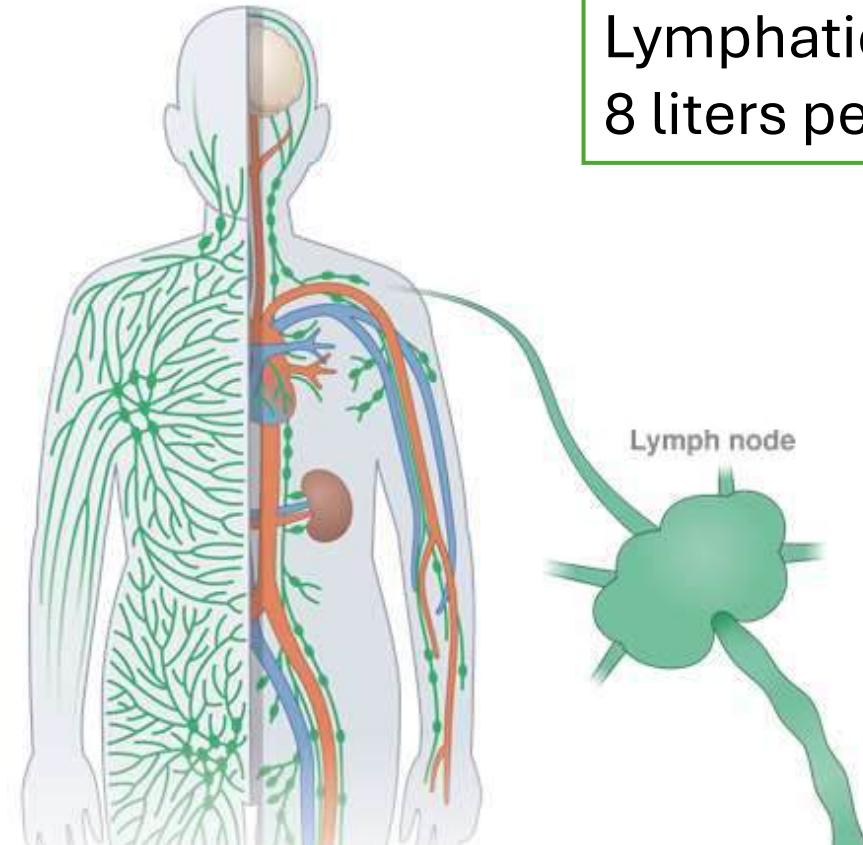


Understanding and Managing Lymphatic Problems in CHD

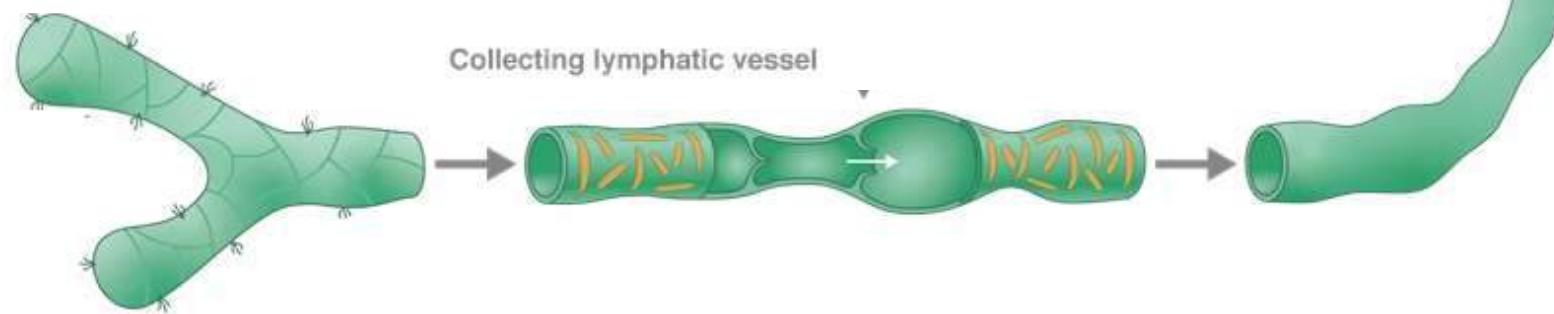
*Are we really getting any better,
and if not, how might we do it?*

Vibeke Hjortdal, MD, PhD, DMSc
Professor of Congenital Heart Surgery
Rigshospitalet, Copenhagen (Denmark)

