General Surgery - Topic 18 - Skin and subcutaneous tissue

Skin and Subcutaneous Tissue (A Structured Approach to a Swelling)

- A swelling may arise from skin, fat, fascia, muscle, a vessel, a nerve or a lymph node.
- Its diagnosis depends on the history and anatomical plane, not on one sign such as softness or mobility.

History

- Ask when the swelling began, how quickly it has grown and whether growth has recently accelerated.
- Ask about pain, redness, discharge, bleeding, ulceration, fever and interference with movement or daily activities.
- Record trauma, injections, previous surgery, recurrence and any similar swellings elsewhere.
- Ask about diabetes, immunosuppression, skin cancer, relevant exposures and constitutional symptoms.
- A changing lesion, a persistent ulcer or a new enlarging mass should not be dismissed because it is painless.

Clinical Examination

1. Consent and Inspection

- Introduce yourself, explain the examination, obtain consent and expose the area with appropriate privacy and lighting.
- Inspect the site, number, shape, approximate size, surface, skin colour, scars, punctum and visible vessels.
- Measure in centimetres and record the exact anatomical location so that later change can be assessed.

2. Palpation and Related Examination

A. Local Palpation and Relation to Muscle

- Palpate gently for warmth, tenderness, consistency, borders and mobility relative to skin and deeper structures.
- Assess fluctuation in two planes when a fluid collection is suspected, but avoid repeated painful manipulation.
- Test movement with muscle contraction when the swelling may lie within or beneath muscle.

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B. Vascular Features and Neurovascular Safety

- Assess compressibility, pulsation and a bruit only when relevant and without unsafe pressure.
- Examine regional nodes, adjacent joints and distal neurovascular function where indicated.
- Do not needle a pulsatile swelling before excluding a vascular lesion.

Choosing Investigations

1. Ultrasound and Specialist Imaging

- Ultrasound often helps distinguish a superficial solid mass, cyst or abscess and can assess vascularity.
- An unexplained increasing adult soft-tissue lump needs prompt ultrasound or an appropriate specialist pathway.
- A deep, large, recurrent or suspicious mass may need MRI and referral before a biopsy or excision is planned.

2. Planned Biopsy and Persistent Suspicion

- A possible sarcoma should have a biopsy planned by the treating team so that its track can be removed during definitive surgery.
- Histology is required when the diagnosis is uncertain or malignancy is suspected.
- A normal or uncertain ultrasound does not end the investigation if concerning clinical features persist.

Cutaneous and Subcutaneous Infections

Pathogenesis

- Breaks in the skin allow organisms to enter follicles, dermis or deeper tissue.
- Staphylococcus aureus commonly causes purulent lesions, while streptococci are important causes of spreading non-purulent infection.
- Oedema, poor perfusion, diabetes, foreign material and impaired immunity can increase risk or slow recovery.
- A recurrent infection may reflect an untreated local cause, carriage, poor glycaemic control or a different diagnosis.

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Clinical Infection Groups

1. Folliculitis, Furuncle and Carbuncle

Clinical Patterns

- Folliculitis is inflammation or infection centred on a hair follicle and produces small superficial pustules.
- A furuncle is a deeper follicular abscess that forms a tender nodule.
- A carbuncle involves connected deeper follicular abscesses and may have several draining openings.

Assessment and Treatment

- Assess for systemic illness and associated diabetes in extensive or recurrent disease.
- Small superficial lesions may improve with local care, while a significant drainable collection needs drainage.
- Antibiotics are selected when the extent, systemic signs, host factors or local resistance pattern justify them.
- Do not encourage forceful squeezing, especially of lesions on the central face.

2. Cellulitis and Erysipelas

Recognition

- Cellulitis causes spreading warmth, tenderness, swelling and erythema of the skin and subcutaneous tissue.
- Erysipelas is a more superficial infection with a relatively raised, clearly defined edge.
- In darker skin, colour change may be less obvious, so warmth, swelling, tenderness and comparison with surrounding skin are useful.

Management

- Look for a portal of entry such as a wound, ulcer or interdigital fungal infection.
- Treat with an appropriate antibiotic, elevation where useful, analgesia and management of the underlying cause.
- Marking or measuring the affected area can help assess progression, while severe illness requires hospital treatment.
- If a collection is present, antibiotics alone may be insufficient and drainage should be considered.

