

# Oedema

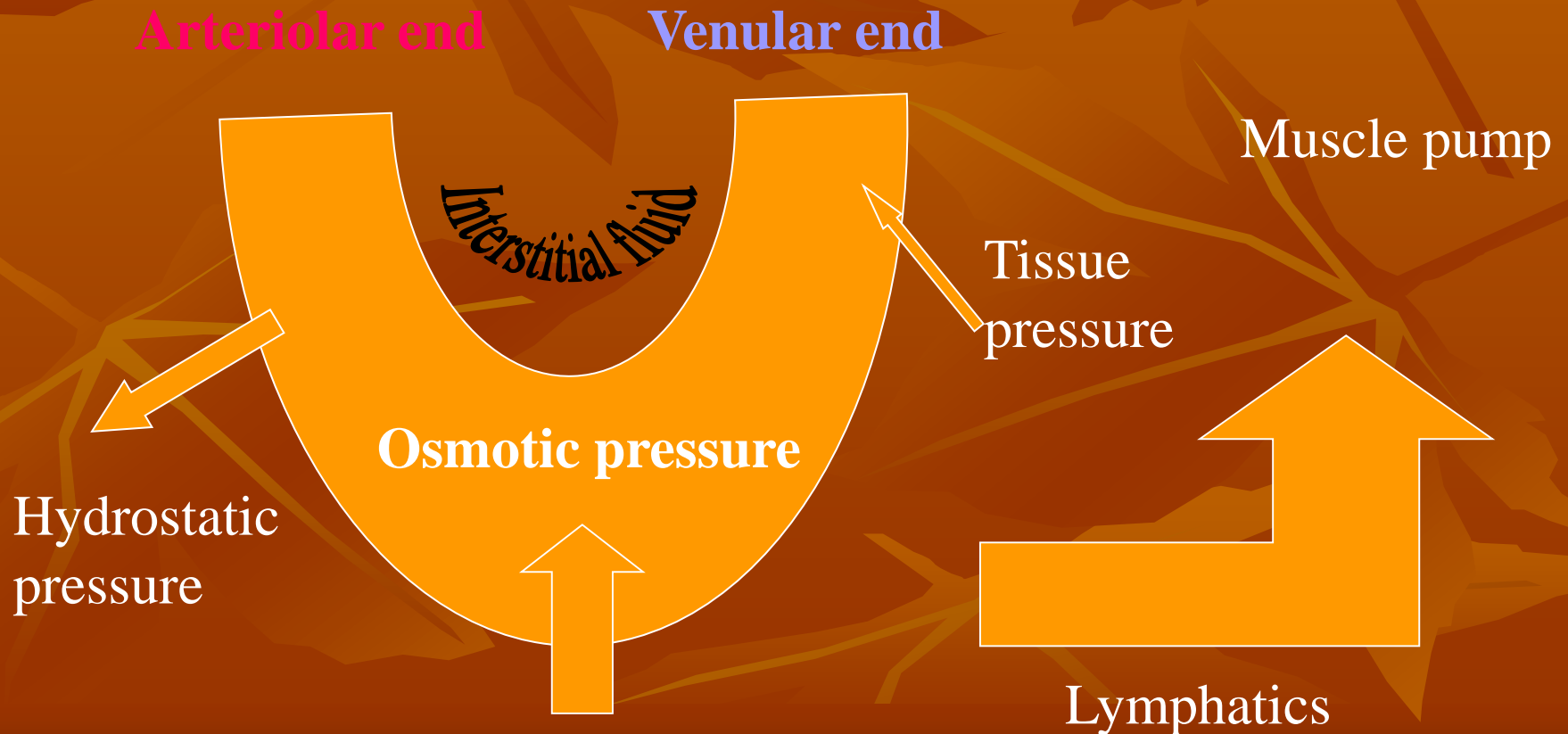
Dr. Ranjan Premaratna  
Department of Medicine

# Oedema

- Swelling of tissues due to an increase in interstitial fluid ( $\text{Na}^+$  & water)

# Oedema

- Why?



# Causes of oedema

- Reduced oncotic pressure:
  - fluid cannot be retained
- Increased venous pressure:
  - Fluid cannot be re-absorbed
- Increased arterial pressure:
  - due to increased intravascular volume: increased extravasation
- Lymphatic obstruction:
  - reduced clearance
- Reduced tissue pump:
  - increased venous pressure
- Allergies:
  - Increased permeability

