
Ditzel (slang): A word used to describe any part of the body that is not ordinarily appropriate for everyday conversation. “*Susan is always walking down the hall with her ditzels hanging out.*” (<http://www.urbandictionary.com/>)

Ditzels are small specimens with limited educational potential. For the purposes of this chapter, these are all specimens with no suspicion or history of malignancy. They often have about three possible diagnoses and a reduced billing charge because of their limited complexity. Until you get experience with them, they slow you down inordinately at the grossing bench and at the microscope as you struggle to get the “right” wording and obsess over whether what you see is pathologic or normal. After all, it is really embarrassing to get a ditzel *wrong*. What follows is a list of typical features, things not to miss, and a suggested wording for unremarkable specimens. However, diagnosis style may vary across institutions, so take your cues from your own attendings.

Cholesteatoma (Middle Ear)

Grossing: A small, whole specimen is usually submitted.

Histology: A cyst is formed by keratinizing epithelium and filled with flaky keratin. Other features can include inflammation, cholesterol clefts, and foreign body giant cells (Figure 5.1).

Rule out: Differential diagnosis of a middle ear mass includes inflammatory polyp, paraganglioma, middle ear adenoma, meningioma, and schwannoma.

Sample sign out: Left middle ear (excision): *Cholesteatoma* or *Fragments of keratinaceous debris (clinical cholesteatoma)*.

Sinus Contents

Grossing: Aspirate sent in a nylon bag. Submit one to two blocks, depending on volume. Use biopsy bags in cassettes.

Histology: Normal components include fragments of bone, respiratory and squamous mucosa, and mucous glands.

- Chronic sinusitis: edema, acute and chronic inflammation
- Allergic fungal sinusitis: sheets of allergic mucin (Figure 5.2) and Charcot-Leyden crystals

Rule out: If allergic mucin is present, get a periodic-acid Schiff (PAS) or Gomori’s methenamine silver (GMS) stain to rule out fungus; other sinus lesions include polyps, papillomas, and unusual tumors.

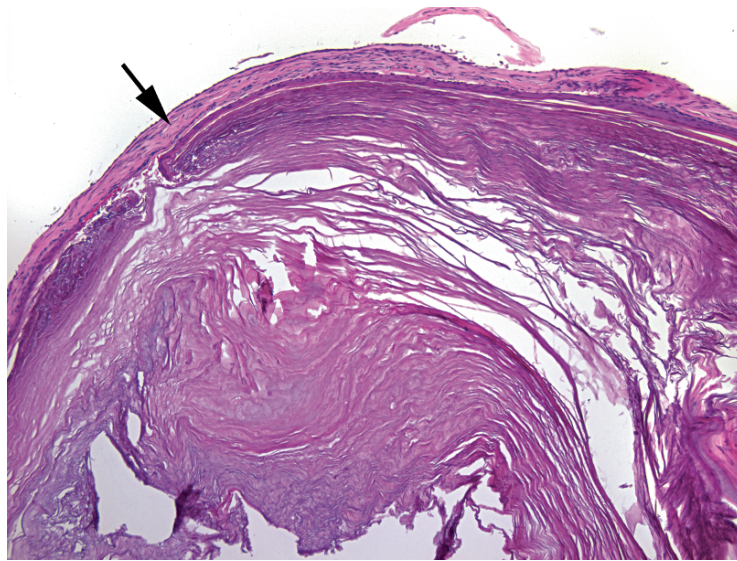


FIGURE 5.1. Cholesteatoma. The specimen is dominated by layers of pink keratin; the thin epithelium can be seen surrounding the keratin nodule (arrow).

