

# Compression for mild to moderate C3 patients ?

Still a lot to know...

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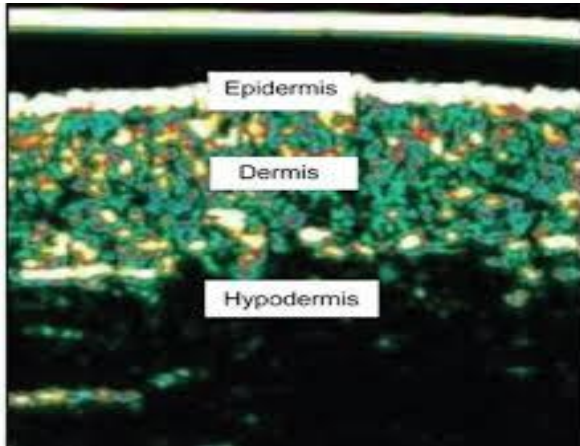


# Introduction

- Lower limb oedema is a **complication** of patients suffering from superficial chronic venous disorders (SCVD)
- = C3 of the CEAP classification
- = a “perceptible increase in the volume of fluid in skin and subcutaneous tissue, characteristically indented by pressure” (pitting test)
- But...
  - C3 = incidence varying from 2.2% to 13.4 % in epidemiologic studies
  - C3 = the least agreement in CEAP interobserver variability

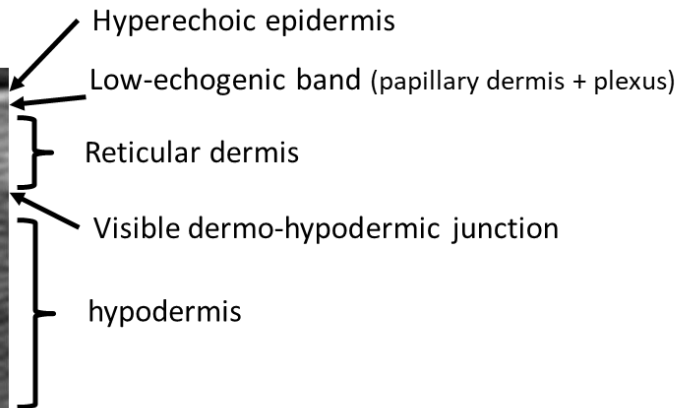
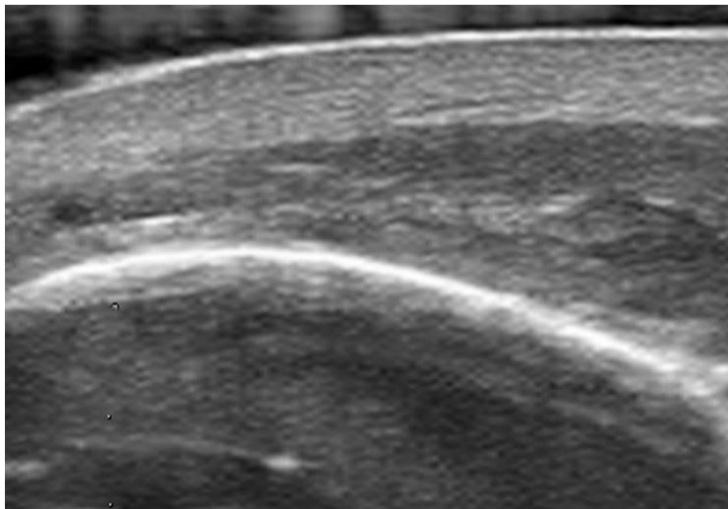
How to improve C3 Diagnosis ?

