

# ULCER

**Dr. Preeti Singh**  
**M.D (HOM)**  
**Asst. Professor**  
**Department of Surgery**  
**NHMC (Agra)**

# DEFINITION

- A break in the continuity of the covering epithelium of the skin or mucous membrane.
- It may either follow molecular death of the surface epithelium or its traumatic removal.



# PARTS OF ULCER

**A. Margin:** It may be regular or irregular. It may be rounded or oval.

**B. Edge:** Connects floor of the ulcer to margins  
five types:-

- *Sloping edge:* e.g. healing ulcer
- *Punched out edge:* e.g. Gummatous ulcer, deep trophic ulcer
- *Undermined edge:* e.g. tuberculous ulcer
- *Raised edge:* e.g. Rodent ulcer (BCC)
- *Rolled out (everted):* e.g. Squamous Cell Carcinoma



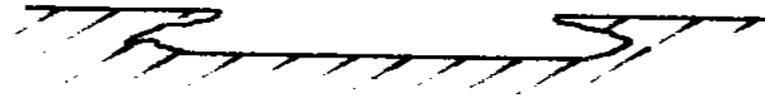
Sloping  
(a healing ulcer)



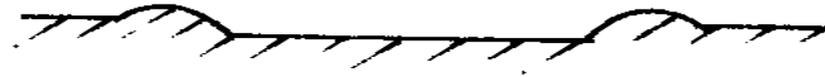
Punched-out  
(syphilis, trophic)



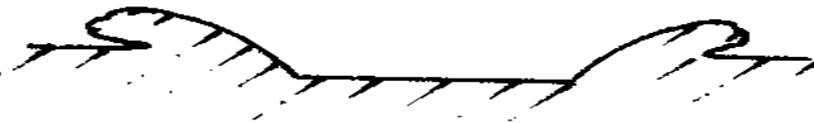
Undermined  
(tuberculosis)



Rolled  
basal cell carcinoma)



Everted  
(squamous cell carcinoma)



**Figure 1.15** The varieties of ulcer edge.

**C. Floor:** It is one which is seen. Floor may contain discharge, granulation tissue or slough.

**D. Base:** Base is one on which ulcer rest. It may be Bone or soft tissue.



## TYPE OF GRANULATION TISSUE

- Granulation tissue is proliferation of new capillaries and fibroblasts, intermingled with RBCs, WBCs with thin fibrin cover over it.

### Types:

- Healthy granulation tissue: Healing ulcer
- Unhealthy granulation tissue: Spreading ulcer
- Unhealthy pale, fat granulation tissue: Callous ulcer
- Exuberant granulation tissue: sinus ulcer, ulcer bed like a proliferating mass.



# ETIOLOGY

## Traumatic causes:

- Mechanical
- Physical – electrical, radiation etc
- Chemical

## Vascular insufficiency:

- Arterial
- Venous

## Neoplastic conditions:

- SCC
- BCC
- KS
- Malignant melanoma etc



## Metabolic diseases:

- diabetes mellitus

## Malnutrition

- Beriberi
- Tropical ulcer

## Inflammatory processes

- cellulitis

## Infective processes

- TB
- Syphilis
- Fungal infections



## Neurogenic causes

- Bed sores
- Perforating ulcers
- Cord Lesions
- Peripheral Neuropathies



# CLASSIFICATION

- Etiological classification
- Clinical classification
- Pathological classification
- Duration based



# ETIOLOGICAL CLASSIFICATION

- Traumatic ulcers
- Vascular ulcers
- Neoplastic ulcers
- Metabolic ulcers
- Ulcers due to malnutrition
- Inflammatory ulcers
- Infective ulcers
- Miscellaneous ulcer



## CLINICAL CLASSIFICATION

- **Spreading ulcer:** Edge is inflamed, irregular and edematous. It is an acute painful ulcer, floor does not contain healthy granulation tissue, granulation tissue may be absent. Profuse purulent discharge. Regional lymph nodes enlarged.
- **Healing ulcer:** Edge is sloping with healthy pink/red, healthy granulation tissue with scanty/minimal serous discharge in floor. Surrounding skin not inflamed.