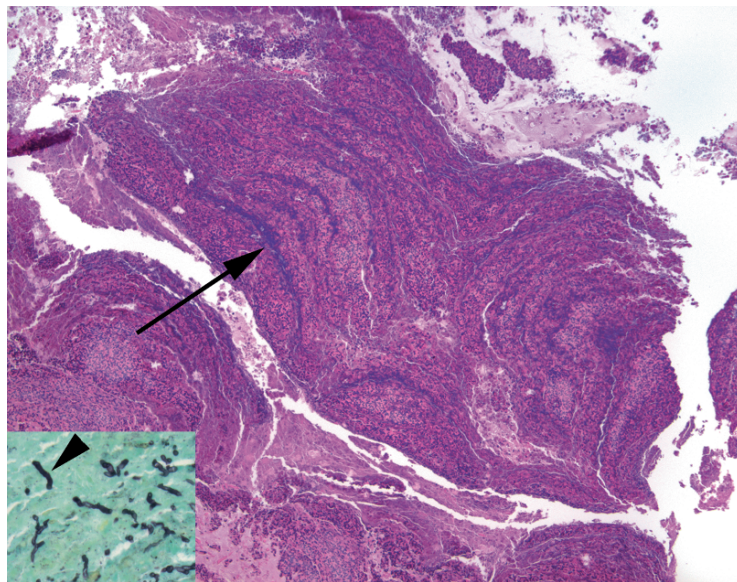


FIGURE 5.2. Allergic mucin in sinusitis. The allergic mucin takes on a characteristic tiger-striped appearance (arrow) as layers of eosinophils, mucin, and cell debris accumulate. **Inset:** A Gomori's methenamine silver stain shows black fungal hyphae (arrowhead).

Sample sign out: Right and left sinus contents (aspiration): *Chronic sinusitis* or *Fragments of respiratory mucosa with chronic inflammation* or *Allergic fungal sinusitis* (a PAS stain highlights fungal organisms within the mucin).

Carotid and Femoral Plaques

Grossing: Specimen is essentially a cast of the artery lumen. Take one block of representative cross sections; this usually requires light decalcification.

Histology: The inner layer of the elastic arterial wall has a variable amount of atherosclerotic debris, calcification, and/or thrombus (Figure 5.3).

Sample sign out: Carotid artery, right (endarterectomy): *Calcified atherosclerotic plaque.*

Intervertebral Disc

Grossing: Submit one block of representative or total material.

Histology: Fibrocartilage and pulpy myxoid gel (the nucleus pulposus), possibly with fragments of bone (Figure 5.4), are present.

Sample sign out: Cervical disc (excision): *Fragments of disc material.*

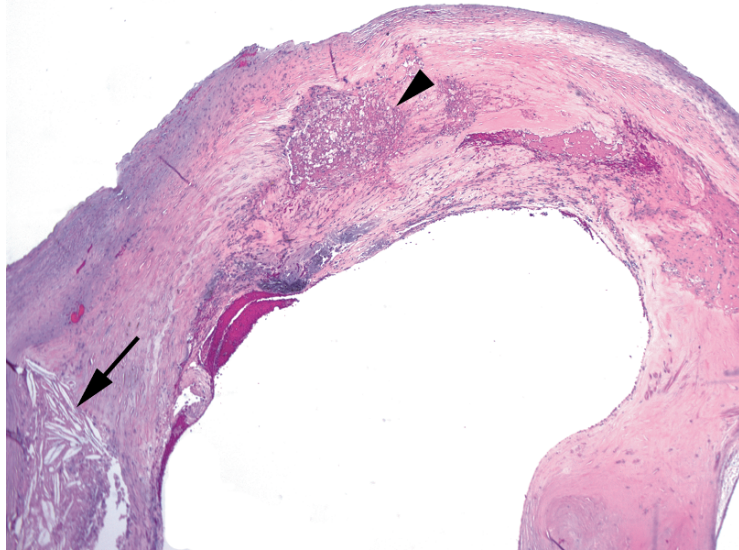


FIGURE 5.3. Carotid plaque. This represents the intimal surface of the artery, in which there may be calcification, foamy macrophages (arrowhead), cholesterol clefts (arrow), or inflammatory debris.

