By the Name of ALLAH the Most Gracious the Most Mercifull

Skin and Subcutaneous Tissue
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Part I

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To be read in
Ch 42 (577 - 602)
- Ulcer, Sinus, Fistula & Cyst.
- Skin infections.
- Skin Tumours
- Cutaneous Manifestation of Generalized Diseases.
- Wounds.
Ulcer, Sinus, Fistula & Cyst
Cyst

- A cyst is a closed sac, having a distinct membrane and division compared to the nearby tissue.
- Congenital / Acquired.
- True / Pseudocyst.
Congenital

Dermoid cyst. (Embryological fusion sites).

Thyroglossal Cyst
Fig. 1 A dermoid is an overgrowth of normal, non-cancerous tissue in an abnormal location.
Thyroglossal Cyst
- Arises from foramen cecum.
- Along the entire line of thyroid gland descent.
- Complication: Infection, fistula and carcinoma.
- May be presented as supra-hyoidal or infra-hyoidal cyst.
- Tx: Surgical excision.
Acquired

- Retention cyst (Sebaceous cyst).
- They arise from the glands that secrete oily matter that lubricates hair and skin (sebaceous glands).
- Punctum with discharge.
- Fix to the skin, tense.
- Infection.
- Tx: Surgical excision.
- DDx: Lipoma (fluctuation).
ULCER

A pathological disruption of an epithelial continuity

Classification
Edge, Sites, Cause.
<table>
<thead>
<tr>
<th>Edge</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sloping</td>
<td>Venous ulcer</td>
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<tr>
<td>Punched out</td>
<td>Neuropathic</td>
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<tr>
<td>Undetermined</td>
<td>Decubitus</td>
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<tr>
<td>Rolling</td>
<td>Basal cell ca.</td>
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<tr>
<td>Everted</td>
<td>Squamous ca.</td>
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</table>
Sloping Ulcer

- Venous ulcer.
- Healing ulcer.
The ulcer is shallow & the epithelium is growing in from the edge in an attempt to heal.
Healing ulcer

- Surrounding skin not inflamed
- Floor covered with granulation tissue
- Edges show bluish outline of the growing epithelium
- Slight serous discharge
Venous Ulcers:
Shallow in appearance and situated around the ‘gaiter region’ of the leg, oedematous, there may be ankle flare and hyper pigmentation (brown staining) and the leg may be ‘hardened’.
Punched Out Ulcer

- Square cut and thin base, which may be covered with a ‘wash-leather’ slough.
- Trophic, ischemic, 3rd syphilis, leprosy.

or **square cut**: It results from rapid death & loss of the whole thickness of the skin with minimal attempt of healing.
Gamma of 3ry syphilis

Leprosy

Neuropathic ulcer in the sole of foot
Clinical images of a trophic skin ulcer of leprosy on the plantar aspect of the foot
Arterial Ulcers present as being ‘punched out’ in appearance, poorly perfused, the legs and feet are cool to touch and there may be gangrene to the toes, the leg is often shiny, hairless and the skin may be tight.
Wagner’s Grading System for Diabetic Foot Infections

G0 - Intact Skin.
G1 - Superficial ulcer of skin or subcutaneous tissue.
G2 - Ulcers extend into tendon, bone, or capsule.
G3 - Deep ulcer with osteomyelitis, or abscess.
G4 – Discrete Gangrene (toes, forefoot, midfoot or hindfoot).
G5 – Whole foot gangrene.
Grade 0

- Preulcer stage
- Skin is intact
- Redness of skin
- Calluses
- Bony deformities

It can be prevented
It should be reassessed annually
Grade 1

Superficial (shallow) Ulceration

Should be reassessed every 3 monthly
Grade 2

- Deep ulceration
- Visible Tendon, or bone in wound

Aggressive treatment is must
Grade 3

- Deep Abscesses
- Osteo Myelitis (Infection of Bone)

Chances of loosing leg
Grade 4
Localized gangrene of toes / forefoot

Needs Amputation (Cutting) of Toe or part of foot
Grade 5

Gangrene of entire foot or leg

Needs Amputation (Cutting) of foot or leg
Undermined Ulcer

- Decubitus / Pressure Sore / Bed Sore
- T.B.

3- Undermined edge

When infection is affecting the subcutaneous tissue more than the skin, the edge becomes undermined.
Classification of Bed Sore

Grade 1  Non blanching erythema.
Grade 2  Partial thickness skin loss involving epidermis, dermis or both.
Grade 3  Full thickness skin loss involving damage to sub-cutaneous tissue that may extend to but not through the underlying fascia.
Grade 4  Full thickness skin loss involving muscle, bone or supporting structures.
Grade One
Non blanching erythema
Grade Two Partial thickness skin loss involving epidermis, dermis or both
Grade Three  Full thickness skin loss involving damage to sub-cutaneous tissue that may extend to but not through the underlying fascia
Grade Four  Full thickness skin loss involving muscle, bone or supporting structures
Pressure of bone against hard surface

Pinching off of blood vessels

Bone
Soft tissue
Blood vessels
Skin layers
Hard surface (bed)
Friction of skin against the surface