**Non Healing Ulcer:** It may be a chronic ulcer, edge will be depending on cause- Punched out- trophic, undermined –Tubercular, rolled out- carcinomatous, beaded- rodent ulcer. Floor contain unhealthy granulation tissue and serosanguinous/purulent/bloody discharge. Regional lymph nodes may be enlarged but non tender.

**Callous (stationary) ulcer:** It is also a chronic nonhealing ulcer. Pale granulation tissue in the floor. Considerable induration at the base, edge and surrounding skin show no tendency towards healing. Regional lymph nodes may be enlarged, hard, firm and non tender.



# PATHOLOGICAL CLASSIFICATION

- Non-specific ulcers
- Specific ulcers
- Malignant ulcers



## *NON-SPECIFIC ULCERS*

- Traumatic ulcers
- Arterial ulcers due to ischemia eg gangrene
- Venous ulcers e.g. Varicose ulcer
- Neurogenic ulcers (trophic ulcer)
- Ulcers associated with malnutrition
- Ulcers associated with other diseases e.g. Anemia, Avitaminosis, Gout, Rheumatoid arthritis
- Cryopathic ulcer
- Cortisol ulcer
- Diabetic ulcer
- Miscellaneous ulcer



# SPECIFIC ULCER

- Tubercular ulcer
- Syphilitic ulcer
- Actinomycosis
- Fungal ulcer



# MALIGNANT ULCER

- Squamous cell carcinoma
- Basal cell carcinoma ( rodent ulcer)
- Malignant melanoma
- Ulcerating adenocarcinoma
- etc



# CLASSIFICATION BASED ON DURATION

- **Acute:** Duration is less than 2 weeks
- **Chronic:** duration is more than 2 weeks



## DIFFERENT DISCHARGE OF AN ULCER

A. **Serous**: In Healing ulcers.

B. **Purulent**: In infected ulcer

Staphylococci: yellow & creamy

Streptococci: bloody and opalescent

Pseudomonas: Greenish due to pseudocyanin.

C. **Bloody**: Malignant ulcer, healing ulcer.

D. **Serous with sulphur granules**: Actinomycosis.

E. **Yellowish**: Tuberculous ulcer



# CLINICAL PRESENTATION

- History
- Physical examination



# HISTORY

Note the following:-

- Duration (i.e. how long is the ulcer present?)
  - Acute: present for short time
  - Chronic: present for long time
- Mode of onset (i.e. how has the ulcer developed?)
  - Following trauma
  - Spontaneously e.g. following- swelling e.g. ulcerating lymph node in Tuberculosis or a scar of burn Marjolin's ulcer
  - Marjolin's ulcers are the malignant transformation of chronic wounds



- Pain (i.e. is the ulcer painful?)
  - Painful: ulcers associated with inflammation
  - Slight painful: tuberculous ulcer
  - Painless eg syphilitic, neurogenic, malignant ulcers
- Discharge (i.e. does the ulcer discharge or not?)
  - If YES: note the nature of discharge- pus, bloody, serous.
- Associated diseases which may lead to ulcer formation
  - e.g. Tuberculosis , Syphilis, Diabetes Mellitus, nervous diseases



# PHYSICAL EXAMINATION

- General examination: Usual normal
- Local examination
- Systemic examination



# LOCAL EXAMINATION

- Inspection
- Palpation
- Examination of lymph node
- Examination of vascular insufficiency



## *INSPECTION*

- Site: gives clue to the diagnosis
  - Varicose ulcer- lower limb on the medial malleolus
  - Rodent ulcer-face
  - Tuberculus ulcer-cervical
  - Trophic ulcer – heel
  - Malignant ulcer- anywhere



- Shape:
  - Tuberculus ulcer- oval in shape
  - Syphilitic ulcer– circular in shape
  - Varicose ulcer – vertically oval in shape
  - Malignant – irregular in shape
- Size:
  - May determine the time of healing.  
E.g. the smaller the ulcer the shorter the time it will take to heal.