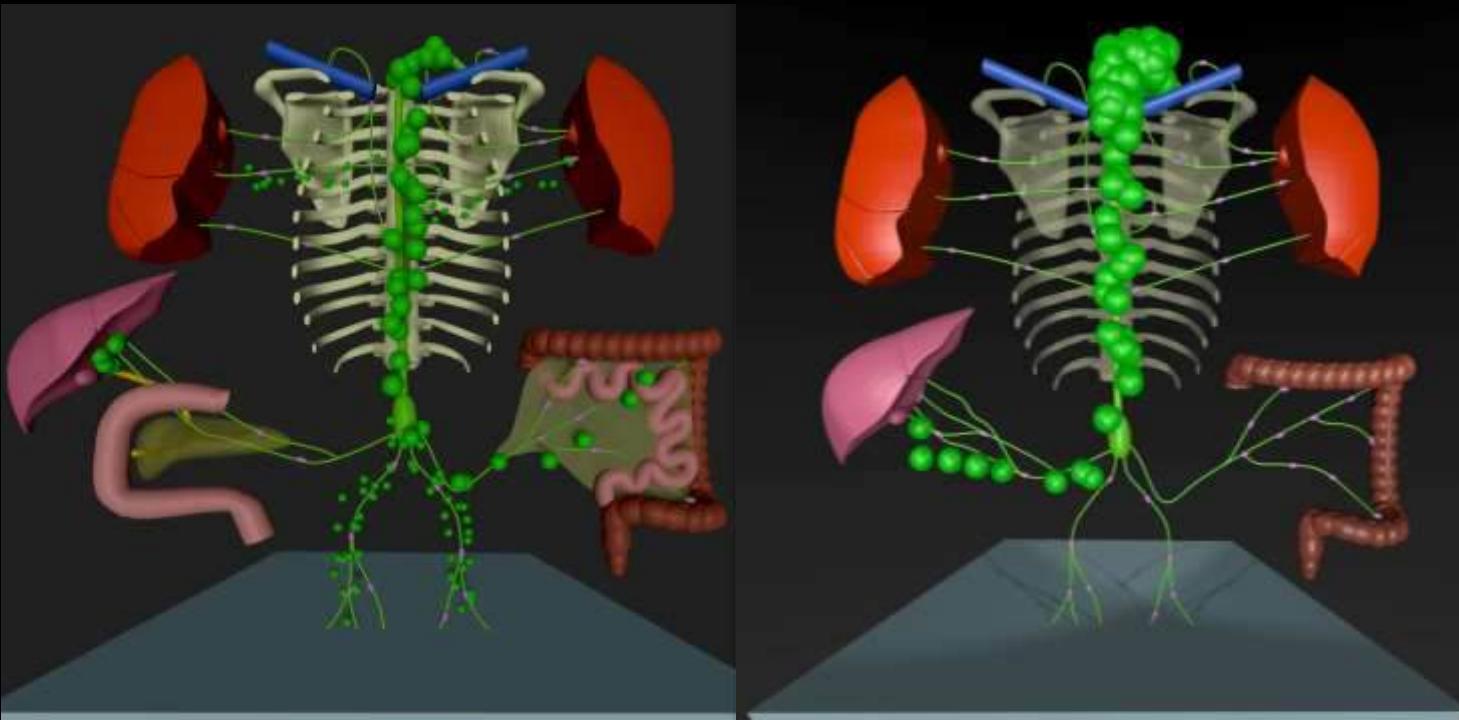
CARDIOLOGY
2025 



Lymphatic fluid
8 liters per day



Challenged lymphatics in CHD



Normal

Elevated CVP

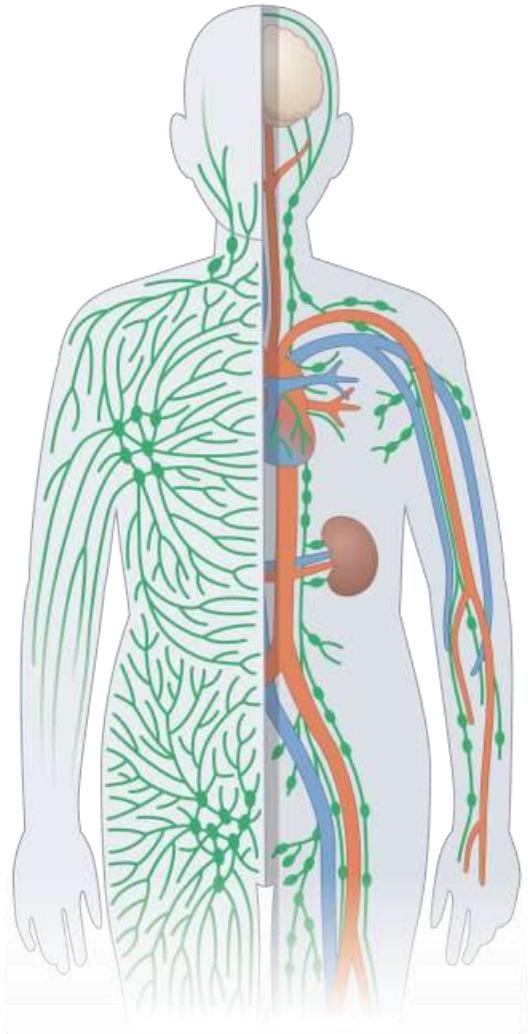
Lymphatic related diseases

- Protein losing enteropathy (PLE)
- Plastic Bronchitis (PB)
- Ascites
- Chylothorax
- Chylopericardium
- Vaginal lymphatic leak
- Edema