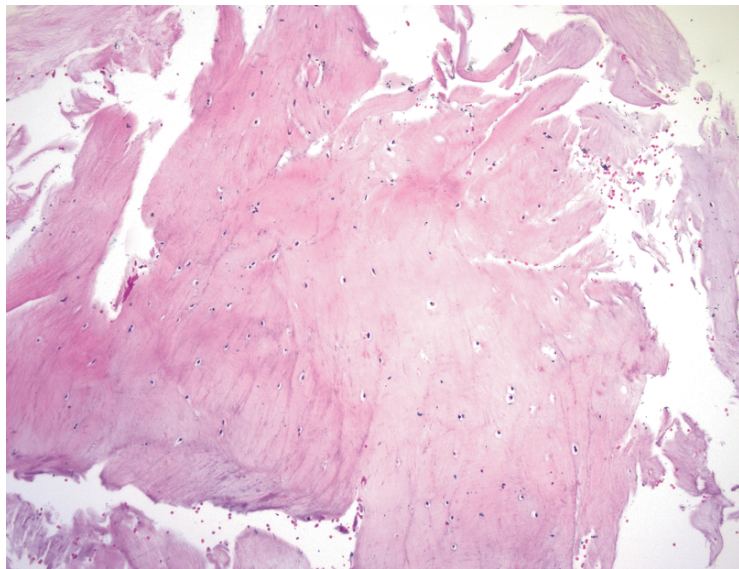


FIGURE 5.4. Intervertebral disc. The disc substance is paucicellular, with a homogeneous translucent stroma (ranging from myxoid to collagenous).

Thymus

Grossing: Tissue may be from incidental thymectomy (heart surgeries), biopsy, or something else (such as parathyroid). *Weigh it.* Weight is a criterion for true thymic hyperplasia. Submit in total for small specimens or representative for thymectomy.

Histology: Architecture is lobular with dark outer cortex and pale medulla (Figure 5.5). Hassall's corpuscles look like squamous nests. Germinal centers are not normal. Fatty replacement with age is normal.

Rule out: Distinguish from sheets of cells or obliterated architecture (thymoma).

Sample sign out: Thymus (thymectomy) or "left inferior parathyroid" (excision): *Histologically unremarkable thymus.*

Parathyroid

Grossing: *Weigh it.* Submit it in its entirety.

Histology: Features include monotonous round neuroendocrine cells with clear cytoplasm (chief cells) or abundant pink cytoplasm (oxyphil cells). Normal weight is around 50 mg; adenomas are usually >300 mg. *Adenoma* is a clinical diagnosis requiring evidence of normalized parathyroid hormone level after surgery. Hyperplasia and adenoma may look the same on the slide (Figure 5.6).

Rule out: Carcinoma is very rare, but dense fibrotic bands and nuclear atypia are suggestive. The diagnosis of carcinoma requires capsular or vascular invasion.

Sample sign out: Left superior parathyroid (excision): *Cellular parathyroid tissue (250 mg).*

Heart Valves

Grossing: There is much information to be gained in grossing. Review your grossing manual for details. Note the presence of vegetations, commissural fusion, calcification, and redundancy.

Histology: Look for myxoid degeneration, calcification, and adherent vegetations (Figure 5.7).

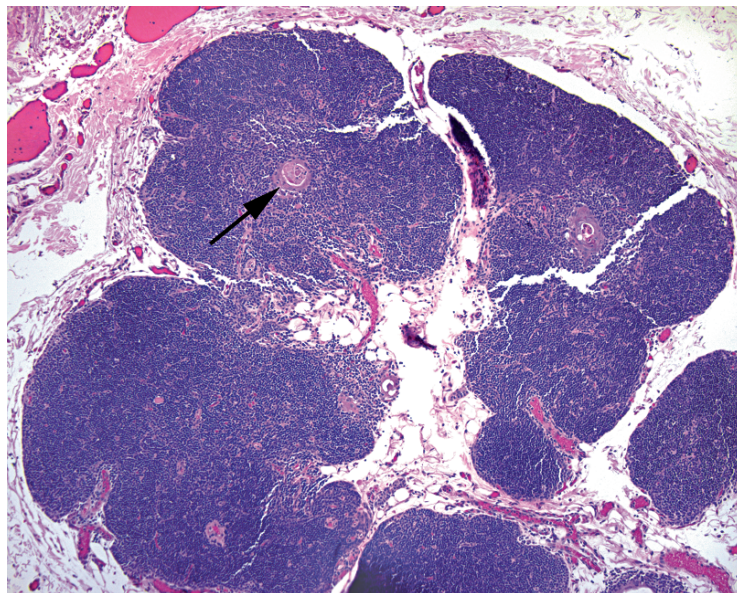


FIGURE 5.5. Thymus. The lobulated thymus resembles lymph node at low power but should not have germinal centers. Hassall's corpuscles (arrow) are visible as pink whorls.

