

# Skin diseases due to mechanical and thermal causes

## Mechanical causes

### Pressure blister (epidermolysis bullosa traumatica, traumatic bulla)

A blister on the non-inflamed underlying skin at the site of pressure

#### Clinical image

After manual hand activity, new shoes, long walking, orthopedic defects, blister solit.x multiple, firm covering, sometimes hemorrhagic contents, surrounding normal color

#### Therapy

Wipe over with disinfectant, puncture, tape over.

### Callus (tyloma, casus)

Focal hyperkeratosis induced by mechanical stress, a defensive reaction

#### Clinical image

Most commonly hands, feet, indistinctly circumscribed stiff slightly raised papule, surface mostly rough, peeling, sometimes painful cracks, sometimes professionally (fingers of violinists)

#### Differential diagnosis

Clavus, keratoma palmare, jantare

#### Therapy

Softening ointments with salicylic acid or urea, removing the mech.action

### Corn (clavus)

Painful focal hyperkeratosis over articular or bony prominences, especially in orthopaedic defects (e.g. hallux valgus)

#### Pathogenesis

Prolonged concentrated pressure against a firm base - the corner taper pin sometimes extends to the painful periosteum.

#### Clinical image

Circular, yellowish lesion, raised, sharply demarcated, sometimes with an indentation in the middle, very painful when walking!

#### Diferencial diagnosis

Pressure blister, veruka

#### Diagnosis

Histology - parakeratosis, hyperkeratosis at margins; mostly typical appearance

#### Therapy

Sometimes difficult, change of shoes, keratolytic ointment

## **Decubitus**

Pressure-related ischaemic necrosis - first erythema with maceration - then areas of dry necrosis and ulceration - extends to adipose tissue and muscle

### **Therapy**

Methods of moist wound healing, collaboration with surgeon, systematic nursing care

## **Tattoo**

Traumatic x decorative - there may be infectious complications, especially pyoderma

## **Irritation (intertrigo)**

- Mechanical friction of skin against skin + chemical influences (sweat) at the site of skin folds
- Sharply demarcated red, swollen areas, sore, burning
- Mostly obese persons - often secondary bacterial and yeast infection

## **Heat causes**

### **Frostbite (congelatio)**

Prone people with blood circulation disorders, acral areas affected - hands, feet, earlobes, tip of nose,...

1. degree - whitening and then redness of the skin - severe soreness
2. degree - hemorrhagic blisters
3. degree - necrosis

### **Therapy**

Surgery

### **Related articles**

- Injury by low temperature

## **Chilblains (perniones)**

Skin changes caused by cold - especially skin of the hands - impaired blood circulation, acrocyanosis, increased sweating contribute to the appearance; more common in women

### **Clinical image**

- elevated maculopapules - light red in warmth, reddish blue in cold
- itching, burning to pain - especially in warmth and with temperature changes
- at summer without problems, recurring as autumn approaches

### **Therapy**

Vasodilators (pentoxifylline), staying warm

### **Prognosis**

A chronic illness with winter relapses

### **Related articles**

- Injury by low temperature

## **Burns (combustio)**

A burn injury is damage to the skin from heat (scalding, contact with a heat source or fire), chemicals, electricity or radiation. In children, it is most often heat damage to the skin. In more serious cases, burn disease develops, threatening the patient's life initially with burn shock and later with sepsis.

### Degrees of burns

1. degree - erythema
2. degree - subepidermal blisters
3. degree - superficial necrosis

### Therapy

Immediately cool down, corticoid ointment in small degree, in bigger degree system corticoids for a short time, otherwise surgery

Similar to cauterisation (cauterisatio) - worse with lye - collapsing necrosis

### Related articles

- Burn injury

## Erythema ab igne

Radiant heat (ab igne = from fire) - electric blankets, sitting by the fireplace; reticular erythema, turning into brown hyperpigmentation - thermal melanosis.

**The finding is one of the precancers!!!**

### Related articles

- Burn injury

## Ionizing radiation

### Acute radiodermatitis

A skin disease resulting from exposure to ionizing radiation. In the acute form, redness, swelling, and in more severe cases, blisters appear.

### Degrees of radiation exposure

3-12 days after exposure (at least 7Gy)

1. degree - dry skin with hair loss
2. degree - redness blistering
3. degree - radiation ulcer - very painful, slow to heal

### Therapy

Emollients + local corticosteroids

### Chronic radiodermatitis

The chronic form is characterized by atrophy of the skin, its easy wounding with poorly healing ulcers.

### Clinical image

Poikiloderma - *a circumscribed area of atrophic skin with prominent vascular pattern, sclerotization of connective tissue at high doses, skin easily damaged - poorly healing ulcers*

### Terapie

Emollients + on the ulcer epithelizing ointments with vitamins or hydrocolloids; must be monitored for the possibility of carcinoma

### Related articles

- Deterministic effect of ionizing radiation

## Links

## Sources

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- presentations on website <http://kozni.lf1.cuni.cz>
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- Kuba Holešovský, dermatovenerology questions