Courtesy of dr Yoav Dori, CHOP

New treatments for lymphatic problems in CHD



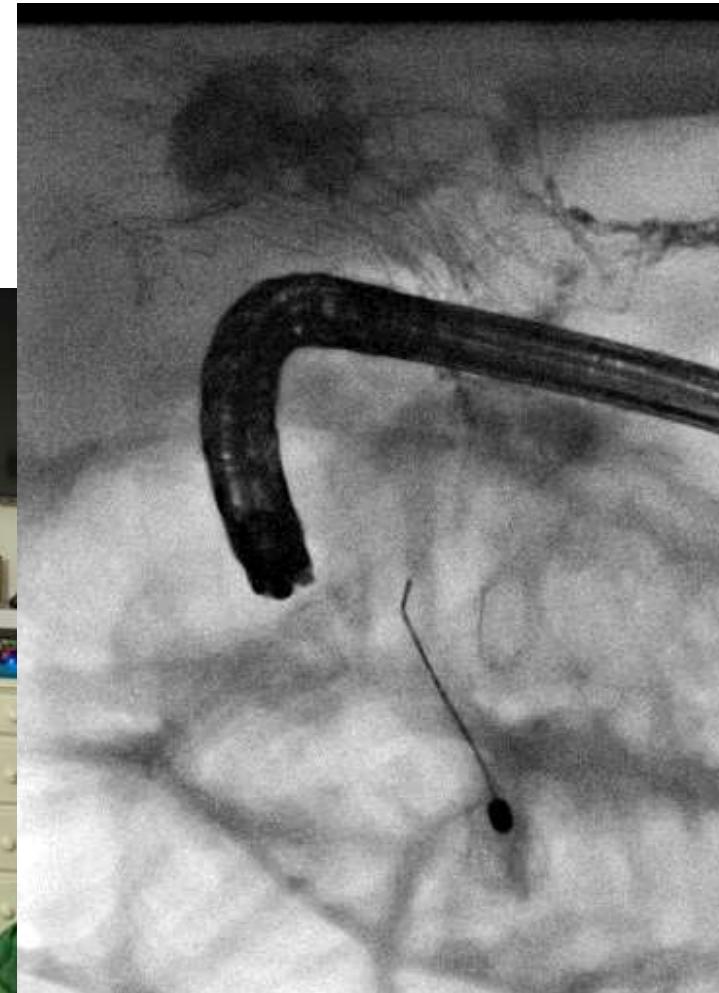
1. Embolisation
2. Decompression
3. Lymphovenous anastomoses
4. Lymphocutaneous anastomoses
5. Anti lymphangiogenic medication

