Lumps and Ulcers

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MD General surgery

Revision panel 1.12

The history of a lump or an ulcer

Duration
When was it first noticed?

First symptom
What brought it to the patient's notice?

Other symptoms
What symptoms does it cause?

Progression
How has it changed since it was first noticed?

Persistence
Has it ever disappeared or healed?

Multiplicity
Has (or had) the patient any other lumps or ulcers?

Cause
What does the patient think caused it?

Revision panel 1.11

The examination of a lump or ulcer

Local examination

- Site
- Size
- Shape
- Surface
- Depth
- Colour
- Temperature
- Tenderness
- Edge
- Composition:
  - consistence
  - fluctuation
  - fluid thrill
  - translucence

  } Solid, fluid or gas
  - resonance
  - pulsatility
  - compressibility
  - bruit

  } Vascular
- Reducibility
- Relations to surrounding structures — mobility/fixity
- Regional lymph glands
- State of local tissues:
  - arteries
  - nerves
  - bones and joints

General examination

History of lump

Most patients with a lump feel it frequently and should be able to tell you about the history of its clinical features. Therefore, you should seek answers to the following questions:

- **When was the lump first noticed**?

It is important to be precise with dates and terminology. Do not write ‘the lump first appeared 6 months ago’, when you mean ‘the lump was first noticed 6 months ago’. Many lumps may exist for months, even years, before the patient notices them.

- **What made the patient notice the lump?**

There are three common answers to this question: ‘I felt or saw it when washing’. ‘I had a pain and found the lump when I felt the painful area’. ‘Someone else noticed it and told me about it’. The presence or absence of pain is important, particularly if it is the presenting feature. In very general terms, pain is usually associated with inflammation, not neoplastic change. Most patients expect cancer to be painful – and do themselves irreparable harm by ignoring a lump just because it does not hurt them

History of lump

- **What are the symptoms of the lump?**

The lump may be painful and if it is, you must take a careful history of the pain, as described earlier in this chapter. The characteristic feature of pain associated with acute infection is its throbbing nature. A lump may be disfiguring or interfere with movement, respiration or swallowing. Describe the history of each symptom carefully.

- **Has the lump changed since it was first noticed?**

This is where you use the patient's own knowledge of their physical signs. The feature that they notice is the size of the lump. They should be able to tell you if it has got bigger, smaller, or has fluctuated in size and when they noticed a change in size. They may also have appreciated other changes in the nature of the lump that they can tell you about. They may also have noticed tenderness, which may have altered in any of the ways that a pain may change.

History of lump

- **Does the lump ever disappear?**

A lump may disappear on lying down, or during exercise, and yet be irreducible at the time of your examination. The patient should always be asked if the lump ever goes away, because this physical characteristic is peculiar to only a few types of lump.

- **Has the patient ever had any other lumps?**

You must ask this question because it might not have occurred to the patient that there could be any connection between their present lump and a previous lump, or even a coexisting one.

- **What does the patient think cause the lump?**

Lumps occasionally follow injuries or systemic illnesses known only to the patient

Examination

- **Site/position:** The location of a lump must be described in exact anatomical terms, using distances measured from bony points. Do not guess distances; use a tape measure.
- **Color and texture of overlying skin:** The skin over a lump may be discolored and become smooth and shiny or thick and rough.
- **Shape:** Remember that lumps have three dimensions. You cannot have a circular lump because a circle is a plane figure. Many lumps are not regular spheres, or hemispheres, but have an asymmetrical outline. In these circumstances, it is permissible to use descriptive terms such as pear shaped, or kidney shaped.

Examination

- **Size:** Once the shape is established, it is possible to measure its various dimensions. Again, remember that all solid objects have at least three dimensions: width, length and height or depth. Asymmetrical lumps will need more measurements to describe them accurately; sometimes a diagram will clarify your written description.
- **Surface:** The first feature of the lump that you will notice when you feel it will be its surface. It may be smooth or irregular. An irregular surface may be covered with smooth bumps, rather like cobblestones, which can be called bosselated; or be irregular or rough. There may be a mixture of surfaces if the lump is large.
- **Temperature:** Is the lump hot or of normal temperature? Assess the skin temperature with the dorsal surfaces of your fingers, because they are usually dry (free of sweat) and cool.

Examination

- **Tenderness:** Is the lump tender? Which parts are tender? Always try to feel the non-tender part before feeling the tender area and watch the patient's face for signs of discomfort as you palpate.
- **Edge:** The edge of a lump may be clearly defined or indistinct. It may have a definite pattern.
- The physical signs which help you decide the **composition** of a lump are consistence, fluctuation, fluid thrill, translucence, resonance, pulsatile, compressibility and bruits.