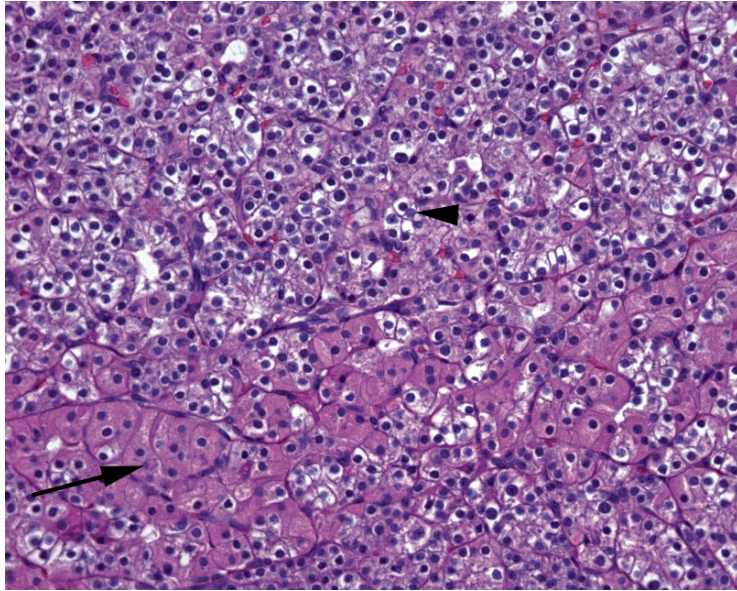


FIGURE 5.6. Parathyroid tissue. Normal parathyroid has two cell populations, the chief cells (arrowhead) and oxyphil cells (arrow).



FIGURE 5.7. Myxoid degeneration, heart valve. In the free end of this heart valve, there is an attenuated pale area of myxoid degeneration (arrow). Calcifications and vegetations may also be seen.

Rule out: Use Gram Weigert and GMS stains on vegetations to rule out bacteria or fungus.

Sample sign out: Aortic valve (excision): *Valve with myxoid degeneration and calcification* or *Valve with adherent fibrinopurulent debris*. Numerous Gram-positive cocci are seen on Gram Weigert stain.

Gallbladder

Grossing: The first section should be a cross section of the cystic duct margin. Open the gallbladder, look for stones, and take two sections of the wall. Note the wall thickness and describe the mucosa. All three fragments can go in one cassette.

Histology: The gallbladder is lined by a single layer of columnar epithelium in folds, overlying a fibromuscular layer that sometimes contains Rokitansky-Aschoff sinuses (infolded mucosa) or

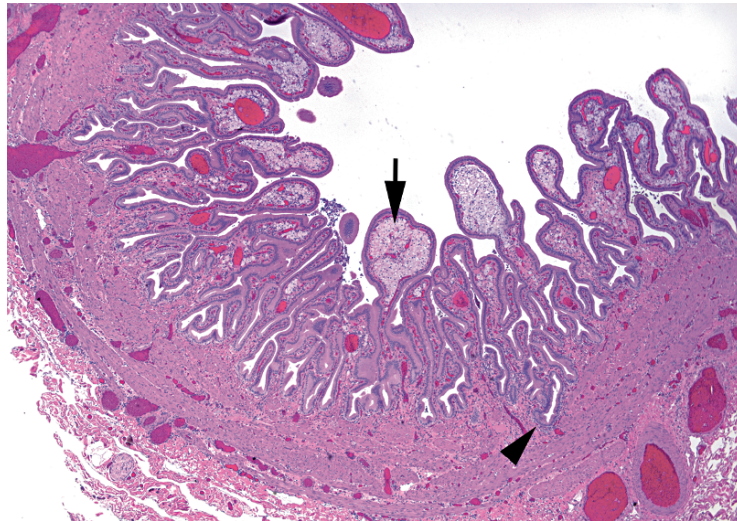


FIGURE 5.8. Gallbladder with cholesterolosis. The mucosal folds are distended with foamy macrophages (arrow), called cholesterolosis. Inflammation is minimal in this example. Rokitsansky-Aschoff sinuses can penetrate deeply into the gallbladder wall (arrowhead).

ducts of Luschka. Cholecystitis can range from mild lymphoplasmacytic inflammation to transmural acute inflammation. Cholesterolosis is the accumulation of foamy macrophages (Figure 5.8).