Protein Losing Enteropathy

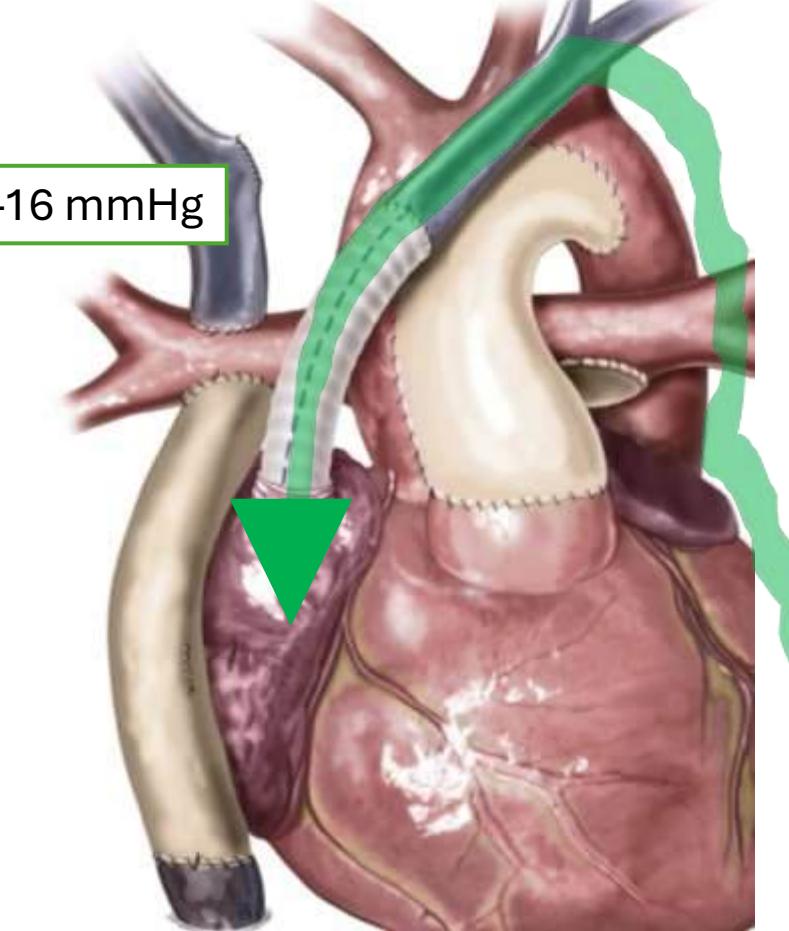


Embolisation of anomalous lymphatic vessels

Decompression w/ Hraska procedure