# The use of ultra-sounds can detect oedema



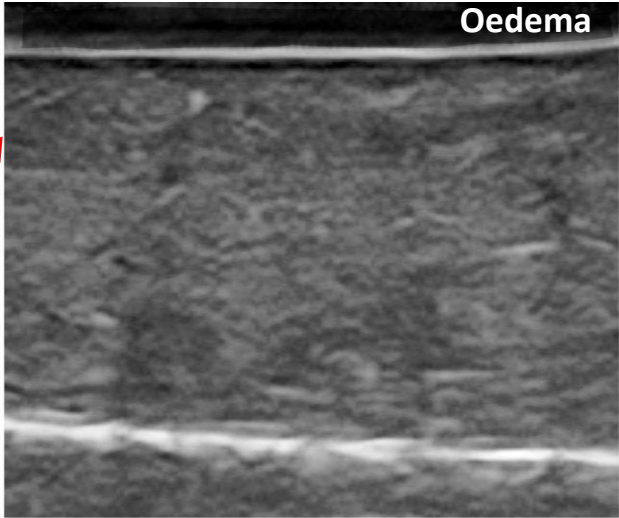
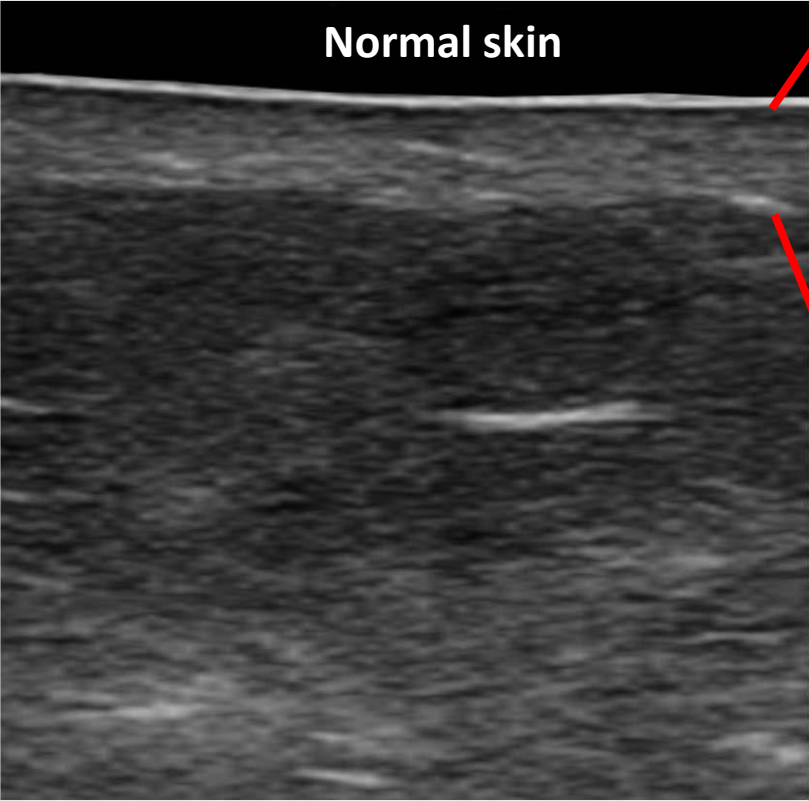
- Gniadecka M. J Invest Dermatol 1994.
- Gniadecka M. Forum for Nord Derm Ven 2000.
- Ryan TJ. Journal of Tissue Viability 2001.
- Sandby-Moller J. Skin Res Technol 2004.
- Querleux B, Clin Lab Invest Dermatol 1988.

Routine sonography of normal skin (15 MHz)