# Oedema

- Types of oedema
  - Generalised
  - Localised

# Oedema



# Peri-orbital oedema

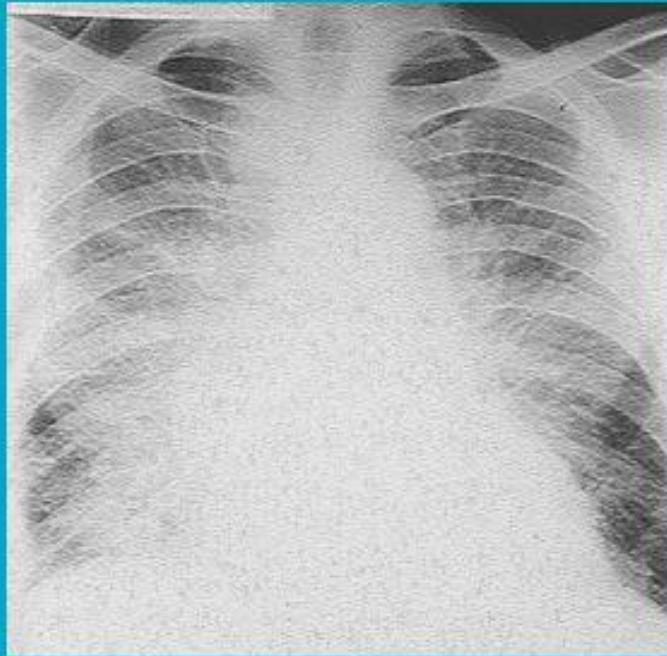


ADAM



# Pulmonary oedema

Cardiomegaly and pulmonary oedema





# How to check for oedema





© 1991 Jeffrey L. Melton, M.D.

# Demonstration of oedema

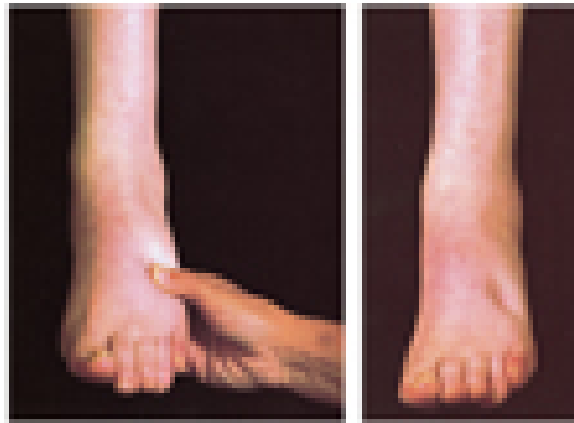


Figure 11.10. The shifting edema of the left foot of a patient with peripheral vascular disease. The patient has a positive ballottement test (shifting edema) (left) and a negative ballottement test (right).

Copyright © 2009 by Elsevier. All rights reserved. This is a reproduction of a photograph of a patient's foot. The patient is a 65-year-old male with a history of peripheral vascular disease.

# Oedema

- 1. Hypoproteinaemia:
  - reduced oncotic pressure (Generalised oedema)
  - Inadequate intake; kwashiorkor, vomiting
  - Failure of digestion
  - Failure of absorption
  - Reduced synthesis; liver
  - Excessive loss; renal, gut

# Oedema

- 2. Increased venous pressure
  - Cardiac failure (Generalised)
    - Right ventricular failure; dependant oedema
    - Left ventricular failure; pulmonary oedema
    - Congestive cardiac failure; Dependant + pulmonary oedema
  - Venous obstruction (localised)
    - Internal obstruction: venous thrombosis
    - External obstruction: Tumours/ advanced pregnancy
  - Venous dilatation (localised)
    - Varicose veins, drugs
  - Reduced muscle pump (localised)

# Oedema

- 2. Fluid retention / increased hydrostatic pressure
  - Cardiac failure (Generalised)
  - Renal failure (Acute / Chronic)
  - Increased intake beyond excretory capacity
  - Drugs retaining salt / water

# Oedema

- Localised
  - Venous causes
  - Lymphatic causes
    - Filariasis / malignancies
  - Inflammatory causes
    - Mediators causing vascular dilatation/ increase capillary permeability
  - Allergic causes
    - Mediators causing vascular dilatation/ increase capillary permeability



# Oedema

- Can be
  - Cardiac
  - Renal
  - Gastrointestinal, liver
  - Nutritional
  - Drugs
  - Localised causes

# Clinical approach to a patient with oedema: History

- Where is the oedema?
  - Localised?
  - Dependant?
- Obtain the sequence of events & other associated features
  - Renal: facial oedema, reduced UOP ect.
  - Cardiac: SOB, chest pain, P/H/O IHD
  - GIT: chronic diarrhoea/ vomiting/ diet
  - Localised: itching/ pain/ redness

# Clinical approach to a patient with oedema: examination

- Where is the oedema?
  - Localised?
  - Dependant?
- Other associated features
  - ?SOB when lying flat
  - Peripheral features of
    - ?CRF / ? chronic liver diseases/ ? malnutrition
  - ? JVP, pulse, BP
  - ? Pulmonary oedema
  - ? Cardiac signs; ? Enlarged ? Gallop rhythm
  - ? Liver, ? Spleen ? Ascites

# Clinical approach to a patient with oedema: investigations

- Cardiac:
  - Chest X ray, ECG, ECHO cardiography
- Renal:
  - UFR, B.urea, S. creatinine, S.E, USS
- Liver:
  - S. Proteins, USS,
- Malabsorption / nutritional:
  - Blood picture/ s. proteins / intestinal investigations