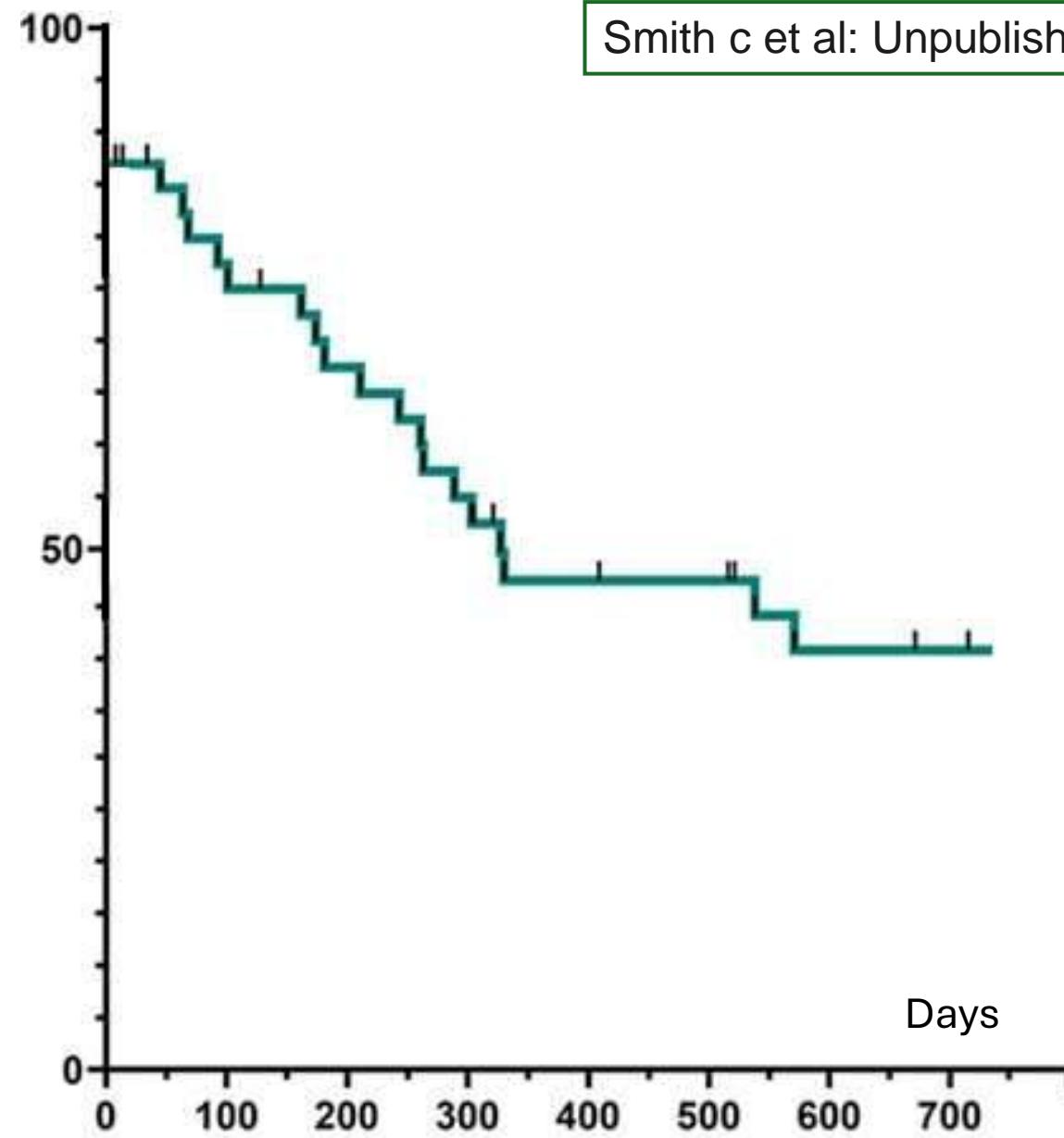
12-16 mmHg



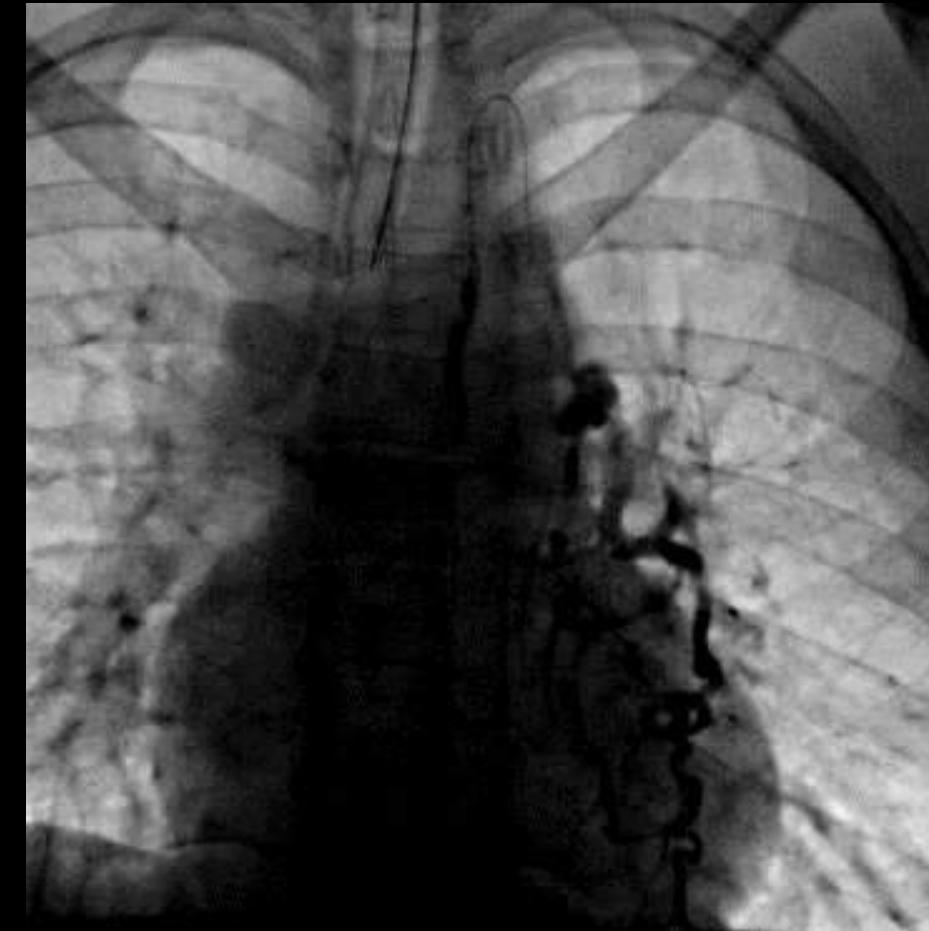
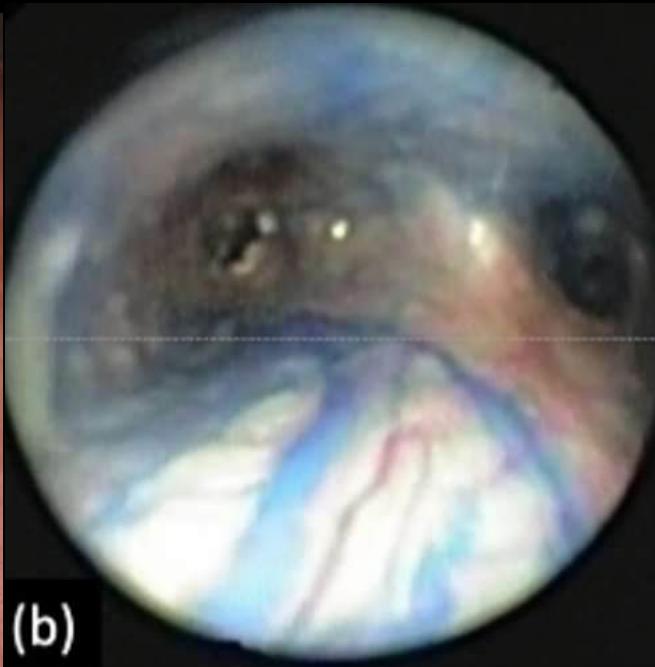
5-6 mmHg

