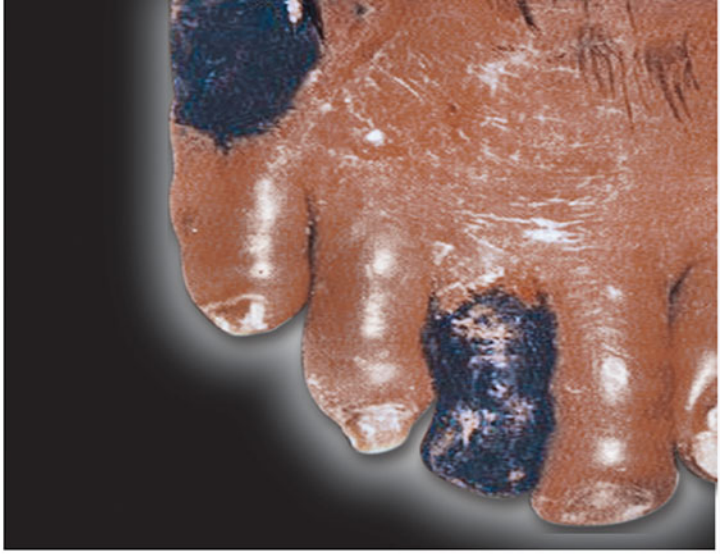
SURGERY



Differential Diagnosis in SURGERY

MAHMOUD SAKR

JAYPEE

Contents

CHAPTER

4

Differential Diagnosis of Ulcers

1. CLASSIFICATION OF ULCERS

DEFINITION

An ulcer is a "*break in the continuity of covering epithelium whether skin or mucous membrane*".

PATHOLOGICAL CLASSIFICATION

1. Non-Specific:	1. Traumatic • Mechanical • Physical • Chemical	 • Pressure of splint or dental tongue ulcer • Electric or X-ray burn • Caustics
	2. Arterial	• Atherosclerosis • Buerger's disease • Raynaud's disease
	3. Venous	• Varicose ulcer • Post-phlebitic ulcer
	4. Neurogenic	• Bed sores • Perforating ulcer
	5. Metabolic ulcer	• Gout (ulceration of a tophi) • Diabetes mellitus (DM).

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2. Specific	1. Tuberculosis (TB) 2. Syphilis ($) 3. Soft sore 4. Meleney's ulcer 5. Actinomycosis 6. Mycotic (fungal)	
3. Malignant	1. Squamous cell carcinoma (SCC) 2. Basal cell carcinoma (BBC) (Rodent ulcer) 3. Malignant melanoma 4. Sarcomatous ulcer 5. Metastatic ulcer	

NON-SPECIFIC ULCERS

Traumatic Ulcers

- *Site:* Chin of the tibia, malleoli and back of heel (skin close to bones).
- The *edge* is sloping (or serrated). The *floor* is covered with granulation tissue and the *base* is firm, mobile or fixed.
- *Draining lymph nodes* are free, but may be enlarged if infected.
- Generally, they heal quickly and do not become chronic unless infected or ischemic.

Ischemic Ulcers

- *Site:* Toes, dorsum of the foot or the heel (pressure areas).
- *Edge* is punched out (patch of dry gangrene which sloughs).
- *Other ischemic changes* in the LL (dry pale skin, cold, loss of hair, fissuring of nails, and absent pulses).
- *Very painful ulcer + History* of intermittent claudication or rest pain.

Venous Ulcers

- The *edge* is sloping.
- The *base* is rough and fibrous.

Varicose Ulcer	Post-Phlebitic Ulcer
• Painless callous ulcer. • On the medial aspect of lower leg. • Never penetrate the deep fascia. • Pigmentation or eczema around it. • Varicose veins in the limb.	• Painful. • Situated on the lower leg. • Always penetrates the deep fascia. • A complication of the post-phlebitic leg after operation or parturition,..etc.).

Neurogenic (Trophic) Ulcer

- *Site*: Sole or heel, or base of 1st and 5th toes, sacrum or greater trochanter (pressure sites).
- *Painless*: The surrounding areas have a normal blood supply.
- May have punched-out *edges* and a sloughing *floor*.
- The *Base* is firm and mobile, but rarely fixed.
- *Discharge*: Slight serous (healing ulcer) or purulent with a bad odor.
- ***Perforating ulcers*** occur behind the head of the 1st metatarsal starting as a callosity under which suppuration occurs and discharges pus from a hole, which gradually burrows through the flexor tendon to the bone or joint resulting in a cavity filled with offensive matter. Finally, the track becomes lined with skin rendering healing impossible.