Normal
Treatment of Bed Sore

- Swab for culture and sensitivity.
- Surgical debridement.
- Antibiotics (Broad spectrum).
- Continuous rolling the patient to each side every 2 hrs.
- (وَفَلَّنَّهُمْ ذَاتُ الْيَمِينِ وَذَاتُ الْشَّمَالِ) [الكهف: 18] (and We turned them on their right and on their left sides).
- Daily changing dressing and keeping the ulcer moist.
- Pneumatic Bed Sore Prevention.
- Topical tissue growth factor.
- Hyperbaric Oxygen Therapy.
- Rotational Flap.
- Treatment underlying cause.
Hyperbaric Oxygen Therapy For Bed Sores
ROLLED EDGE ULCER

- Slow growth of tissue in the edge of the ulcer. The edge looks like heaped up mound around an ancient Roman earthwork.
- B.C.C. (Rodent ulcer), diagnostic.
4- Rolled

Develops when there is **slow growth** of tissue in the edge of the ulcer

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**Basal cell carcinoma (rodent ulcer):**

Pale pink edge with clumps & clusters of cells visible through the paper thin superficial covering of squamous cells
This patient's lesion is known as a rodent ulcer, named for its resemblance to a rat bite. The rodent ulcer is a nodular BCC. The rat bite morphology is a consequence of early central ulceration of nodular BCC.
An everted edge ulcer

- Rapid tissue growth in the edge, spilling out of the ulcer, overlapping normal skin.
- The heaped-up, everted edge and irregular thickened base.
- S.C.C.
- CA. any site. (bowel, bladder and respiratory organs).
- Malignant transformation of chronic venous ulcer.(Marjulin’s ulcer).
5- Everted edge

Develops when the tissue in the edge of the ulcer is growing quickly and spilling out of the ulcer to overlap the normal skin.

- Malignant transformation in a chronic venous ulcer
  - "Marjulin" ulcer

- Malignant ulcer colon carcinoma
Squamous-cell carcinoma

- Ulcer
- Stratum corneum
- Hard raised edges
- Epidermis
- Dead keratinocyte
- Dermis
- Keratinocyte
- Hypodermis
- Cancer cell
- Muscle layer
An ulcer with everted edge from the scar of the previously excised SCC.
Post-burn scar of 18 years duration turning into malignancy (squamous cell carcinoma) - Marjolin's ulcer
Sinus

- It is a blind ended tract connecting to an epithelial surface, it is usually associated with a cavity.
Congenital

Congenital dermal sinus over the dorsal spine.
Congenital lip sinus.
Congenital preauricular sinus.

Acquired

Pilonidal Sinus.
Dermal sinus tracts are remnants of incomplete neural tube closure. Embryologically, they result from a failure of the surface ectoderm and dermal elements to separate from the neuroectoderm. This process likely occurs between the 3rd and 8th weeks of gestation.
Pilonidal Sinus

To be read in
Ch 73 (1244 - 1245)

- A pilonidal sinus is a small hole, or a tunnel in the skin, connecting with a cavity containing tuff of hair. The word “pilonidal” is derived from the Latin words pilus (meaning hair) and nidus (meaning nest).

The most common sites:
- Natal Cleft.
- Finger Webs (Barber’s finger, Interdigital Pilonidal Sinus).
- Umbilicus.
Certain factors increase the risk of developing the condition and include:

- A job involving a lot of sitting (a sedentary occupation)
- Being overweight (obesity)
- A previous persistent irritation or injury to the affected area
- Having a hairy, deep natal cleft
- A family history of the condition
SYMPTOMS AND SIGNS

- A pilonidal sinus will cause no symptoms until it becomes infected, although you may notice its presence as a small pit, or depression, in the surface of your skin.

- **Swelling**: Once the sinus becomes infected, the pit will begin to swell and you may experience symptoms that include:
  - **Pain**,
  - Redness of the skin,
  - *Pus and/or Blood* draining from the sinus (the pus usually smells unpleasant).
Treatment (PNS of Umblicus and web of the inguinal)

- Conservative treatment.
- Surgical Excision.
Treatment (PNS of Antenatal cleft)

- Conservative treatment.

- Treatment of an acute exacerbation (abscess)

- Surgical treatment of chronic pilonidal disease:
  - Karydakis procedure
  - Bascom’s procedure

- Recurrent pilonidal sinus. (Bascom’s procedure).
Fistula

- An abnormal communication between two different epithelial surfaces.
- Congenital / Acquired.
CONGENITAL FISTULA

- Vitello-intestinal duct fistula
- Urachal fistula.
- Branchial Fistula.
Presentation
A 5 year old girl with persistent discharge on the anterior neck. There is an external cutaneous orifice on the anterior aspect of the neck just below the thyroid cartilage, anterior to medial border of the lower third of the right sternocleidomastoid muscle. There is no discharge from the orifice at the time of examination. There is no change in position of the external orifice on protrusion of tongue or swallowing.
Umbilicus