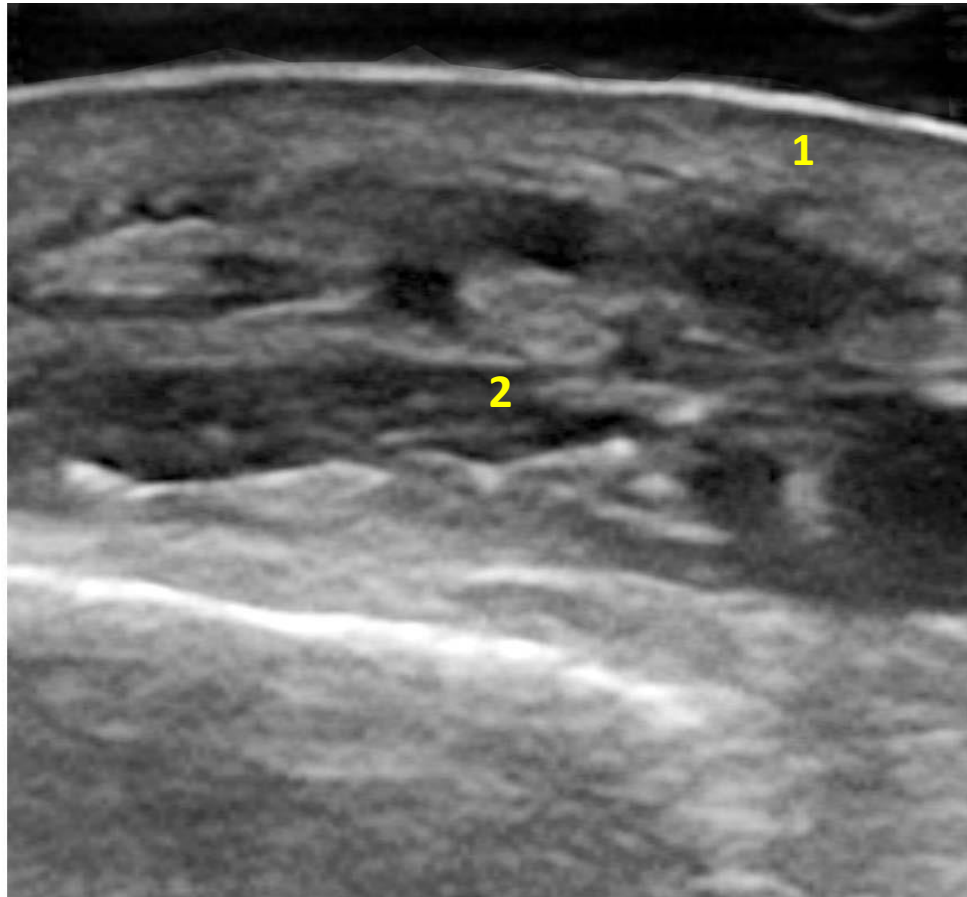


Caggiati A. EJVES 2016

# The routine use of ultra-sounds can detect oedema



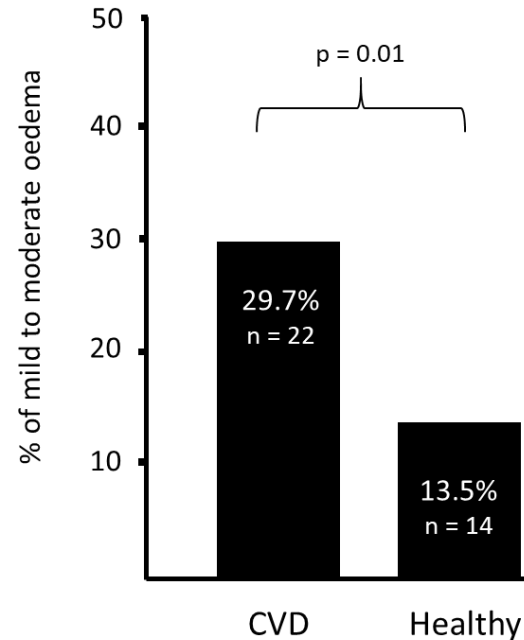
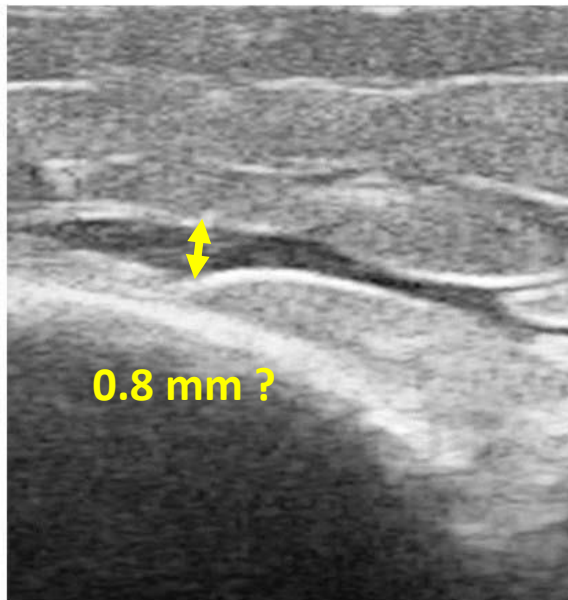
# The routine use of ultra-sounds can detect oedema



Caggiati A. EJVES 2016

# How to improve C3 Diagnosis ?

The routine use of ultra-sounds can detect, early in the day, patients with negative pitting test and who have oedema (anechoic bands in the hypodermis)



BMI < 30 and < 6h after aw  
CVD = no trophic change

# New trial

Main objective :

Is the subepidermis low-echogenic-band thicker in C3 patients ?