Rule out: Dysplasia or carcinoma is rare in an isolated cholecystectomy.

Sample sign out: Gallbladder (cholecystectomy): *Chronic cholecystitis, cholelithiasis, and cholesterolosis* or *Acute and chronic cholecystitis*.

Appendix

Grossing: The first section should be a cross section of the proximal margin, inked or otherwise marked as margin. Then cut off the tip and take a longitudinal section (U shaped). Breadloaf the remainder, and take one to two cross sections. Look for nodules, fecaliths, hemorrhage, and pus.

Histology: Normal histology is a colonic mucosa with abundant lymphoid aggregates. Chronic inflammation is not significant, but neutrophils are, whether in the mucosa, wall (transmural inflammation; Figure 5.9), or serosa (serositis). Serositis without transmural inflammation suggests another abdominal source.

Rule out: Carcinoid in the tip and pools of mucin in the wall (as in a mucinous cystadenoma or carcinoma) should be ruled out.

Sample sign out: Appendix (appendectomy): *Acute transmural appendicitis with serositis* or *Histologically unremarkable appendix*.

Hernia Sac

Grossing: Submit a representative section.

Histology: A pouch of fibroadipose tissue is lined with mesothelium, which can be reactive or proliferative (Figure 5.10).

Rule out: A piece of the vas deferens (warrants an immediate call to the surgeon), incarcerated bowel, and metastatic tumor (especially incisional hernias) should be ruled out.

Sample sign out: Soft tissue, right inguinal (herniorrhaphy): *Hernia sac* or *Fibrovascular tissue (clinical hernia sac)*.

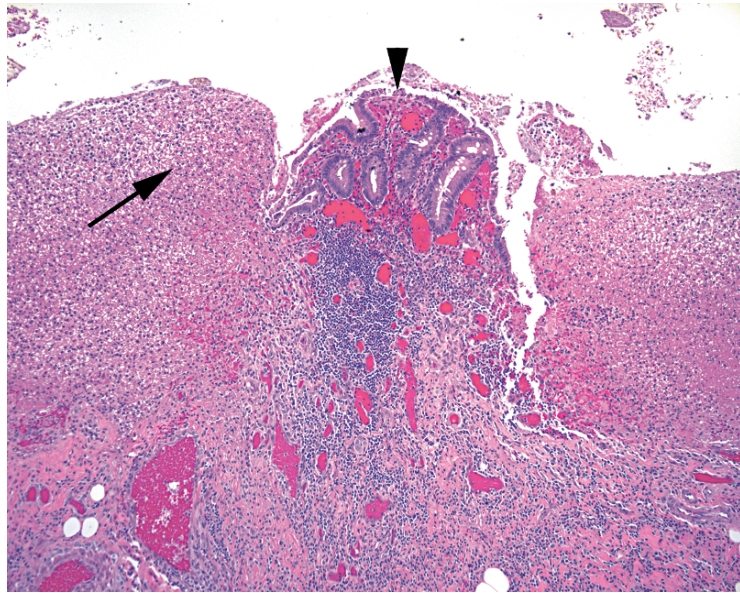


FIGURE 5.9. Appendicitis. In this close-up view, a small amount of residual colonic-type mucosa is visible (arrowhead), surrounded by mounds of fibrinopurulent debris (arrow).