Examination

- **Composition:** Any lump must be composed of one or more of the following:
  - Calcified tissues such as bone, which make it hard.
  - Tightly packed cells, which make it solid.
  - Extravascular fluid, such as urine, serum, cerebrospinal fluid (CSF), synovial fluid or extravascular blood, which make the lump cystic.
  - Gas.

- **Consistence:** The consistence of a lump may vary from very soft to very hard. As it is difficult to describe hardness, it is common practice to compare the consistence of a lump to well-known objects. A simple scale for consistence is as follows:
  - Stony hard: usually bone or calcification.
  - Firm: hard but not as hard as bone.
  - Rubbery: but slightly squashable, like a rubber ball.
  - Spongy: soft and very squashable, but still with some resilience.
  - Soft: squashable and no resilience.

The consistence of a lump depends not only upon its structure but also on the **tension** within it. Some fluid-filled lumps are hard, some solid lumps are soft; therefore, the final decision about composition of a lump (i.e., whether it is fluid or solid) rarely depends solely upon an assessment of the consistence.

- Other features such as those peculiar to fluid may be more important.
- **Fluctuation:** Pressure on one side of a fluid-filled cavity makes all the other surfaces protrude. This is because an increase of pressure within a cavity is transmitted equally and at right-angles to all parts of its wall. When you press on one aspect of a solid lump, it may or may not bulge out in another direction, but it will not bulge outwards in every other direction.

Fluctuation can only be elicited by feeling at least two other areas of the lump whilst pressing on a third. The lump fluctuates and contains fluid if two areas on opposite aspects of the lump bulge out when a third area is pressed in. This examination is best carried out in two places, the second at right angles to the first.

- **Fluid thrill:** A percussion wave is easily conducted across a large fluid collection (cyst) but not across a solid mass. The presence of a fluid thrill is detected by tapping one side of the lump and feeling the transmitted vibration when it reaches the other side. A percussion wave can be transmitted along its wall if a swelling is large. This is prevented by place the edge of the patient's or an assistant's hand on the lump mid-way between the percussing and palpating hands. Percussion waves cannot be felt across small lumps because the wave moves so quickly that the time gap cannot be appreciated or distinguished from the mechanical shaking of the tissue caused by the percussion. The presence of a fluid thrill is a diagnostic and extremely valuable physical sign.
- **Translucence (transillumination):** Light will pass easily through clear fluid but not through solid tissues. A lump that transilluminates must contain water, serum, lymph or plasma, or highly refractile fat. **Blood and other opaque fluids do not transmit light.** Transillumination requires a bright pinpoint light source and a darkened room. The light should be placed on one side of the lump, not directly on top of it. Transillumination is present when the light can be seen in an area distant from the site in contact with the light source. Attempts at transillumination with a poor-quality flashlight in a bright room are bound to fail and mislead.
- **Resonance**: Solid and fluid-filled lumps sound dull when percussed. A gas-filled lump sounds hollow and resonant. Pulsatile Lumps may pulsate because they are near to an artery and are moved by its pulsations. Always let your hand rest still for a few seconds on every lump.

To discover if it is pulsating. When a lump pulsates, you must find out whether the pulsations are being transmitted to the lump from elsewhere or are caused by the expansion of the lump. Place a finger (or fingers if large) of each hand on opposite sides of the lump and feel if they are pushed outwards and upwards. When they are, the lump has an expansile pulsation. When they are pushed in the same direction (usually upwards), the lump has a transmitted pulsation. The two common causes of expansile pulsation are aneurysms and very vascular tumors.

- **Compressibility:** Some fluid-filled lumps can be compressed until they disappear. When the compressing hand is removed the lump re-forms. This finding is a common feature of vascular malformations and fluid collections which can be pushed back into a cavity or cistern. Compressibility should not be confused with reducibility (see below).
- A lump which is **reducible:** – such as a hernia – can be pushed away into another place but will often not reappear spontaneously without the stimulus of coughing or gravity.
- **Bruits:** Always listen to a lump. Vascular lumps that contain an arteriovenous fistula may have a systolic bruit.

  - Hernia containing bowel may have audible bowel sounds.

  - A reducible lump will be felt to get smaller and then to move into another place as it is compressed. It may disappear quite suddenly after appropriate pressure has been applied. If you ask the patient to cough, the lump may return, expanding as it does so. This is called a cough impulse and is a feature of hernia and some vascular lumps. The reduction can be maintained by pressing over the point at which the lump finally disappeared. In many ways the differences between compressibility (see above) and reducibility are semantic.