- Surrounding skin:
  - E.g. red and edematous- acute inflammation
- Floor/surface i.e. exposed part of the ulcer may give clue to the diagnosis
  - Eg red granulation – healing ulcer
  - Black floor- malignant melanoma
- Number:
  - Tuberculous ulcer
  - Gummatous ulcer
  - Varicose ulcer
  - *Note:* the number of ulcers may be more than one



Edge: five types

Discharge: the character of the discharge should be noted.

Whole limb: should be examined  
e.g. varicose veins



## *PALPATION*

- Tenderness:-
  - Tender- acutely inflamed ulcer
  - Slightly tender- tuberculous ulcer, syphilitic ulcer
  - Non-tender- malignant ulcer, chronic ulcer, neurogenic ulcer
- Edge and surrounding skin:
  - Hard induration- malignant ulcer
  - Firm induration- chronic ulcer, syphilitic ulcer



- Base (i.e. on which the ulcer rest)
  - Slightly induration- syphilitic ulcer
  - Marked induration- malignant ulcer
- Depth:
  - eg trophic ulcer may be deep to reach the bones
- Bleeding:
  - easy bleed on touch is a feature of malignant
- Fixity to the deep structures
  - Eg malignant ulcers are usually fixed to deep structures



# INVESTIGATIONS

- Haematological
  - CBC & ESR
  - Haemoglobin levels
- Microbiological
  - Gram staining, AFB study
  - Culture and sensitivity
- Biochemical
  - Serum glucose



- Plain X-rays
  - CXR
  - X-ray of the affected limb
- Doppler US
- CT Scan
- MRI
- FNAC of the lymph node
- Wedge Biopsy: Taken from the edge, because edge contain multiplying cells.



## MANAGEMENT OF AN ULCER

- Found and treat the cause
- Correction of nutrition deficiency
- Control the pain and infection
- Rest, immobilization, elevation, avoid repeated trauma.
- Care of ulcer: cleaning, debridment, dressing, etc



# HOMOEOPATHIC THERAPEUTICS

- **Anacardium:** Ulcer formation on forearm.
- **Arsenic Album:** Ulcers with offensive discharge, and burning pain relieved by heat.
- **Carbolic Acid:** Burns Tends to ulcerate, Burning pain. Marked tendency to destruction of tissue internally and fetid odor. Ulceration in nose, smell very acute. Ulcerated patches on inside lips, cheeks, burning in mouth to stomach. Putrid discharge.
- **Carcinocin:** Malignant ulcers.
- **Conium:** Chronic ulcer with fetid discharge. Glands enlarged and indurated.



- **Euphorbium:** old tropid ulcer, pustules, Gangrene. Ulcerating carcinoma and epithelioma of skin.
- **Hepar Sulph:** Ulcers on cornea, ulcerated nose with offensive discharge. Ulcers in corners of mouth. Ulcers with bloody suppuration, smelling like old cheese. Ulcers very sensitive to contact, burning, stinging, easily bleeding.
- **Mercurius:** Ulcers , irregular in shape, edges undefined, pimples around main eruption. Profuse perspiration without relief
- **Muratic acid:** Aphthous mouth, ulcer in throat, ulcers on genitals, foul smelling ulcers on lower extremities.



- **Nitric Acid:** Ulcers, easily bleeding, in corners of mouth, splinter like pains, especially on contact, zig-zag, irregular edges; base looks like raw flesh: exuberant granulations; after mercury or syphilis or both, engrafted on a scrofulous base. Discharge: thin, offensive, acrid, of brown or dirty yellowish green color; rarely laudable pus.
- **Phosphorus:** wounds bleed very much, little ulcer outside the large ones.



# TRAUMATIC ULCER

- Occur after trauma. Eg: mechanical: dental ulcer, physical : electric burn, chemical: alkali injury.
- Ulcer are acute, painful, superficial and tender. Infection and poor blood supply make it chronic and deep.



# TROPHIC ULCER

- Also k/a pressure sores/ decubitus ulcers.
- It is due to tissue necrosis and ulceration due to prolonged pressure.
- External pressure  $> 30$  mmhg –blood flow to skin stop- tissue hypoxia-necrosis-ulceration.
- Cause- impaired nutrition, defective blood supply, neurological deficit (like, diabetic neuropathy, paraplegia, spinal injury etc. So also k/s neurogenic/neuropathic ulcer)
- Common sites: ischial tuberosity, sacrum, buttocks, heels, occiput, shoulders.



