

## Intraoperative imaging of lymphatic vessel using ultra high-frequency ultrasound



Dear Sir,

Lymphaticovenular anastomosis (LVA) is effective and minimally invasive treatment for refractory lymphedema.<sup>1-4</sup>

isoechoic texture in axial scan (Figure 2). The former type was found in predominantly less sclerotic lymphatic vessels, and the latter type was found in predominantly sclerotic lymphatic vessels.

The present proof-of-concept study was conducted to reveal the new capabilities for detection of the lymphatic vessels intraoperatively during LVA using ultra high-frequency ultrasound. First, from the result of this study, this advanced ultrasound showed unprecedented clear image of the lymphatic vessels in all operative sites, even with the vessels with diameters smaller than 0.3 mm. Most surgeons assess

---

780

Giuseppe Visconti

*Department of Plastic and Reconstructive Surgery,  
Università Cattolica del "Sacro Cuore",  
University Hospital "A. Gemelli", Rome, Italy*

Takumi Yamamoto

*Department of Plastic and Reconstructive Surgery,  
National Center for Global Health and Medicine,  
Tokyo, Japan*

Guido Giacalone

*Department of Lymphatic Surgery,  
AZ Sint-Maarten Hospital,  
Duffel, Belgium*

Nobuko Hayashi

*Department of Plastic Surgery,  
Taiyo-kai Social Welfare Awachiiki Iryo Center,  
Chiba, Japan*

Mayumi Handa

*Department of Imaging Nursing Science,  
Graduate School of Medicine, The University of Tokyo,  
Tokyo, Japan*

Hidehiko Yoshimatsu

*Department of Plastic Surgery,  
The Cancer Institute Hospital of the JFCR,  
Tokyo, Japan*

Marzia Salgarello

*Department of Plastic and Reconstructive Surgery,  
Università Cattolica del "Sacro Cuore",  
University Hospital "A. Gemelli", Rome, Italy*

© 2018 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

<https://doi.org/10.1016/j.bjps.2018.01.013>