Freedom from PLE

Smith c et al: Unpublished



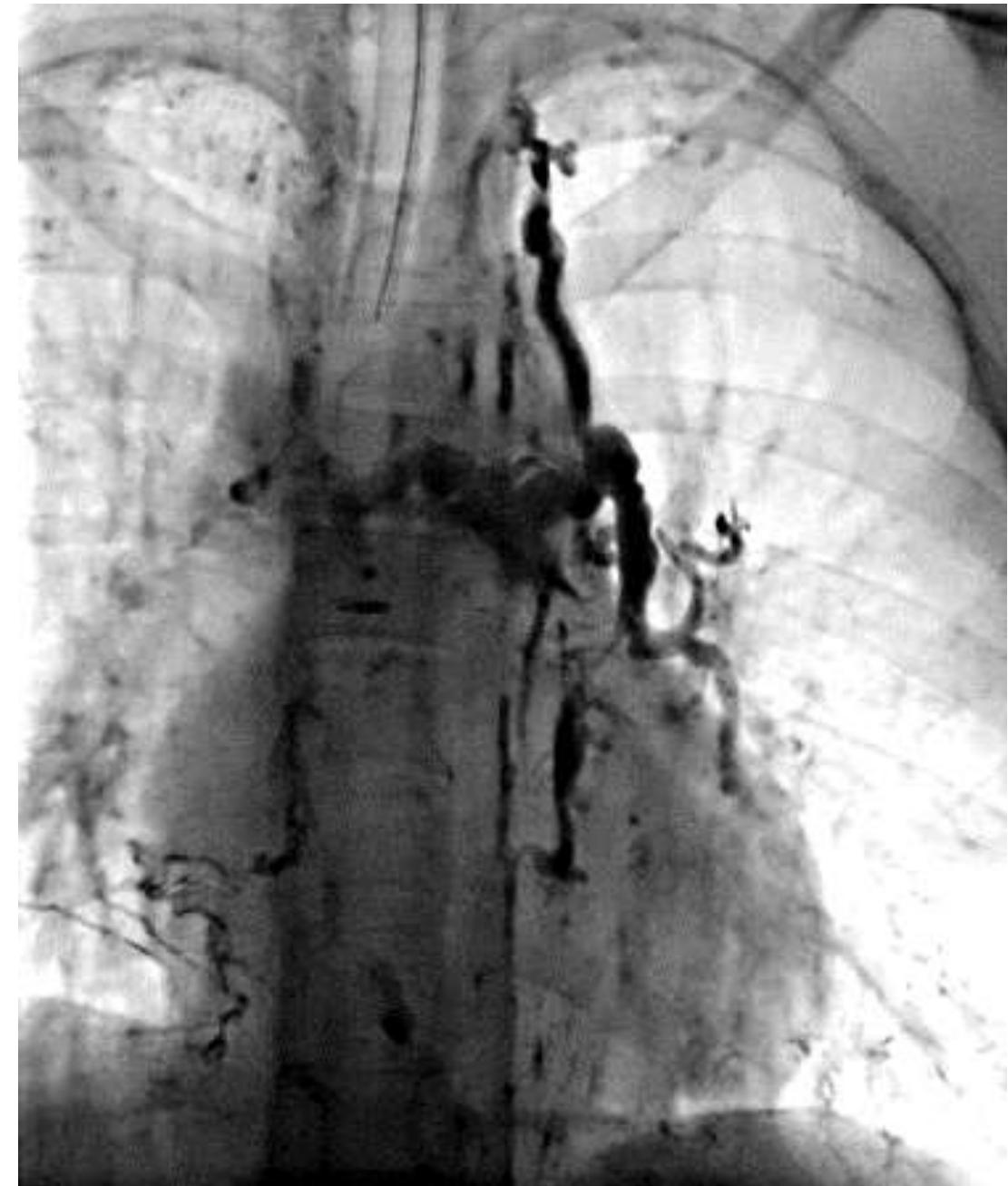
Plastic Bronchitis



Plastic Bronchitis Selective Embolisation

FU 1.5 years	N=70
Casting	
Resolution	54%
Improvement	16%
Repeat Intervention	19%

Unpublished data



Where are we now?

*Are we really getting any better?
YES we are!*

LS actively transport fluid

LS is challenged in CHD

Anomalous Lymphatic
Vessels

Leak into cavities

MR, X-Ray, US (\pm contrast)

Embolization

Decompression

Lymphovenous anastomoses

Antiangiogenic medication



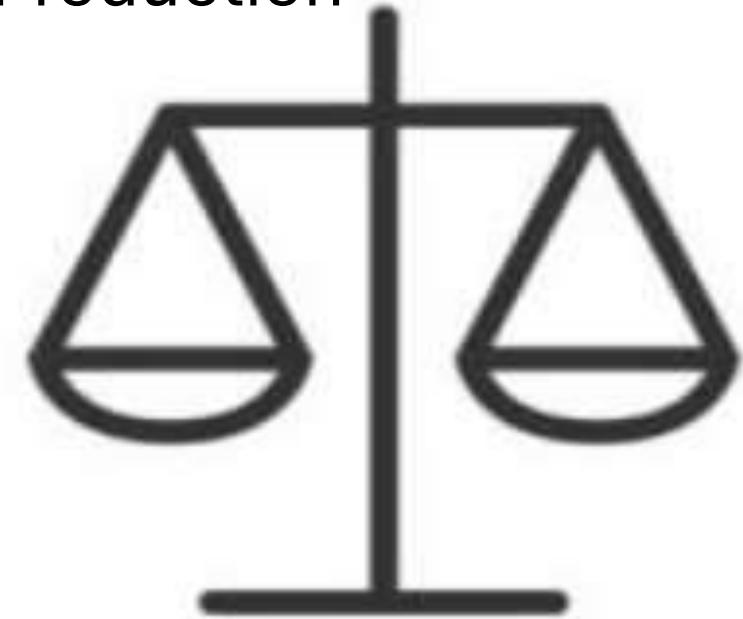
How might we get even better?