Tropical Ulcer

- *The edge* is raised. *Discharge* is copious and serosanguinous.
- It refuses to heal and retains its same size for months and years.

- In some cases, it spreads widely destroying the soft parts so much as to require *amputation*, in others it heals after a long period with a parchment-like pigmented scar.

Gouty Ulcers

- *Sites*: They occur over gouty deposits. The *MP joint* of the big toe is a favorite site.
- The *floor* is covered with white chalky deposits, which are the uric acid crystals.
- There is evidence of acute gouty arthritis.

SPECIFIC ULCERS

Tuberculous Ulcer (TB)

- *Site:* Neck, axilla, groin (due to bursting of caseous lymph nodes resulting in the formation of a *painful* ulcer). Also on the dorsum of the tongue (Secondary to pulmonary TB).
- *The edge* is undermined (similar to bed sores only) (**Figure 4.1**).
- *Floor* is pale and covered with granulation tissue.
- The *base* is slightly indurated.
- *Surrounding tissues* are bluish and slightly edematous.

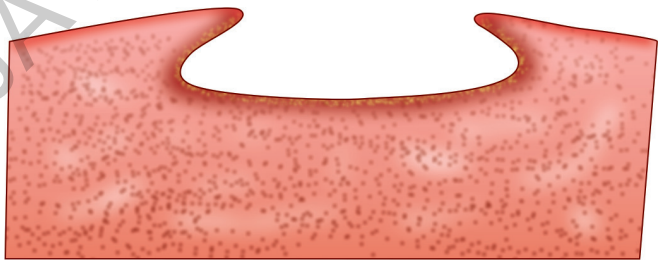

Fig. 4.1: TB ulcer with undermined edge

- ***Lupus vulgaris (cutaneous TB)*** *(Lupus = wolf because it spreads):*
  - It occurs in children and young adults in the face and arm.
  - Starts as superficial ulcer, which tends to heal at the center but remains active at the periphery.
  - Press the ulcer firmly with a glass slide or tongue depressor → pressure will remove the surrounding hyperemia and apple-jelly-like nodules (TB papules) become apparent.

Syphilitic Ulcer ($)

1ry $ • ***Hard Chancre (Hunterian Chancre = 1ry Syphilitic Sore):***
  - Painless ulcer with sloping edge and indurated base (feeling like a button), usually oval and exudes a discharge that is often blood-stained.
  - It occurs after 3–5 weeks from infection.
  - Inguinal lymph nodes become shotty (small and hard), firm, discrete, mobile and with no tendency to soften or suppurate.
  - Extra-genital chancres (upper lip): May not be indurated and regional lymph nodes in size.
  - Spirochetes must be seen under the microscope by dark ground illumination.

2ry $ • ***Mucus Patches:*** White patches of thick epithelium.
  - *Condylomas:* Flat-topped, raised, white and hypertrophic epithelium. Occur at mucocutaneous junctions, e.g. corner of mouth, anus and vulva.
  - There is often generalized lymphadenopathy, specially epitrochlear and suboccipital.

3ry $ • ***Gummatous Ulcers:***
  - Usually seen over SC bones (sternum, tibia, ulna and skull).

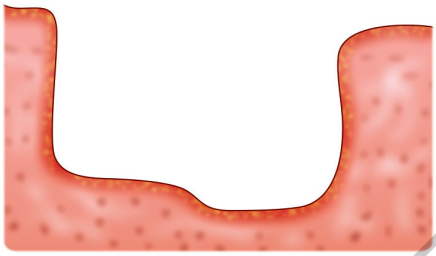

Fig. 4.2: Gummatous ulcer with punched out edge

- Also in the testis, upper part of leg and at the sterno-mastoid.
- Lymph noes are seldom involved unless secondary infection occurs.
- WR is positive.
- Punched out edge (**Figure 4.2**) (may be seen in varicose ulcer and trophic ulcers specially perforating ulcer associated with DM).
- The base is covered with wet wash-leather (Chamois leather) slough, which contains one or more islands of normal tissue which escaped necrosis.
- A healed gumma ends in a circular "tissue-paper" scar (similar to Yaws).

