
Edema

DEFINITION

Edema is swelling caused by excess fluid trapped in your body's tissues. Although edema can affect any part of your body, it is most commonly seen in the hands, arms, feet, ankles and legs.

PATHOPHYSIOLOGY

Edema can be the result of medication, pregnancy, venous insufficiency low protein levels or an underlying disease — often heart failure, kidney disease or cirrhosis of the liver.

Edema happens when your small blood vessels leak fluid into nearby tissues. That extra fluid builds up, which makes the tissue swell. It can happen almost anywhere in the body.

TYPES OF EDEMA

Anasarca	extreme generalized edema refers to the severe, widespread accumulation of fluid in all of the tissues and cavities of the body at the same time
Ascites	fluid retention in the abdominal cavity
Cerebral	Excess fluid in the brain
Dependent	occurs when the limbs are hanging down and gravity pulls the fluid to the lowest point
Pedal	Edema specifically of the foot
Peripheral	swelling in the feet, ankles and legs
Pleural effusion	If the fluid is not within the lungs themselves but in the chest cavity
Pulmonary	Collection of fluid can be heard as rales with the stethoscope, may have a fast heartbeat, feel suffocated, and cough up a foamy spittle, sometimes with blood.
Macular	Swelling of the macula of the eye, the small area of the retina responsible for central vision, of which the central 5% of the retina is most critical to vision.

	The edema is caused by fluid leaking from retinal blood vessels into the macula.
Lymphedema	This swelling in the arms and legs is most often caused by damage to your lymph nodes, tissues that help filter germs and waste from your body. The damage may be the result of cancer treatments like surgery and radiation. The cancer itself can also block lymph nodes and lead to fluid buildup.

SIGNS & SYMPTOMS

- Swelling or puffiness of the tissue directly under your skin
- Stretched or shiny skin
- Skin that retains a dimple after being pressed for several seconds:
 - +1 pitting edema = trace = barely perceptible depression
 - +2 pitting edema = mild = 0.6 cm depression with rebound in less than 15 seconds
 - +3 pitting edema = moderate = 0.6 to 1.3 cm depression with rebound in 15 to 30 seconds
 - +4 pitting edema = severe = 1.3 to 2.5 cm depression with rebound of greater than 30 seconds
- Increased abdominal size

CAUSES

- Tissue trauma, burns, etc.
- Skin infections
- Venom from insect or animal bite
- Low albumin levels in blood
- Allergic reactions such as to food
- Obstruction of blood flow
- Concussion, brain tumors
- Low blood sodium
- Being in a high altitude
- Hydrocephalus
- Certain medications: NSAID's; calcium channel blockers; corticosteroids
- Sedentary lifestyle
- Premenstrual symptoms
- Prolonged standing
- Hot weather
- COPD, emphysema, chronic bronchitis

- Hypertension
- Alcoholism

NURSING INTERVENTIONS

- Daily weights at the same time every day utilizing the same scale and having the patient wear the same clothing.
- Review patient's history to determine the probable cause of the fluid imbalance.
- Monitor input and output closely.
- Assess weight in relation to nutritional status.
- Monitor location and extent of edema; use a millimeter tape in the same area at the same time each day to measure edema in extremities. Take sequences of photos to map dimensions.
- Monitor lung sounds for crackles, monitor respirations for effort, and determine the presence and severity of orthopnea.
- With head of bed elevated 30 to 45 degrees, monitor jugular veins for distention in the upright position; assess for positive hepatjugular reflex.
- Monitor central venous pressure, mean arterial pressure, pulmonary artery pressure, pulmonary capillary wedge pressure, and cardiac output; note and report trends indicating increasing pressures over time.
- Monitor serum osmolality, serum sodium, blood urea nitrogen (BUN)/creatinine ratio, and hematocrit for decreases.
- Monitor client's behavior for restlessness, anxiety, or confusion; use safety precautions if symptoms are present.
- Monitor for side effects of diuretic therapy: orthostatic hypotension (especially if patient is also receiving angiotensin-converting enzyme [ACE] inhibitors) and electrolyte and metabolic imbalances (hyponatremia, hypocalcemia, hypomagnesemia, hyperuricemia, and metabolic alkalosis). In patients are receiving loop or thiazide diuretics, observe for hypokalemia. Observe for hyperkalemia in clients receiving a potassium-sparing diuretic, especially with the concurrent administration of an ACE inhibitor.
- Turn patients with dependent edema frequently.

PATIENT TEACHING

- Teach and reinforce knowledge of medications. Instruct patient not to use over-the-counter medications (e.g., diet medications) without first consulting the physician.
- Teach about signs and symptoms of both excess and deficient fluid volume and when to call physician.
- Teach how to take diuretics correctly: take one dose in the morning and second dose (if taken) no later than 4 PM. Adjust potassium intake as appropriate for potassium-losing or potassium-sparing diuretics.
- Note the appearance of side effects such as weakness, dizziness, muscle cramps, numbness and tingling, confusion, hearing impairment, palpitations or irregular heartbeat, and postural hypotension.

CULTURAL CONSIDERATIONS

- Assess for the influence of cultural beliefs, norms, and values of the patient's experiences with edema.
- Discuss with the patient those aspects of his or her daily activities that will remain unchanged, and work with patient to adapt cultural care to the seen and unseen swelling of edema.
- Validate the patient's feelings regarding the impact of current lifestyle, finances, and physical capacities and ability to redesign toward healthier personal habits.

COORDINATING CARE WITH NURSING ASSISTANT

- Ambulate patient as tolerated with doctor's order three times daily.
- Encourage frequent rest periods and teach patient to pace activity.
- Encourage small frequent meals.
- Elevate swollen limbs but have supportive devices to keep the joints in alignment.
- Apply compression hose or edema gloves as ordered.
- Follow the nursing care plan especially related to signs/symptoms that may indicate an emergency situation.

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