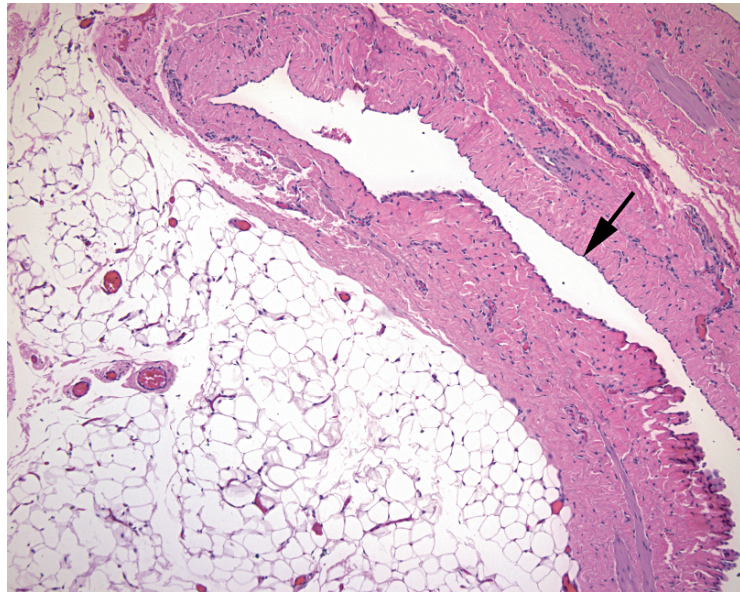


FIGURE 5.10. Hernia sac. Thick fibrous tissue and fat characterize the typical hernia sac. In this section, the delicate mesothelial lining (arrow) is visible.

Scar Revision

Grossing: Breadloaf and take representative sections through the scar. Note that this does not apply to reexcision of a skin cancer or melanoma.

Histology: Dermal scar has dense fine pink collagen, no appendages, and thin epithelium (Figure 5.11). Recent injury or surgery will show hemorrhage, foamy macrophages, inflammation and granulation tissue, suture material, and foreign body-type giant cells.

Rule out: Exclude tumor, if there is a history of tumor, and abscess.

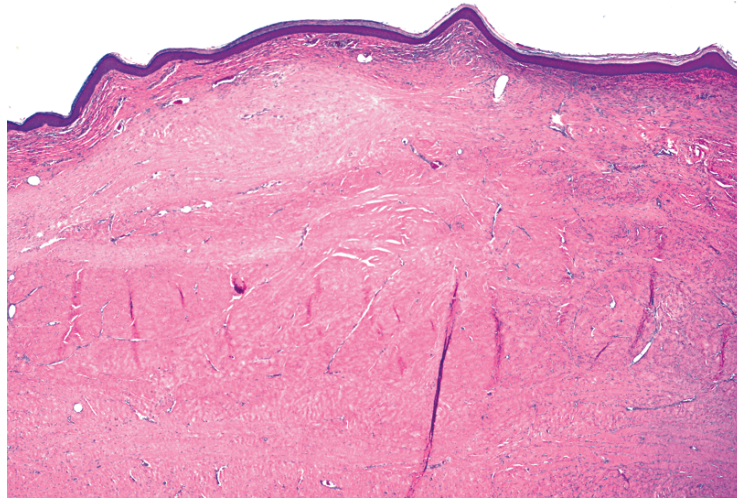


FIGURE 5.11. Dermal scar. Pale and homogeneous collagen underneath the epidermis, with obliteration of adnexal structures, is typical of scar formation.

Sample sign out: Left abdominal wall (scar revision): *Skin with dermal scar, negative for tumor or Skin with biopsy site changes and suture material.*

Femoral or Humeral Head, Knee Bones

Grossing: Use a bone saw to cross section the bone and get a 2-mm slice. Describe eburation (absence of cartilage), osteophytes, femoral neck (fracture vs. surgical), infarcts, and subchondral cysts. Sample the articular surface, plus the margin or fracture site in fracture cases. Submit for routine decalcification.

Histology: Healthy bone has a thick cartilage layer with a smooth surface and marrow between the trabeculae. Look for the following:

- Osteoarthritis: uneven and ragged or absent cartilage, clonal nests of chondrocytes, dual tide-line, thickened and sclerotic subchondral bone, subchondral cysts, fibrosis, and granulation tissue within marrow (Figure 5.12)
- Osteonecrosis: loss of basophilia and nuclei in the marrow, fat cells, and osteocytes; fat necrosis; hemorrhage (Figure 5.13)
- Osteopenia: markedly thinned trabeculae
- Metastatic tumor: out-of-place cells in the area of fracture

Sample sign out: Right femoral head (arthroplasty): *Femoral head with osteonecrosis and fracture or Bone and cartilage with degenerative changes or Osteoarthritis*

Amputated Limbs

Grossing: It is gross, all right. Document the extent of gangrene, ulcers, venous stasis, trauma, and so forth, as well as level of amputation and the viability of the margin. In vascular or infectious disease, section the vascular margin (i.e., popliteal). Take representative sections from the worst area (soft tissue) and margin. Tissue from the bony margin is usually not necessary.

Histology: Look for gangrenous necrosis (Figure 5.14), ulceration, scar, granulation tissue, and inflammation. Evaluate vessel for atherosclerotic disease.