## ULCERS DUE TO CHILBLAINS, FROSTBITE

- **Ulcers due to chilblains:** Due to exposure of intense cold causing blisters and ulceration in feets. These are superficial. There is arterilar constriction.
- **Ulcers due to frostbite:** Due to exposure of a part to wet cold below freezing point. There is arterilar spasm, denaturation of proteins and cell destruction, leads to gangrene. Ulcers are always deep.



# MARTORELL'S ULCER, ARTERIAL/ISCHEMIC ULCER

## Martorell's ulcer:

- Seen in hypertensive patients. Often with atherosclerosis.
- Seen in calf, often bilateral and painful.

## Arterial/ischemic ulcer:

- Common in toes, feet or leg, often can occur in upper limb digits
  - It is due to poor blood supply following blockage of digital or medium sized arteries.
  - Causes: Atherosclerosis, Thromboangitis obliterans, raynaud's phenominon.
- 

# CARCINOMATOUS ULCER (EPITHELIOMA, SCC)

- It arises from the outer cell layer of skin (Epidermis)
- Mostly seen after 40 years of age.
- Begin as a nodule and then form an ulcer and progress as ulcerative lesion with rolled out edges.
- Floor contains necrotic content, unhealthy-tumor granulation tissue and blood.
- Can occur anywhere in the body but more common on lips, cheeks, hands, penis, vulva.
- Ulcer bleeds to touch, induration is felt at base and edges. Margins are irregular.
- Regional lymph nodes are hard discrete, initially mobile but later become fixed.
- Ulcer and lymph nodes initially painless but become painful and tender once there is deeper infiltration or secondary infection.



## MARJOLIN'S ULCER

- This is SCC arising from a long standing scar or ulcer.
- Commonest is a long standing venous ulcer and a scar of an old burn.
- It is a slow growing and less malignant SCC.
- Its edges is not always raised or everted.
- Lymphatic metastasis is unusual.
- Its absolutely painless



# RODENT ULCER

- It is ulcerative form of BCC.
- Common on face. Rarely can occur over tibia, external genitalia, mucocutaneous junction. Does not occur in mucosa.
- Ulcer shows central area of dry scab with peripheral raised active and beeded edges.
- It erodes deeper soft tissue, cartilage and bones.
- Blood and lymphatic spread is absent. It is only locally malignant.



# DIABETIC ULCER

- Three important factors to produce diabetic ulcers are: 1. Diabetic neuropathy. 2. Diabetic Atherosclerosis. 3. Glucose laden tissue is quite vulnerable to infection.
- Diabetic neuropathy: ulcer form due to diabetic neuropathy is a trophic ulcer and features are same as trophic ulcer with less sensation to the surrounding skin.
- Diabetic atherosclerosis: Ulcer form due to ischemia (Arterial). But is less painful than typical arterial ulcer.
- Infective ulcer: A type of spreading ulcer.
- Investigations: Blood sugar, urine ketone bodies, Discharge culture and Xray.



## REFERENCES;

- Sriram Bhat M. SRB'S Manual of surgery, 5<sup>th</sup> edition, Jaypee Brothers Medical Publishers, New Delhi.
- Shenoy K Rajgopal, Shenoy Nileshtar, Anitha Manipal Manual Of Surgery, 5<sup>th</sup> edition, CBS Publishers and Distributer.
- S. Das A manual on Clinical Surgery, 10<sup>th</sup> edition 2013, 13 Old Mayors' Court, Kolkata.
- Allen H.C. Allen's Keynotes Rearranged and classified with leading Remedies of the Materia medica and Bowel Nosodes, 10<sup>th</sup> ed. Reprint ed. 2008, B. Jain publishers new Delhi.
- Boericke William Pocket Manual of Homoeopathic Materia Medica & Repertory, B. Jain publishers new Delhi.
- [www.slideshare.net](http://www.slideshare.net)
- [www.webmed.com](http://www.webmed.com)



*THANK YOU*