Improve drainage

1. Medication
2. Mechanical pump
3. Respiratory Interaction

Production

Drainage



Medication



Vasoactive drugs

Norepinephrine
Substance P
Acetylcholine
Glibenclamide
Paxiline
Furosemide
Veratridine



Nifedipine
Verapamil
Pinacidil
Bendroflumethiazid



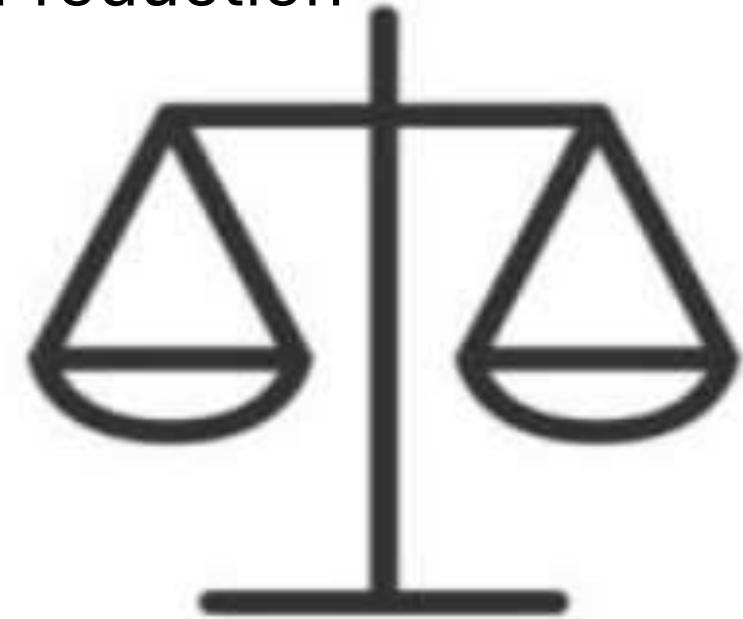
How might we get even better?