- **Relations to surrounding structures:** By careful palpation, it is usually possible to decide which structure contains the lump, and what its relation is to overlying and deeper structures. The attachment of skin and other superficial structures to a lump can easily be determined because both are accessible to the examiner and any limitation of their movement easily felt. The lump should be gently moved while the skin is inspected for movement or puckering.
- **Attachment to deeper structures** is more difficult to determine. Underlying muscles must be tensed to see if this reduces the mobility of an overlying lump or makes it easier or less easy to feel. The former indicates that the lump is attached to the fascia covering the superficial surface of the muscle or to the muscle itself; the latter that the lump is within or deep to the muscles. Lumps that are attached to bone move very little. Lumps that are attached to or arising from vessels or nerves may be moved from side to side across the length of the vessel or nerve, but not up and down along their length. Lumps in the abdomen that are freely mobile usually arise from the intestine, its mesentery or the omentum.

- State of the **regional lymph glands** Never forget to palpate the lymph glands that would normally receive lymph from the region occupied by the lump. The skin, muscles and bones of the limbs and trunk drain to the axillary and inguinal glands; the head and neck to the cervical glands; and the intra-abdominal structures to the pre-aortic and para-aortic glands.
- **State of the local tissues:** It is important to examine the overlying and nearby skin, subcutaneous tissues, muscles and bones, and the local circulation and nerve supply of adjacent tissues. This is more relevant when examining an ulcer; but some lumps are associated with a local vascular or neurological abnormality, or cause an abnormality of these systems, so this part of the examination must not be forgotten.
- **General examination:** It is often tempting to examine only the lump about which the patient is complaining. This will cause you to make innumerable misdiagnoses. You must always examine the whole patient

HISTORY AND EXAMINATION OF AN ULCER

- An ulcer is a solution (break) of the continuity of an epithelium (i.e., an epithelial deficit, not a wound). Unless it is painless and in an inaccessible part of the body, patients notice ulcers from the moment they begin, and will know a great deal about their clinical features.
- **History** The questions to be asked concerning an ulcer follow a pattern like those for a lump.

- 1. **When was the ulcer first noticed?** Ask the patient when the ulcer began and whether it could have been present for some time before it was noticed. The latter often occurs with neurotrophic ulcers on the sole of the foot.
- 2. **What drew the patient's attention to the ulcer?** The commonest reason is pain. Occasionally, the presenting feature is bleeding, or a purulent discharge, which may be foul smelling.
- 3. **What are the symptoms of the ulcer?** The ulcer may be painful. It may interfere with daily activities such as walking, eating or defecation. Record the history of each symptom.
- 4. **How has the ulcer changed since it first appeared?** The patient's observations about changes in size, shape, discharge and pain are likely to be detailed and accurate. If the ulcer has healed and broken down, record the features of each episode.
- 5. **Has the patient ever had a similar ulcer on the same site, or elsewhere?** Obtain a complete history of any previous ulcer.
- 6**. What does the patient think cause the ulcer?** Most patients believe they know the cause of their ulcer and are often right. In many cases it is trauma. When possible, the severity and type of injury should be assessed. A large ulcer following a minor injury suggests that the skin was abnormal before the injury.

Examination

- The examination of an ulcer follows the same pattern as the examination of a lump. When an ulcer has an irregular shape that is difficult to describe, draw it on your notes and add the dimensions. When an exact record of size and shape is needed, place a thin sheet of sterile transparent plastic sheet over the ulcer and trace around its edge with a felt-tipped pen. After recording the site, size and shape of the ulcer, you must examine the base (surface), edge, depth, discharge and surrounding tissues, the state of the local lymph glands and local tissues, and complete the general examination

- **Base:** The base, or floor, of an ulcer usually consists of slough or granulation tissue (capillaries, collagen, fibroblasts, bacteria and inflammatory cells), but recognizable structures such as tendon or bone may be visible. The nature of the floor occasionally gives some indication of the cause of the ulcer.

- Solid brown or grey dead tissue indicates full thickness skin death.

- Syphilitic ulcers have a slough that looks like a yellow-grey wash-leather.

- Tuberculous ulcers have a base of bluish unhealthy granulation tissue.

- Ischemic ulcers often contain poor granulation tissue, and tendons and other structures may lie bare in their base. The redness of the granulation tissue reflects the underlying vascularity and indicates the ability of the ulcer to heal. Healing epidermis is seen as a pale layer extending in over the granulation tissue from the edge of the ulcer.