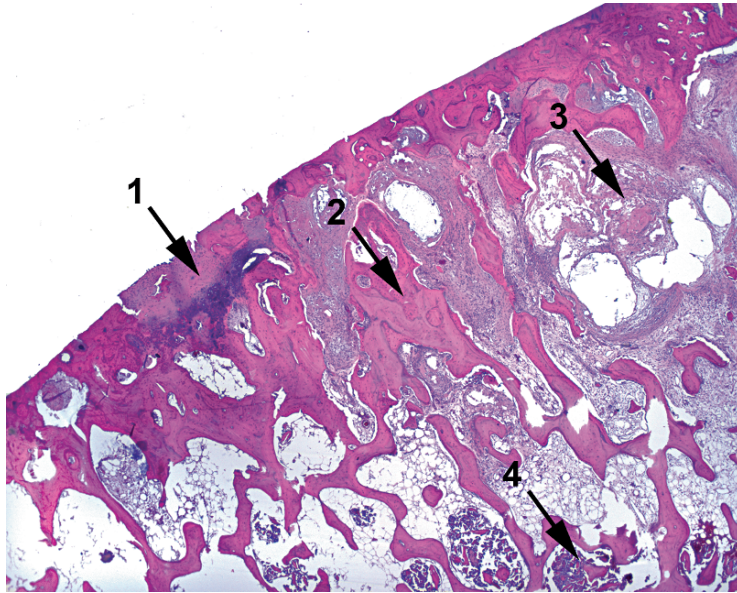


FIGURE 5.12. Osteoarthritis. Features include (1) eroded cartilage, in this case nearly absent, and irregular mineralization of the cartilage, seen here as a dark purple stain; (2) thickening of the subchondral bony trabeculae; (3) myxoid degeneration of the subchondral bone, forming cyst-like spaces; and (4) some residual hematopoietic marrow.

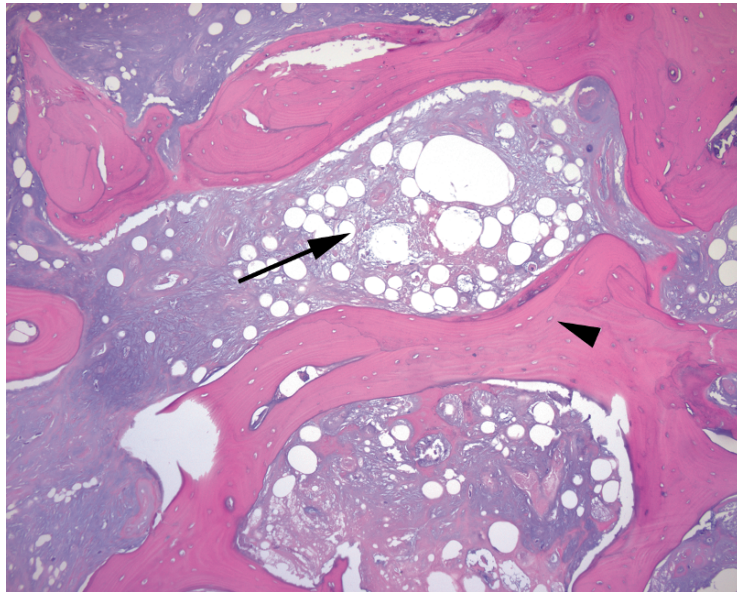


FIGURE 5.13. Osteonecrosis. The necrotic marrow is the most eye-catching feature (arrow), showing fat necrosis and an absence of marrow elements. On close examination, the osteocytes within lacunae are also dead or missing (arrowhead).

Rule out: Invasive fungal disease in a neutropenic patient (requires more extensive sampling of the margin) should be ruled out.