Opening in urachus leading to bladder (patent urachus)
Acquired Fistula

- Enterocutaneous Fistula.
- Fistula in Ano.
- Thyroglossal Fistula
- Mammary Fistula (Breast).
Acquired Fistula

- Enterocutaneous Fistula.
- abnormal communication between two epithelialized surfaces

- classification
  - Congenital / Acquired
  - External / internal
  - primary (type-I)
    - 15-25%
    - underlying disease of gut wall
    - require resection
  - secondary (type-II)
    - 75-85%
    - after injury
    - potential to close spontaneously

- Anastomotic failure
- Peritonitis
- Hepatic, renal insufficiency
- Previous surgery
- Immunocompromised
- Unrecognized enteric injury
- Repaired serotomy
- Extensive adhesiolysis
- Trauma surgery
- Mesh repair – ventral hernias
- Surgery for cancer
- Laparostomy
Classification

Site (anatomy)
- Small bowel (65%)
- Colon (30%)
- Stomach/oesophagus (rare)

Output (physiology)
- Low (<200 mL/24 hr)
- Moderate (200 – 500 mL/24 hr)
- High (>500 mL/24 hr)

Complexity
- Simple
- Complex - long, multiple, associated abscess, other organ involvement (e.g. bladder, vagina)
- usually small bowel;
- 50% mortality;
- less chance of spontaneous closure.
Classification

Two categories

- Low-output fistula: < 500 mL/day
- High-output fistula: > 500 mL/day

Three categories

- Low-output fistula: < 200 mL/day
- Moderate-output fistula: 200-500 mL/day
- High-output fistula: > 500 mL/day
The mnemonic **FRIENDS** can be used to memorize characteristics which impede the closure of ECF.

- **F** Foreign body
- **R** Radiation
- **I** Infection or Inflammatory bowel disease
- **E** Epithelialization
- **N** Neoplasm
- **D** Distal obstruction
- **S** Short tract (<2 cm)
<table>
<thead>
<tr>
<th>Category</th>
<th>Type of fistula</th>
<th>Uses of information</th>
</tr>
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<tbody>
<tr>
<td>Anatomy</td>
<td>Internal vs. external</td>
<td>May suggest cause of fistula</td>
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<tr>
<td></td>
<td>Anatomic course</td>
<td>Assists in planning operative closure</td>
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<tr>
<td></td>
<td></td>
<td>May predict spontaneous closure</td>
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<tr>
<td>Physiology</td>
<td>Output (ml per day)</td>
<td>Predicts mortality</td>
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<tr>
<td></td>
<td>Low (&lt; 200)</td>
<td>Predicts metabolic derangements</td>
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<tr>
<td></td>
<td>Moderate (200–500)</td>
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<tr>
<td></td>
<td>High (&gt;= 500)</td>
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<tr>
<td>Etiology</td>
<td>By underlying disease process</td>
<td>Predicts closure rate</td>
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<tr>
<td></td>
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<td>Predicts mortality</td>
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<tr>
<td>Phase</td>
<td>Time Course</td>
<td>Primary goals</td>
</tr>
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<td>------------------------------</td>
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<td>----------------------------------------------------------------</td>
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<tr>
<td>1. Recognition and stabilization</td>
<td>24–48 hours</td>
<td>Correct fluid and electrolyte imbalances</td>
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<td></td>
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<td>Drainage of intra-abdominal abscesses</td>
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<td>Control of sepsis</td>
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<td>Control of fistula drainage</td>
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<td></td>
<td></td>
<td>Ensure adequate skin care</td>
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<td></td>
<td></td>
<td>Aggressive nutritional support</td>
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<tr>
<td>2. Investigation</td>
<td>after 7–10 days</td>
<td>Determine anatomy and fistula characteristics</td>
</tr>
<tr>
<td>3. Decision</td>
<td>up to 4–6 weeks</td>
<td>Determine likelihood of spontaneous closure</td>
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<td>Plan course of therapy</td>
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<tr>
<td>4. Definitive therapy</td>
<td>after 4–6 weeks or if closure is unlikely</td>
<td>Closure of fistula</td>
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<td>Reestablish gastrointestinal continuity</td>
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<td></td>
<td>Secure closure of abdomen</td>
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<tr>
<td>5. Healing</td>
<td>5–10 days after closure onward</td>
<td>Ensure adequate nutritional support</td>
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<td>Transition to oral intake</td>
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Fistula in Ano

- Discharge.
- Underlying disease (Abcess, Crohn’s disease, Malignancy).
- Fistulogram.
- M.R.I.
- Tx: Surgery:
  - Fistulotomy.
  - Fistulotomy + curette
- Radiofrequency ablation.
- Laser therapy.
MAMMARY DUCT FISTULA

RETROAREOLA ABSCESS: ILL-DEFINED, NONCALCIFIED MASSES HIGH-DENSITY, ILL-DEFINED HETEROGENEOUS MASS WITH AN IRREGULAR MARGIN.
نم بحمد الله
وضع قليلاً من العاطفة على عقلك حتى يلين
وضع قليلاً من العقل على قلبك حتى يستقيم.