3. Abscess

Clinical Recognition and Ultrasound

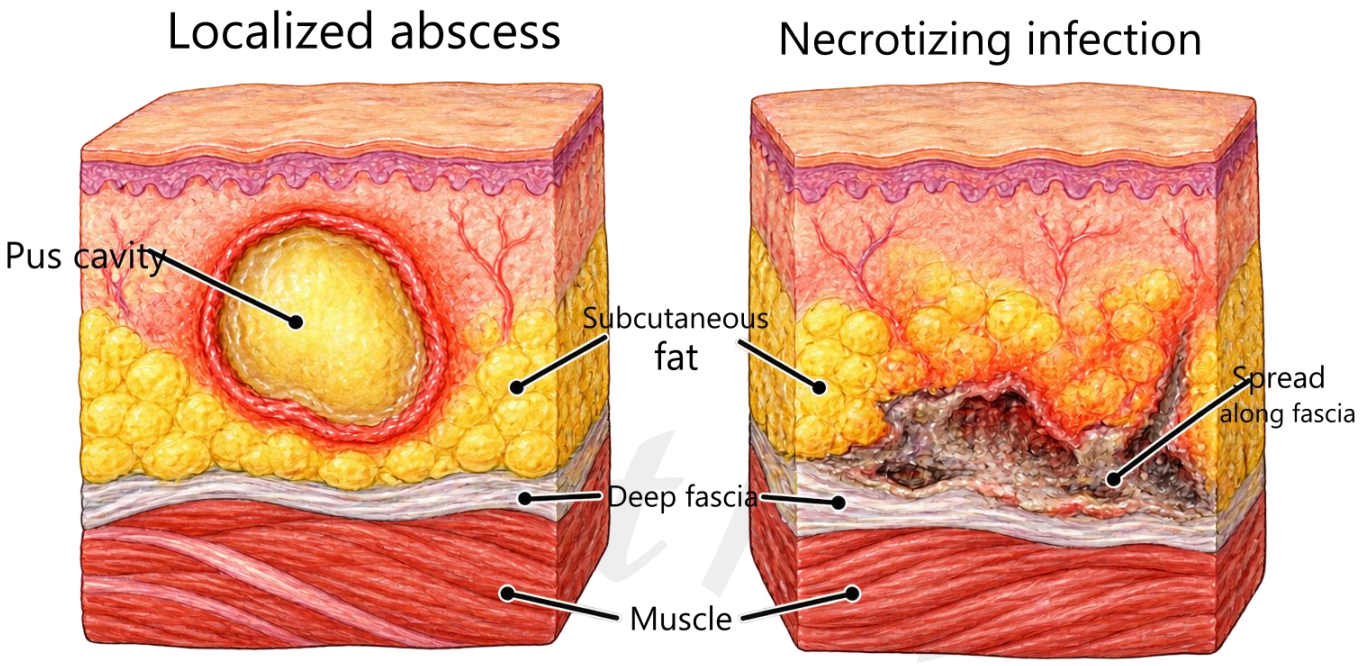
- An abscess is a localized pus collection that may feel fluctuant, although deep collections can lack a clear surface sign.

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- Ultrasound is helpful when the examination cannot distinguish cellulitis from a collection.

Drainage, Antibiotics and Reassessment

- Drainage provides source control for a significant accessible abscess and allows suitable material to be sampled when indicated.
- Antibiotics complement drainage in selected cases, including systemic illness, extensive cellulitis, immunosuppression or other high-risk features.
- Reassess persistent pain or fever for inadequate drainage, deeper extension or another source.



A localized abscess and a deeper necrotizing infection involve different tissue planes and require different urgency

4. Necrotizing Infection

Rapid Progression and Warning Signs

- Rapidly progressive infection can destroy fascia and subcutaneous tissue while early skin changes appear limited.
- Severe pain out of proportion, toxicity, rapidly spreading swelling, bullae, skin anaesthesia or crepitus are warning signs.
- Absence of gas or a low laboratory risk score does not safely exclude the condition.