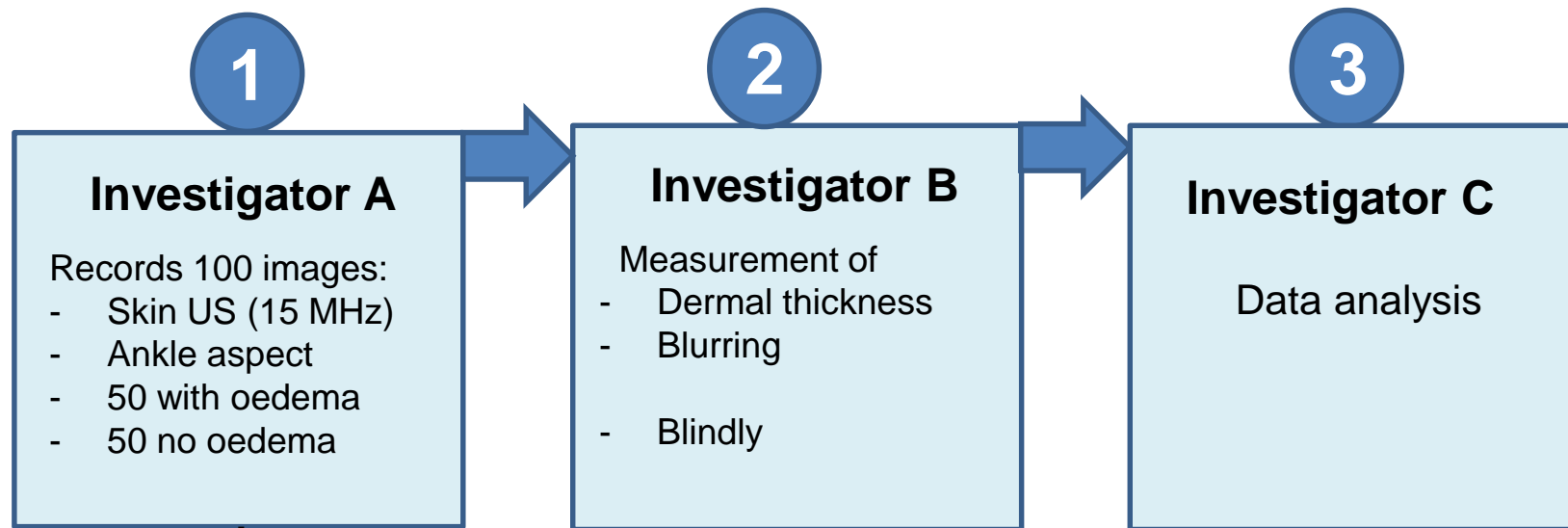
Secondary criteria:

Evaluation of the blurring of the dermo-hypodermis border

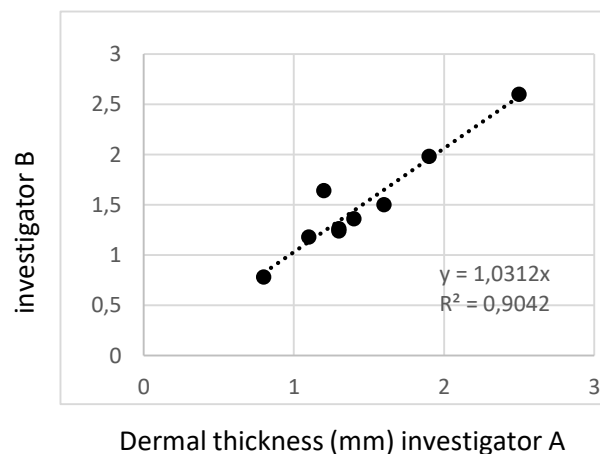


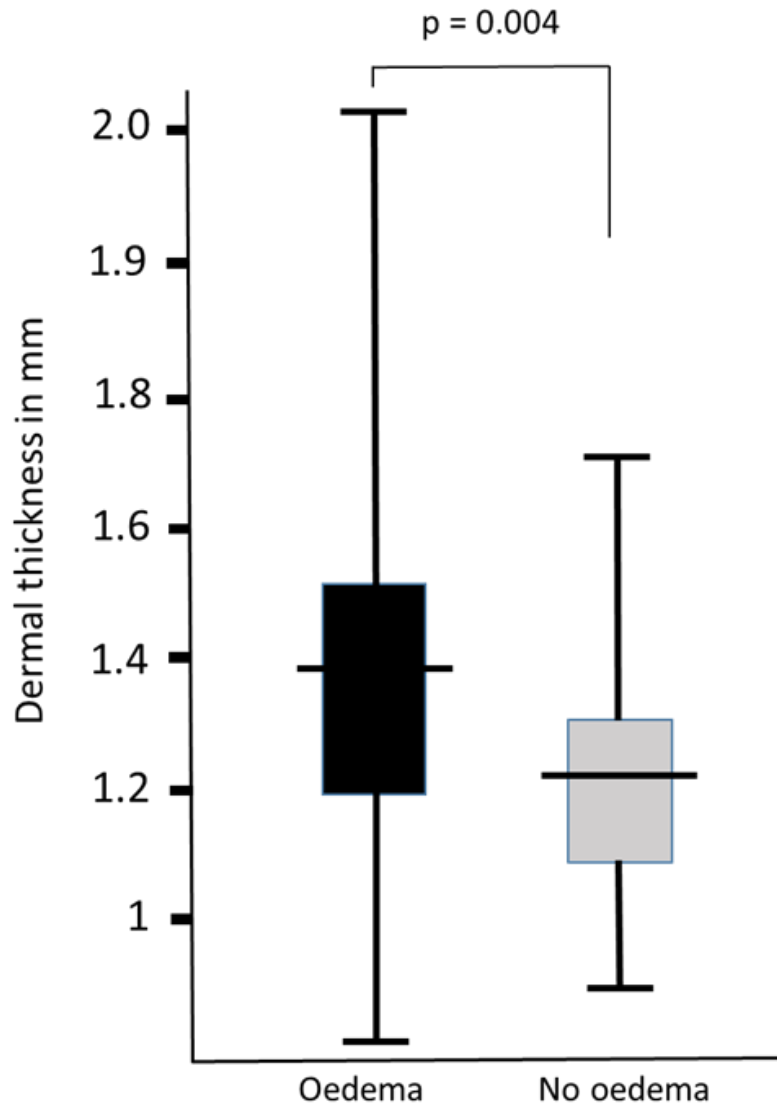
# Pilot study, design, material.

Prospective monocentric single center trial



- superficial venous disorders only
- C3s to C4a EpAsPr
- < 80 year old
- < 6 h after awakening





