DIABETIC FOOT ULCERS AND TREATMENT

- An ulcer is the break in the continuity of the covering epithelium ,skin or the mucous membrane due to molecular death or traumatic removal.
- **CAUSES OF DIABETIC ULCER**
- Increased glucose in the tissue precipitates infection
- Diabetic microangiopathy which affects microcirculation. ,
- Increased glycosylated haemoglobin decreases the oxygen dissociation.
- Increased glycosylated tissue protein decreases the oxygen utilization. ,.
- Diabetic neuropathy involving all sensory, motor and autonomous components. ,.
- Associated atherosclerosis.

SITES

- Foot-plantar aspect-is the most common site;
- leg,
- upper limb,
- back,
- scrotum,
- perineum.

- **Diabetic neuropathy** is due to conversion of sugar to sorbitol which causes nerve demyelination:
- neuropathy is distal, diffuse with a stocking distribution:
- it takes around 1O years to develop diabetic neuropathy
- **Sensory neuropathy**causes loss of vibration sense, sense of position, touch, pain and temperature

- **Motor neuropathy** causes paralysis of intrinsic muscles of foot leading into claw toes and hammer toe.
- **Autonomic neuropathy** causes absence of sweating and loss of skin elasticity making more prone for breakdown and infection
- **Diabetic angiopathy** may be macro-or micro-angiopthy (thickening of the basement membrane of vessels and capillaries)
- **sepsis**

Investigations

- Blood sugar both random and fasting.
- Urine ketone bodies;
- Discharge for culture and sensitivity;
- X-ray of the part to see osteomyelitis.
- Arterial Doppler of the limb;
- glycosylated haemoglobin estimation.

Treatment

- Control of diabetes using insulin.
- Antibiotics. ,
- Nutritional supplements.
- Regular cleaning, debridement, dressing.
- Once granulates, the ulcer is covered with skin graft or flap.
- Revascularisation procedure is done by endarterectomy or thrombectomy or balloon angioplasty or arterial bypass graft.
- Toe/foot/leg amputation .
- ,Microcellular rubber (MCR) shoes to prevent injuries; care of foot.

Complications

- Neuropathy, in foot-Clawing of toes, hammer toe (due to intrinsic muscle paralysis)
- Multiple deeper abscesses;
- osteomyelitis of deeper bones
- Reduced leukocyte function: resistant infection; spreading cellulitis
- Arterial insufficiency
- Septicaemia; diabetic ketoacidosis
- Associated cardiac diseases like ischaemic heart disease

PRESSURE SORES

PRESSURE SORES

- Are also known as **trophic ulcers or decubitus ulcers**
- It is tissue necrosis and ulceration due to prolonged pressure.
- Blood flow to the skin stops once external pressure becomes **more than 30 mmHg** (more than capillary occlusive pressure) and this causes **tissue hypoxia, necrosis and ulceration**.
- It is more prominent between bony prominence and an external surface.

COMMON SITES

- Over the ischial tuberosity;
- sacrum;
- heel;
- heads of metatarsals;
- buttocks;
- shoulder;
- occiput.

- Callosity (due to frepeated trauma bcz of lossn of sensations

- Suppuration

- Superficial infection

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- Extends to deeper plane upto underlying bone

Causes

- impaired nutrition;
- defective blood supply;
- neurological deficit,
- pressure,
- anaemia,

- Moisture

Neurological causes

- Diabetic neuropathy
- Peripheral neuritis
- Tabes dorsalis
- Spina bifida
- Leprosy
- Spinal injury
- Paraplegia
- Peripheral nerve injury
- Syringomyelia

Clinical features

- Painless
- deep,
- nonmobile,
- punched out
- base formed by bone.

STAGING

1. **early superficial ulcer** -Nonblanching erythema
2. **late superficial ulcer-** Partial thickness skin loss fascia
3. **early deep ulcer** -Full thickness skin loss extending into subcutaneous tissue but not through fascia
4. **late deep ulcer** -Full thickness skin loss with fascia and underlying structures like muscle/tendon/bone.

- **Investigations:**
- Study of discharge;
- blood sugar;
- wedge biopsy from the edge;
- X ray of the part and spine

Treatment

- Cause should be treated
- correction of diabetes and anaemia.
- Nutritional supplementation.
- Rest, antibiotics, slough excision, regular dressings.
- Vacuum-assisted closure (VAC).
- Once ulcer granulates well, flap cover or skin grafting is done.
- Change in position once in 2 hours
- control and prevention of sepsis