

## Ultrasound and LC-OCT in Vulvar Lichen Sclerosus

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### INTRODUCTION

Vulvar lichen sclerosus et atrophicus (VLSA) is an inflammatory condition of unknown etiology, predominantly occurring in genetically predisposed individuals.

### OBJECTIVE

To assess the efficacy of high-frequency ultrasound (HFUS) and Line-field Confocal Optical Coherence Tomography (LC-OCT) in evaluating the effectiveness of hyaluronic acid (HA) treatment in patients with VLSA.

### MATERIALS AND METHODS

The study included postmenopausal women with clinically and histologically confirmed VLSA. Clinical and imaging assessments using HFUS and LC-OCT were performed one day before and one day after hyaluronic acid (HA) infiltration.

#### Imaging Equipment:

- High-frequency ultrasound: ultrasound machine with 18 and 22 MHz probes was employed. Ultrasound examinations were performed with B-mode gray-scale imaging and Doppler techniques. Color Doppler mode was used to determine the direction of blood flow, while Power Doppler mode evaluated skin vascularity. Spectral Doppler was used to differentiate between veins and arteries.
- Line-field Confocal Optical Coherence Tomography: Linear confocal optical coherence tomography (LC-OCT) combines the principle of OCT interferometry with the spatial filtering of RCM, providing three in vivo imaging modalities: vertical histological, horizontal RCM and a new unique three-dimensional reconstruction.

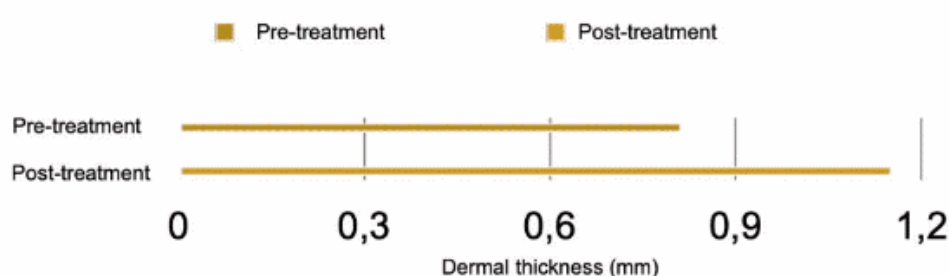
#### Intradermal Infiltration Protocol:

- 1 ml of cross-linked HA at 20 mg/ml was administered, followed by mesotherapy with non-cross-linked HA at 15 mg/ml, non-cross-linked HA at 2.5 mg/ml, organic silicon, tripeptide, and tetrapeptide. Three sessions were conducted, each spaced three months apart.

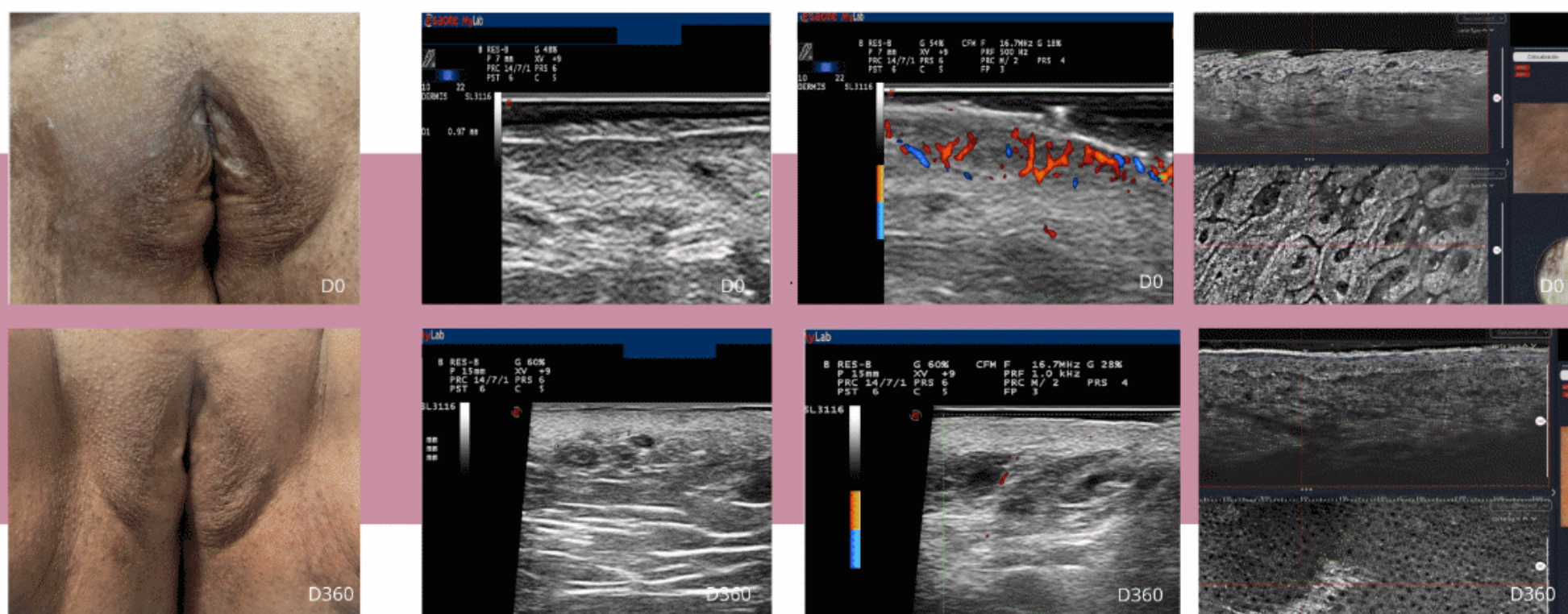
### RESULTS

*Three female patients were included, with a median age of 65 years.*

**HFUS demonstrated dermal thickening post-infiltration.**



**Post-treatment LC-OCT showed preserved ridges and papillae, preserved cell tropism, absence of sclerosis and ectatic vessels in the dermis.**



- Ultrasound and LC-OCT are effective tools for evaluating inflammation and atrophy in patients with VLSA, providing objective documentation of the response to HA treatment.