Sample sign out: Left foot (amputation): *Foot with gangrenous necrosis. Atherosclerotic vessels are identified. Surgical margin appears viable.*

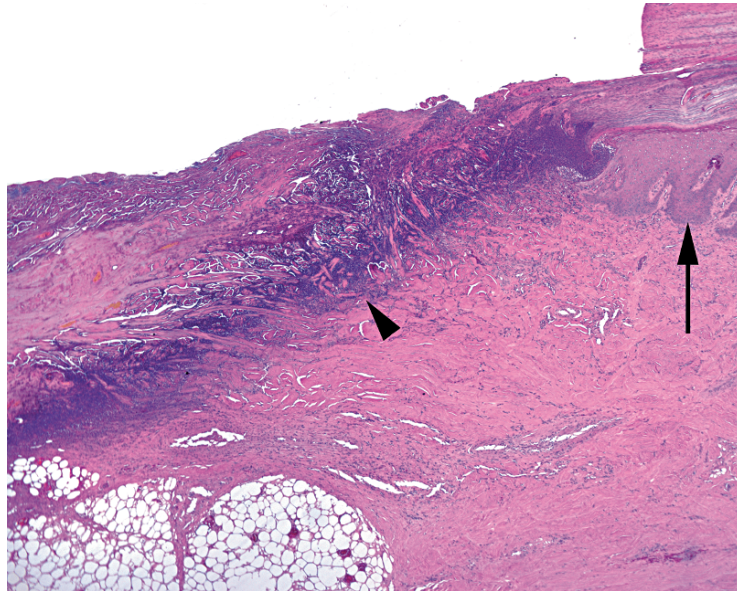


FIGURE 5.14. Gangrene. In this gangrenous ulcer of the toe, the epidermis is visible to the right (arrow), while the ulcer bed to the left shows an obliteration of epidermis and dermis, with a dense blue line of debris representing dying bacteria and cells (arrowhead).

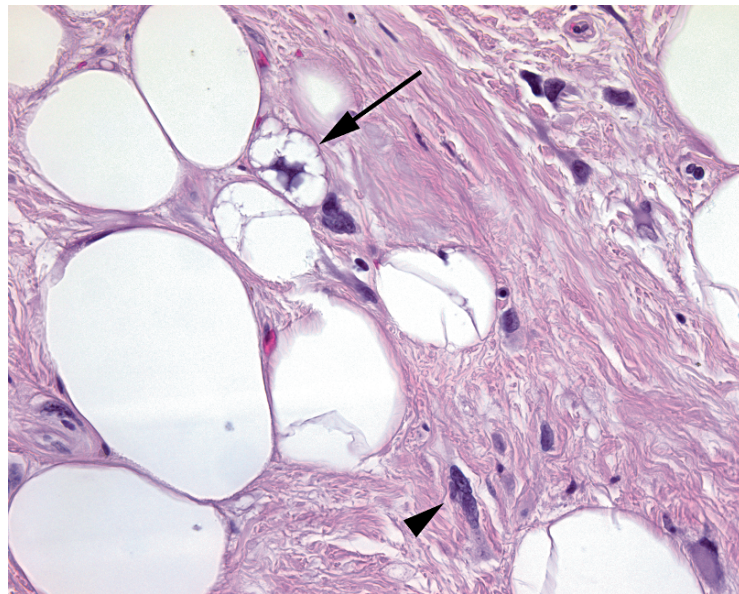


FIGURE 5.15. Lipoblast in an atypical lipoma. What you do not want to see in your lipoma—lipoblasts (arrow), with small fat vacuoles indenting the nucleus and atypical hyperchromatic cells within the fibrous stroma (arrowhead).

Lipoma

Grossing: Measure it. It never hurts to ink it. Submit thin slices (one per centimeter), and give them a nice long fixation time. Sample areas that are fibrous, fleshy, hemorrhagic, or otherwise nonfatty.

Histology: The definition of a lipoma is a neoplasm of mature fat cells. Fibrous tissue is okay. In fact, there are at least eight benign varieties of lipoma (fibrolipoma, myxolipoma, chondroid lipoma, myolipoma, myelolipoma, spindle cell lipoma, pleomorphic lipoma, and angiolipoma), all fat with something extra.

Rule out: Exclude liposarcoma. Clinical features that are suspicious include a large deep-seated circumscribed mass in the thigh, shoulder, retroperitoneum, or mesentery of an adult. Histologic features include chicken-wire vessels (a distinct lacy honeycomb network), atypical cells (large hyperchromatic nuclei), and lipoblasts (Figure 5.15). More details on liposarcomas are given in Chapter 28.

Sample sign out: Soft tissue, left flank (excision): *Lipoma (12 cm)* or *Fibrovascular tissue and mature adipose tissue (clinical lipoma)*