- **Edge:** There are five types of edge (see Fig. 1.15). A flat, gently sloping edge This indicates that the ulcer is shallow, and this type of ulcer is usually superficial, often only half-way through the skin. Venous ulcers usually have this type of edge, but so do many other types of ulcer. The new skin growing in around the edge of a healing ulcer is pale pink and almost transparent. A square-cut or punched-out edge, This follows the rapid death and loss of the whole thickness of the skin without much attempt at repair of the defect. This form of ulcer is most often seen in the foot where pressure has occurred on an insensitive piece of skin, i.e., a trophic ulcer secondary to a neurological defect. The classic textbook example of a punched-out ulcer is the ulcer of tertiary syphilis, but these lesions are rare today in Europe. Most of the punched-out ulcers that are now seen are caused by the neuropathy of diabetes and peripheral arterial ischemia or, outside Europe and North America, leprosy. An undermined edge When an infection in an ulcer affects the subcutaneous tissues more than the skin, the edge becomes undermined. This type of ulcer is commonly seen in the buttock because of pressure necrosis, because the subcutaneous fat is more susceptible to pressure than the skin; but the classic textbook example is the tuberculous ulcer – which is now uncommon in Europe and North America. A rolled edge This develops when there is slow growth of tissue in the edge of the ulcer. The edge looks like the heaped-up mound around an ancient Roman earthwork. A rolled edge is typical, and almost diagnostic, of a basal cell carcinoma (rodent ulcer). The edge is usually pale pink or white, with clumps and clusters of cells visible through the paper-thin superficial covering of squamous cells. Telangiectasias are commonly seen in the pearly edge. An everted edge This develops when the tissue in the edge of the ulcer is growing so rapidly that it spills out of the ulcer to overlap the normal skin. An everted edge is typical of a carcinoma and is seen in all those organs where carcinomas occur – the skin, in the bowel, in the bladder and in the respiratory tract.