100 images

96 SCVD patients

53% female

65 ± 13 yo

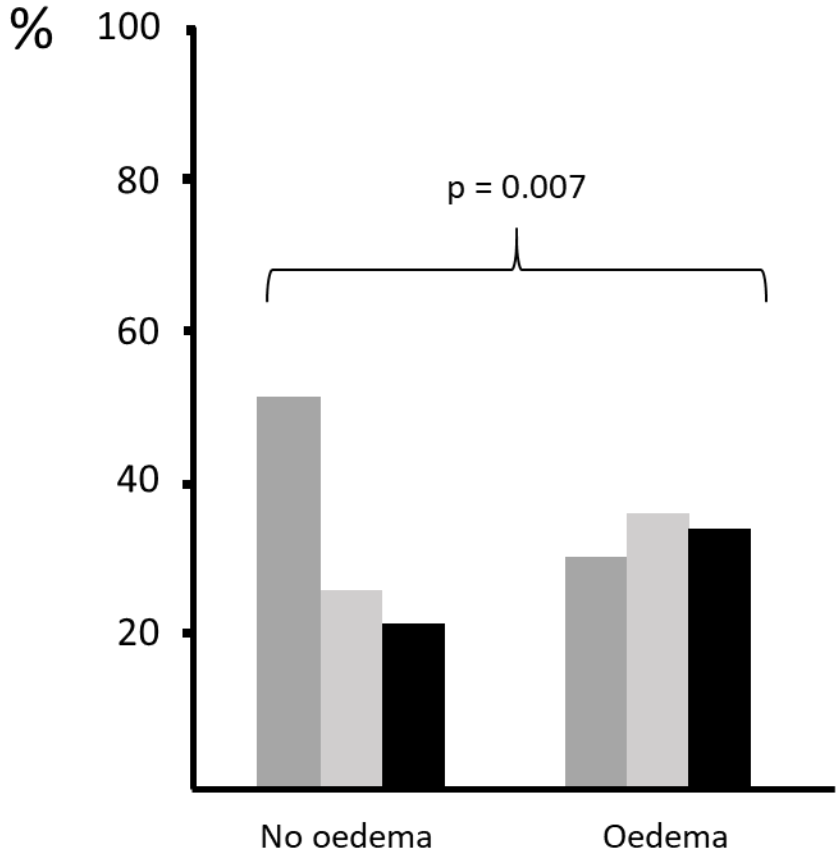
26.6 ± 5 BMI

No trophic change

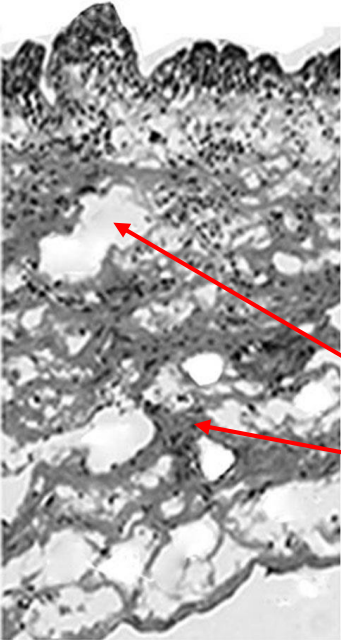
Both groups comparable but  
not for BMI

Dermo-hypodermic junction blurring

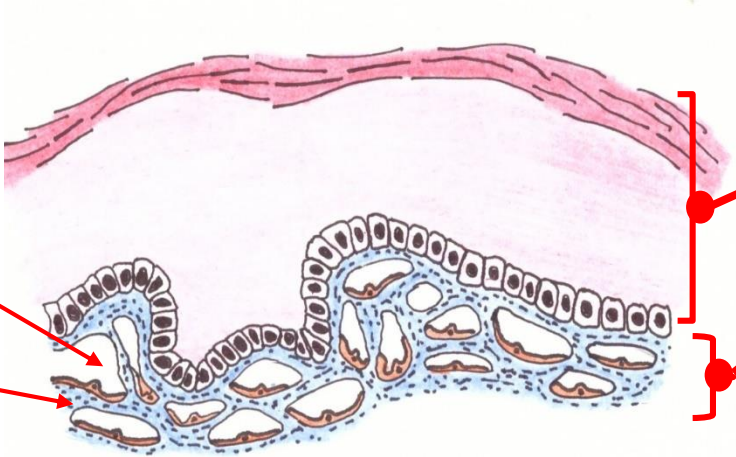
None Moderate High



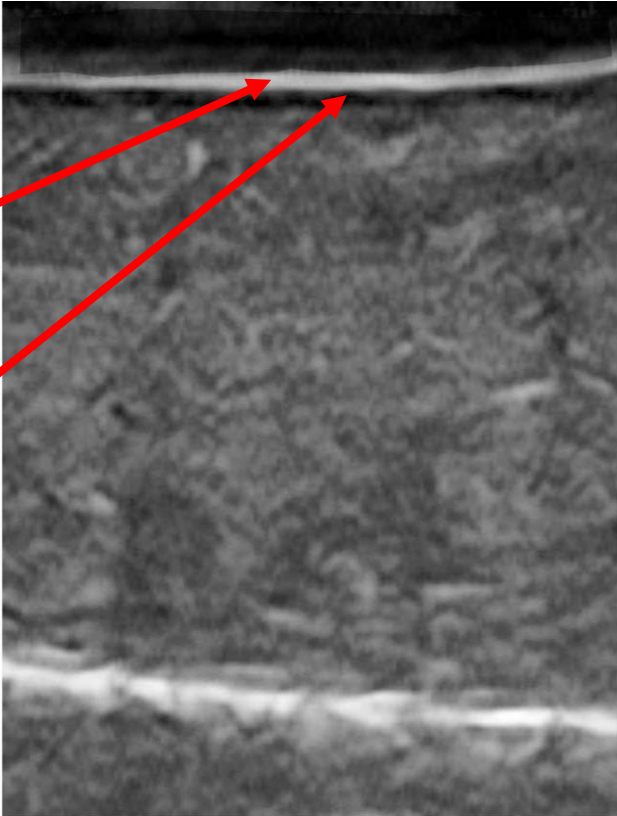
**Structure and distribution of an unrecognized intersitium in human tissues. Benias PC, et al. Nature Scientific Reports 2018.**