Soft Chancres or Soft Sores (Ducrey's)

- Appear within 3–6 days after inoculation (infection with *Haemophilus ducreyi*) as *painful*, non-indurated ulcers (multiple due to autoinoculation) that occur on genitalia or adjacent parts (buttocks and perianal).
- The ulcers have edematous edges and yellowish slough discharging copious purulent discharge. The complete absence of induration led to the term "soft sore".
- Lymph nodes are similar to acute lymphadenitis (i.e. firm and tender) with tendency to suppuration.

Meleney's Ulcer

- Mostly found in the postoperative wound either for perforated viscus or drainage of empyema thoracis, and rarely on the dorsum of the hand.
- Results from *symbiotic action* of *micro-aerophilic non-hemolytic streptococci + hemolytic Staphylococcus aureus.*
- Undermined ulcer with a lot of granulation tissue in the floor, surrounded by deep purple zone, which in turn is surrounded by a zone of erythema. It is painful, toxemic and the general condition deteriorates without treatment.

Actinomycosis

- It leads to marked induration of the skin and subcutaneous tissue over the lower jaw and neck with the development of multiple sinuses.
- The discharge contains the typical characteristic sulfur-like granules (colonies of the microorganism).

Fungus Infections

- Blastomycosis sporotrichosis is a common example.
- The fungus is always found in the scrapings.

MALIGNANT ULCERS

Squamous Cell Carcinoma (Carcinomatous Ulcer)

- It can hardly be mistaken, especially after eversion and induration of the edge have been observed **(Figure 4.3)**.
- The base is hard and the floor is necrotic.
- Painless ulcer (unless infected) and bleeds on touch.
- Occurs anywhere (lips, cheeks, tongue, anus).
- In the face, it is more common in lower lip and upper eyelid, in contrast to rodent ulcer.
- Draining lymph nodes are enlarged, hard and mobile in early cases, but later become fixed.

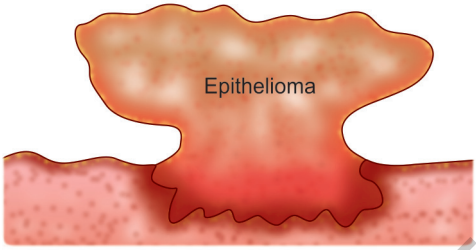

Fig. 4.3: SCC with everted edges

- **Marjolin's ulcer**:
  It is a squamous cell carcinoma start occurs on top of:
  1. A previous chronic scar.
  2. Previous burn.
  3. Any chronic non-specific ulcer such as a venous ulcer.

Basal Cell Carcinoma (Rodent Ulcer)

- Particularly if early, the features of malignancy are not nearly so obvious.
- *History*: It starts as a papule or nodule (sometimes multiple). When the patient scratches it, it bleeds and forms a scab. When the scab fall off, it leaves an ulcer behind.
- *Site*:
  Being situated above a line joining the angle of the mouth with the lobule of the ear should alert the clinician to the diagnosis.
- Its outline is circular, it edge is raised and heaped-up (**Figure 4.4**), and often shows nodules possessing a peculiar pearl-like luster. Minute venules in the edge are characteristic.
- *Lymph nodes* are usually *not* involved. Their enlargement may denote carcinomatous change or secondary infection.

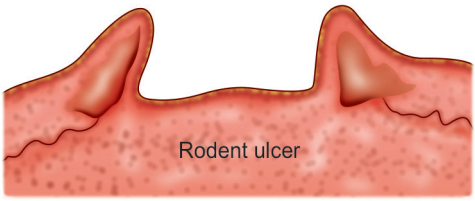

Fig. 4.4: BCC with rolled-in edges

Malignant Melanoma

- The most frequent site in the foot is in the soft skin of the instep. Unfortunately, the lesion in its early stage is asymptomatic and unnoticed until ulceration occurs.
- When suspected, the regional lymph nodes (groin) and the liver must be palpated for secondaries (enlarged and hard).
- Pigmented floor and skin nodules around the ulcer **(Figure 4.5)**.

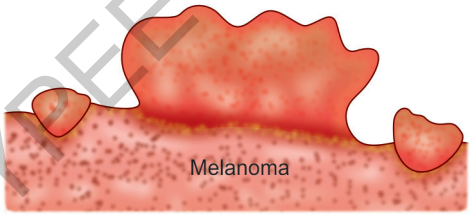

Fig. 4.5: Melanoma with skin nodules around the ulcer

Ulcerating Sarcoma or Carcinoma

- The swelling underneath the ulcer is evident.
- The tumor itself may fungate through the ulcer.
- Such ulcers lack the everted *edge* of the squamous ulcer.
- The *floor* is made of nodules of tumor tissue.
- The draining *lymph nodes* are hard and fixed.

