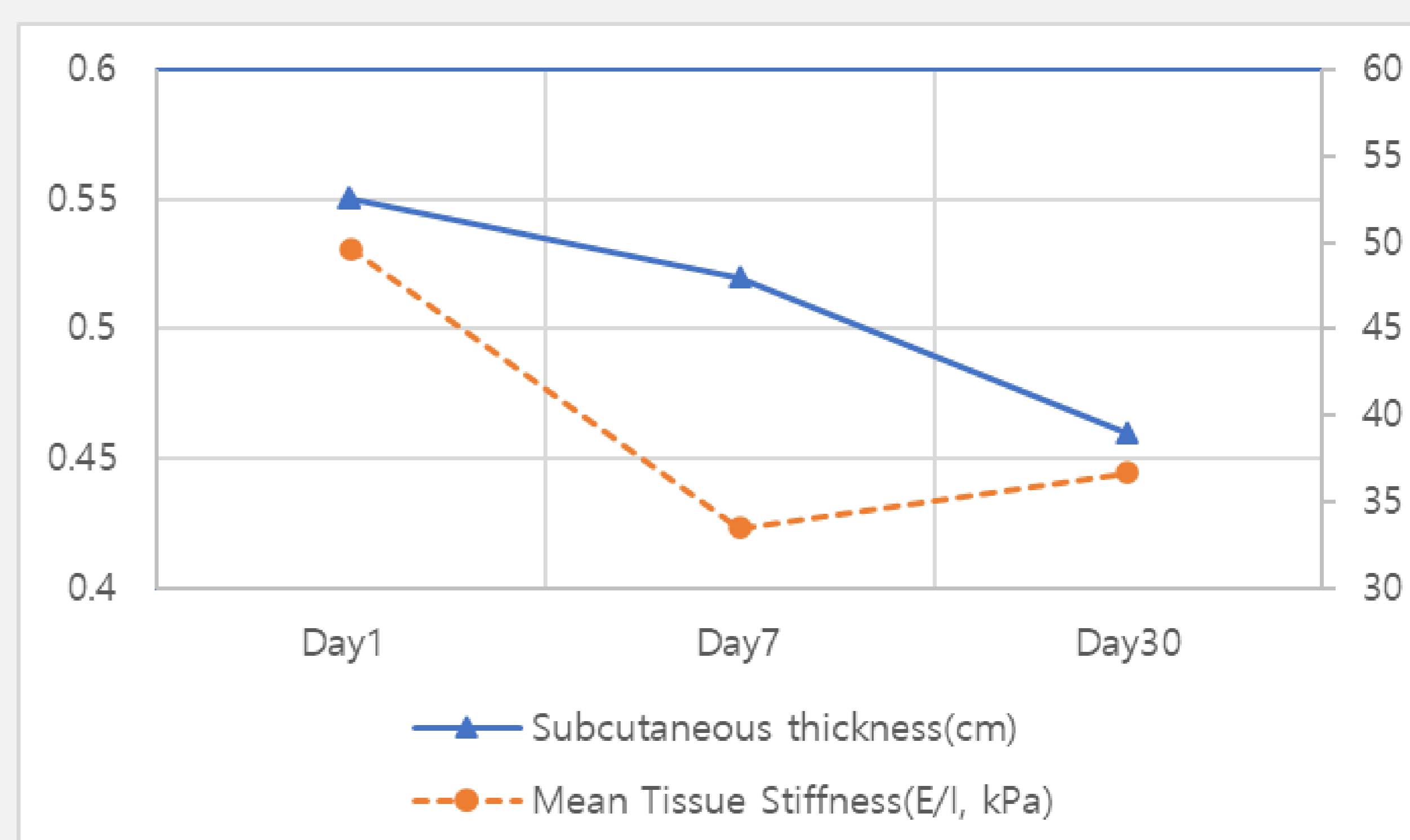


Figure 4. Serial changes in subcutaneous thickness (A) and mean tissue stiffness (E/I) (B) at the injection site

## Conclusion

- Marked reduction of subcutaneous thickness and tissue stiffness measured by ultrasound at injection site
  - Conversion from non-pitting to pitting edema
  - Patient-reported satisfaction and improvement in daily activities
- Hyaluronidase (Tergase)
  - Induce morphological changes in subcutaneous compartment
    - Degrade hyaluronic acid in ECM
    - Alter tissue viscoelastic properties
- Hyaluronidase may exert local structural effects on fibrotic subcutaneous tissue in lymphedema
  - May represent a potential therapeutic option