Improve drainage

1. Medication
2. Mechanical pump
3. Respiratory Interaction

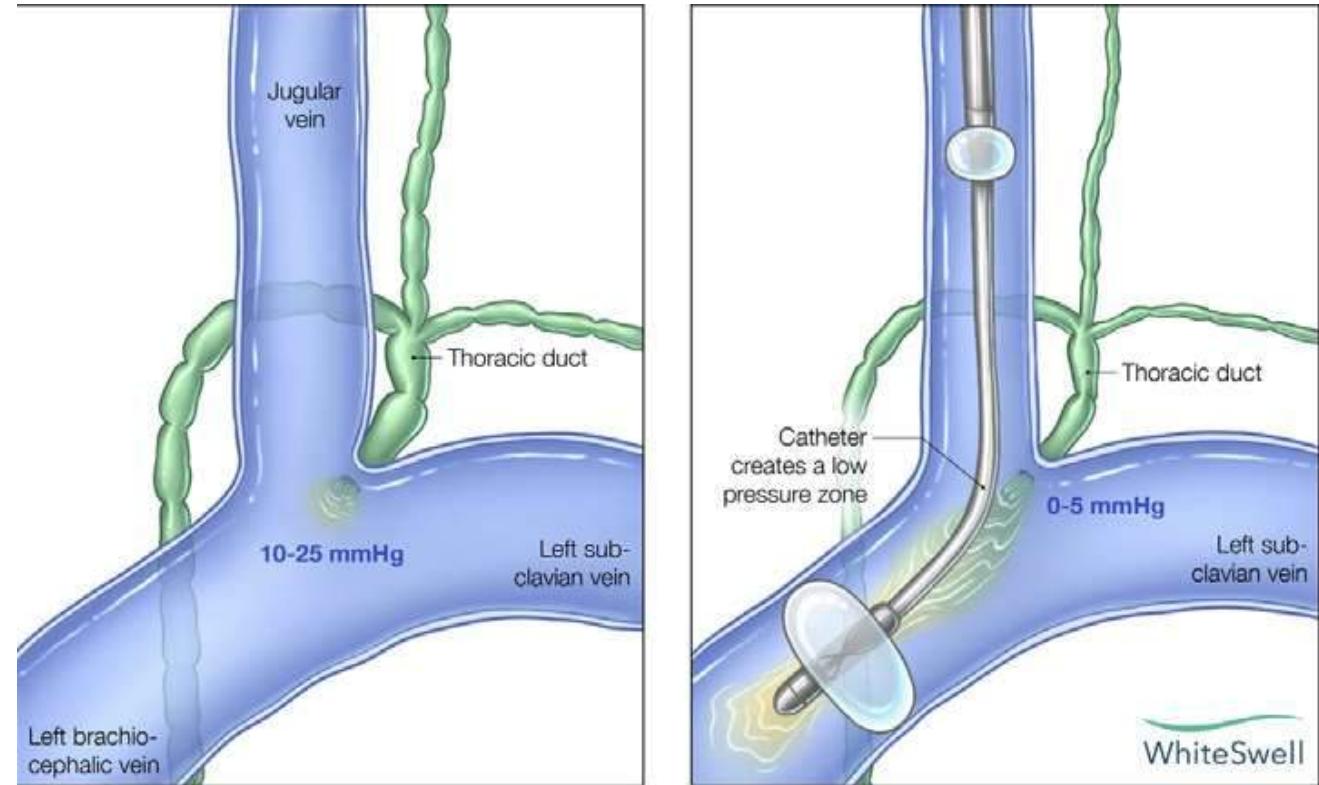
Production

Drainage



Mechanical pump

Lymphatic decompression
for acute heart failure



Abraham et al 2021 JACC

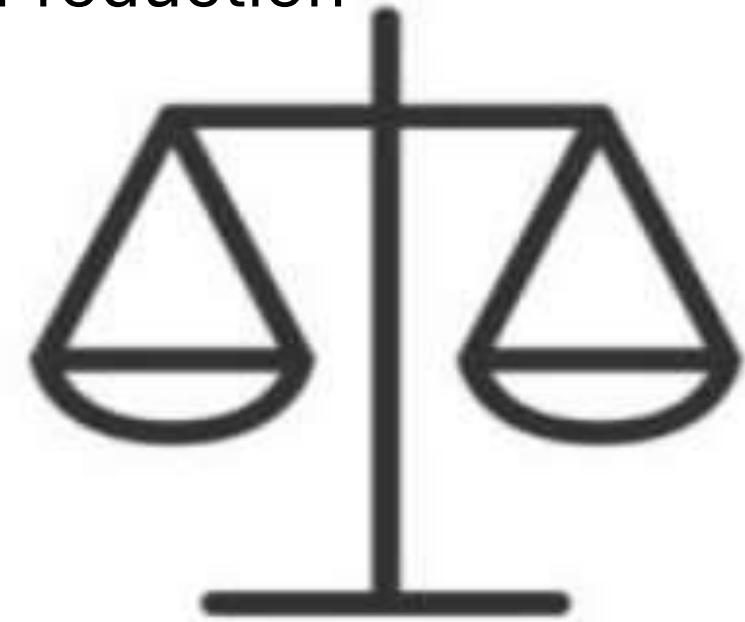
How might we get even better?

Improve drainage

1. Medication
2. Mechanical pump
3. Respiratory Interaction

Production

Drainage

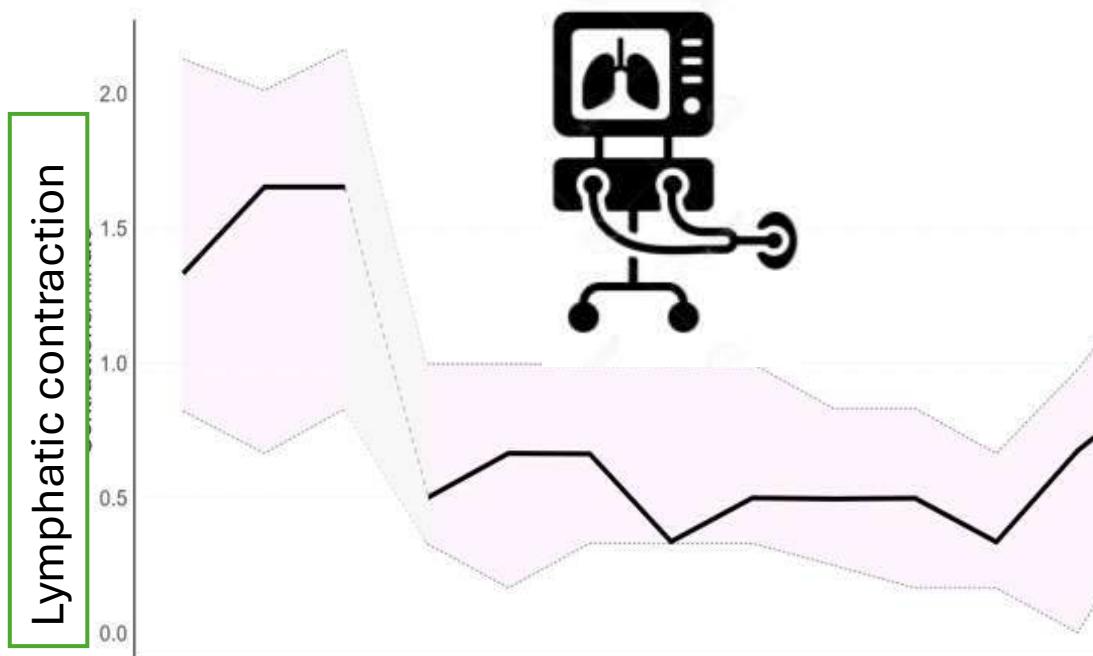


Respiratory Interaction



Improve?

Impair?



***“Are we really getting any better,
and if not, how might we do it?”***