Intestinal mucosa



Skin (adapted for Benias, et al.)



# Compression

- Long term treatment of mild to moderate C3 patients :

“Recommendations 3 and 4 : we recommend the use of MCS to reduce and prevent leg swelling in patients with CVD (Grade 1 B)”

(Rabe E., et al. Phlebology 2017)

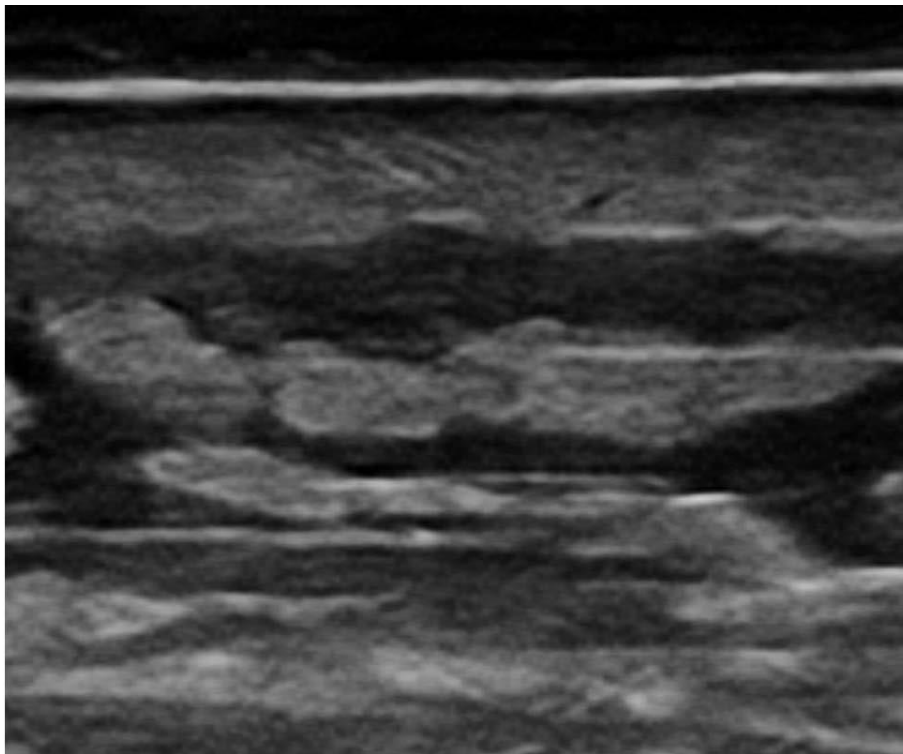
**Pressure ? Duration ? Protocols ?**

# Compression

If the goal is to treat mild to moderate oedema in CVD patients....

If the objective is to get them free of any oedema, .....

what protocol should we use ? Protocols that alternate low pressure phases and higher pressure phases ?



Subepidermis oedema drainage :  
Low pressure ?

hypodermis oedema drainage :  
High pressure ?

# Conclusions

- Since compliance to compression therapy using medical stockings is poor we should focus only on patients who will get a clinical benefit to compression (permanent vs non permanent oedema,...)
- Routine sonography could help to better orientate patients toward compression
- Interpretation of results remains difficult and needs more investigations
- Long term compression protocols must be clarified.
- My colleagues.....