Urgent Surgery and Organ Support

- Urgent surgical exploration and debridement, resuscitation and broad intravenous antibiotics are required when it is suspected.
- Imaging must not delay surgery in a clinically convincing deteriorating patient.
- Repeated debridement and intensive supportive care may be necessary.

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Other Important Lesions

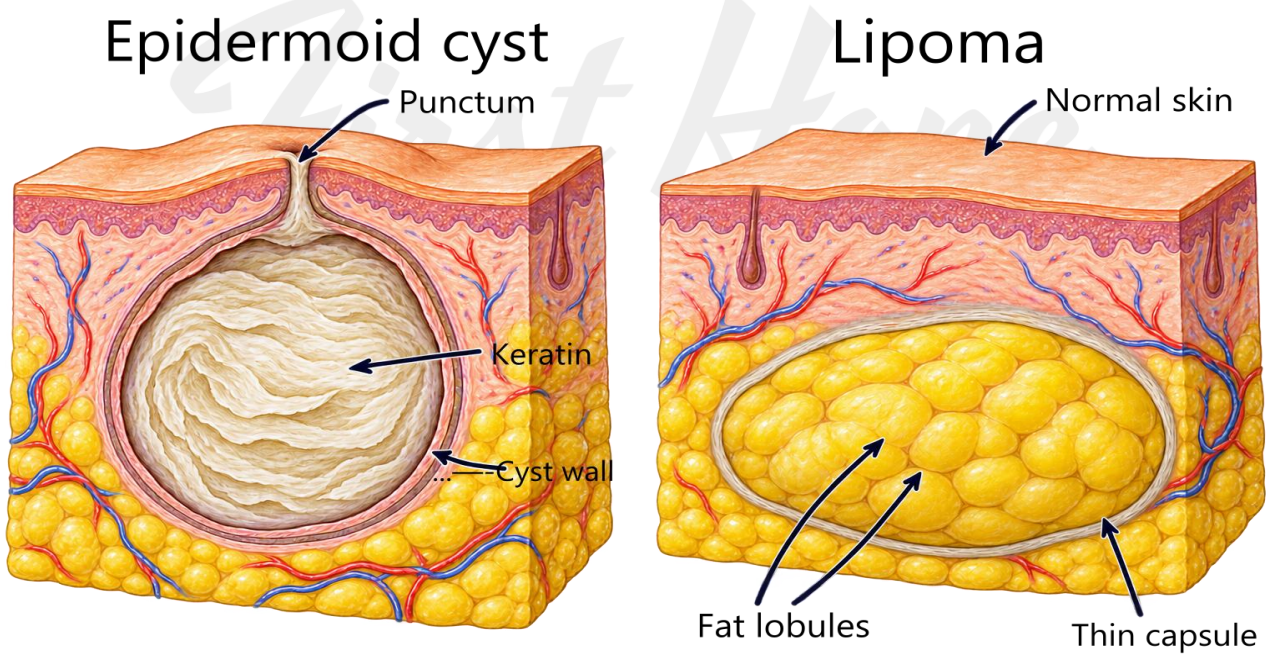
1. Hidradenitis Suppurativa

- Hidradenitis suppurativa causes recurrent inflammatory nodules, abscesses and tunnels, commonly in axillary or groin skin.
- It is a chronic follicular inflammatory disorder and needs a sustained medical and sometimes surgical plan rather than repeated drainage alone.

2. Pilonidal Disease

- A pilonidal sinus often has midline pits in the natal cleft and can present with recurrent discharge or an acute abscess.
- An acute pilonidal abscess needs appropriate drainage, while chronic disease needs individualized definitive treatment and local-care advice.
- Atypical, chronic or treatment-resistant lesions may require culture, biopsy or investigation for mycobacterial or fungal disease.

Common Benign Swellings



An epidermoid cyst contains keratin and may have a punctum, while a lipoma is composed of fatty lobules

Epidermoid Cyst

Definition and Characteristic Findings

- An epidermoid cyst contains keratin within an epithelial-lined cavity and may have a surface punctum.
- The common term sebaceous cyst is often used loosely, although the contents are usually keratin rather than sebum.
- It is often attached to the skin but mobile over deeper tissue.

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