Table 4.1: Differential diagnosis of the different types of ulcers

Criteria	Traumatic	Varicose	Trophic	Tuberculous	Syphilitic (3ry)	Epithelio-matous	Rodent (BCC)
Site	Anywhere, but common on legs	Common on medial aspect of lower leg	Usually over bony prominences in the sole or over the heal	Usually over TB nodes in the neck, axilla or groin. May occur over TB bone	Upper 1/3 of leg and near knee, mouth, tongue and nose. May occur due to softening of gumma (tibia, sternum, ulna, skull)	Common on face, tongue, lips. May occur in LL on top of chronic venous ulcer, scar, burn or sinus of chronic osteomyelitis (Marjolin)	Common on the middle third of the face (lower eyelid and upper lip). May be extra-facial in 5%
Size	Variable	Variable	Usually small	Usually small	Variable	May be large	May be large
Shape	Round or oval	Round or oval	Round or oval	Round or oval	Round or oval. May be circinate or serpiginous.	Usually irregular	Round or oval at the beginning then becomes irregular
Skin Around	Healthy	May be eczematous and pigmented	Heaped-up, white and desquamated	Bluish in color	May be coppery		

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Edge	Punched (active), sloping (healing)	Punched-out or sloping	Punched-out	Undermined	Punched-out	Everted	Inverted or rolled-in. Beaded
Floor	Covered with pus and slough, or red healthy GT (healing ulcer)	Covered by granulation tissue (GT)	Covered with very little granulation	Covered with dirty granulation tissue	Covered by a wash leather slough	May be heaped-up and raised above the surface of skin or deeply excavated	May be deep reaching cartilage or bone (rodent).
Base	Soft	± indurated and callus and fixed to underlying bone	Formed of a sinus which may lead to a joint or bone	Usually formed of a sinus track leading to the underlying TB lesion	May be indurated and fixed to underlying bone	Hard and indurated	Firm
Draining LNs	May be acutely inflamed	May show non-specific inflammation	-	Usually already tuberculous		Enlarged and malignant (stony hard and fixed)	May be enlarged due to secondary infection or epitheliomatous transformation

2. ULCERS OF THE FACE

CLASSIFICATION

Ulcerative Infective Lesions		Ulcerating Tumors
A. Non-specific	B. Specific	
1. Chronic non-specific ulcer 2. Infected sebaceous cyst 3. Molluscum sebaceum	1. Tuberculosis (TB) 2. Syphilis ($) 3. Leishmaniasis 4. Leprosy 5. Actinomycosis 6. Anthrax	1. Rodent ulcer (BCC) 2. Epithelioma (SCC) 3. Malignant Melanoma 4. Metastatic Mass Ulceration 5. Infiltrating deeply seated tumor, which invades the skin and ulcerates

I. ULCERATING INFECTIVE LESIONS

Non-Specific Ulcers

1. Chronic Non-specific Ulcer

a. Exuberant Type (Hypertrophic granulation tissue):
   - Warty-like lesion
   - Soft
   - Granulating tumor
   - Bleeds easily.

b. Flat Type:
   - Painful
   - Irregular margin
   - Floor covered with granulation tissue
   - Firm base
   - Purulent or serous discharge
   - Persistence of the cause maintains its chronicity.

Differential Diagnosis in
SURGERY

This book comprises 15 chapters that consider the differential diagnosis of signs and symptoms related to surgery; namely, swellings, organomegaly, lymphadenopathy, ulcers, pain, dyspepsia, dysphagia, constipation, bleeding, urine retention, swollen limb, gangrene, testicular atrophy, impotence, and gynecomastia. How to reach diagnosis using history taking, physical examination, and appropriate investigations, with the possible differential diagnosis in mind is clearly presented and illustrated in this book. Bibliography is also provided for further reading.

Mahmoud Sakr MD PhD FACS (USA) is currently the Chief of the Head and Neck and Endocrine Surgery Department at the Faculty of Medicine, Alexandria University, Egypt. He is a Fellow of International College of Surgeons and American College of Surgeons. He has published more than 10 surgical books as well as 85 articles in esteemed journals.

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