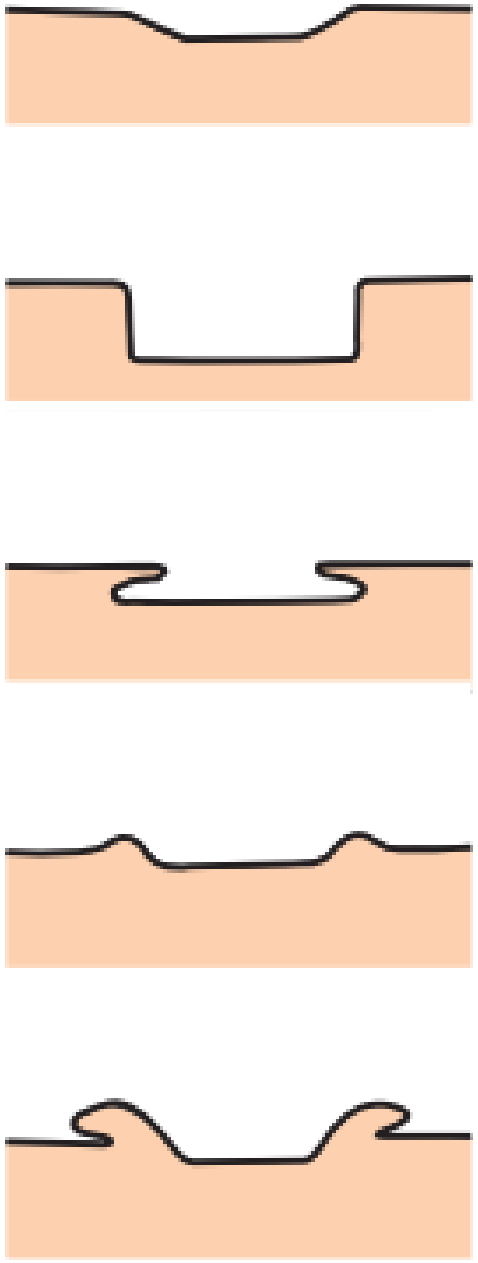
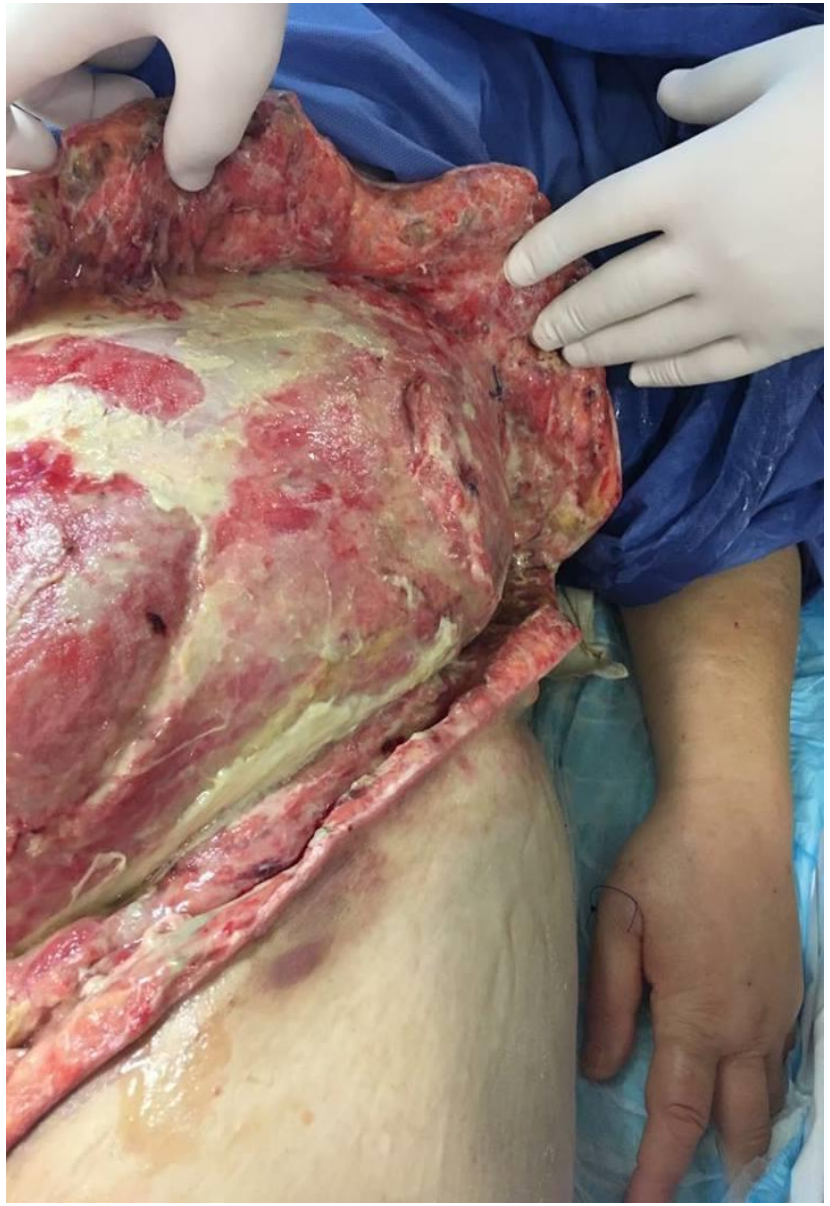


FIG 1.15 The varieties of ulcer edge.

- **Depth** Record the depth of the ulcer in millimeters, and anatomically by describing the structures it has penetrated or reached.
- **Discharge** The discharge from an ulcer may be serous, sanguinous, serosanguinous or purulent. There may be a considerable quantity of discharge which is easily visible, or it may only be apparent from inspection of the patient's dressings, and you may not be able to see the features of the ulcer at all if it is covered with coagulated discharge (a scab). This may have to be removed to examine the ulcer properly. Students should not do this without the permission of the doctor in charge of the patient.
- **Relations** Describe the relations of the ulcer to its surrounding tissues, particularly those deep to it. It is important to know if the ulcer is adherent or invading deep structures such as tendons, periosteum and bone – which may indicate the presence of osteomyelitis. The local lymph glands must be carefully examined. They may be enlarged because of secondary infection or secondary tumor deposits, and they may be tender.
- State of the **local tissues** Pay particular attention to the local blood supply and innervation of the adjacent skin. Many ulcers in the lower limbs are secondary to vascular and neurological disease. There may also be evidence of previous ulcers that have healed
- **General examination** This is very important because many systemic diseases as well as many skin diseases present with skin lesions and ulcers. Examine the whole patient with care, looking especially at their hands and facies, which can supply important clues to the diagnosis.



Wagner classification of diabetic foot ulcers

Grade 0	Grade 1	Grade 2
No ulcer in a high-risk foot 	Superficial ulcer involving the full skin thickness but not underlying tissues 	Deep ulcer, penetrating down to ligaments and muscle, but no bone involvement or abscess formation 
Grade 3	**Grade 4**	**Grade 5**
Deep ulcer with cellulitis or abscess formation, often with osteomyelitis 	Localized gangrene 	Extensive gangrene involving the whole foot 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