***no patient handout*

Panniculitis

Synopsis

□□ Panniculitis is a collective term for a group of inflammatory diseases involving subcutaneous fat. The panniculitides are subdivided histologically based on the location of the predominant amount of inflammation: in the intralobular septa or within the fat lobule itself. A mixture of patterns may also be seen (septal and lobular). Most share a common presentation of tender dermal or subcutaneous nodules, papules, or plaques. They all may be mistaken for cellulitis.

Erythema nodosum (EN) is by far the most common type of panniculitis and one of few mainly involving the septa (septal panniculitis). Other rarer types of panniculitis are generally classified as more lobular in nature and include infectious (necrotizing granulomatous) panniculitis, a panniculitis associated with **systemic lupus erythematosus**(lupus profundus), **Weber-Christian disease**, **nodular vasculitis** (erythema induratum), **pancreatic panniculitis**, cytophagic histiocytic panniculitis, and **α_1-antitrypsin deficiency** panniculitis. There are also physical forms of panniculitis (**cold panniculitis**, **factitial panniculitis**). Furthermore, other diseases may be associated with a secondary panniculitis (**necrobiosis lipoidica**, **polyarteritis nodosa**, and some **vasculitides**).

EN is an inflammatory reaction pattern, sometimes precipitated by identifiable endogenous or exogenous stimuli. Streptococcal infections are the most common etiologic factor in children, while sarcoidosis, inflammatory bowel disease, and drugs are more commonly implicated in adults. Most cases are idiopathic. The eruption persists for 3–6 weeks and spontaneously regresses without scarring or atrophy. Fever with generalized aching sometimes accompanies the onset of skin lesions. EN can occur at any age, but most cases occur between the ages of 20 and 45. It is more common in women.

Panniculitis can be distinguished from **cellulitis** because it most often occurs bilaterally and lesions are often multifocal.

Codes

ICD10CM:
M79.3 – Panniculitis, unspecified

SNOMEDCT:
22125009 – Panniculitis

Look For

Erythema nodosum:
Erythematous, tender nodules and plaques, usually 2–5 cm in diameter. They are initially bright red and slightly elevated. They usually have a smooth and "deep-seated" appearance. A pretibial

symmetric distribution is the most common, but lesions may appear on the thighs, buttocks, or extensor arms, and occasionally on the face and neck. After a week or two, the lesions become flatter and evolve to a more purple / livid color.

Other forms of panniculitis:
May have tender nodules and plaques as well; some may have ulcerating plaques or purpura. Panniculitis is usually bilateral.

Diagnostic Pearls

The lesions of EN never ulcerate, unlike those of many other types of panniculitis.

Lupus panniculitis is not limited to patients with lupus.

A disproportionate number of the lesions of pancreatic panniculitis may be seen in the decubitus areas.

Trauma may exacerbate or induce the lesions of α_1-antitrypsin deficiency panniculitis.

Differential Diagnosis & Pitfalls

- **Cellulitis** or **erysipelas**
- **Stasis dermatitis**
- **Contact dermatitis**
- If ulceration is a feature, the ulcers may be confused with ulceration that is vascular, **pressure-induced**(decubitus), or **neurogenic** (diabetic) in nature.
- **Sarcoidosis**
- Subcutaneous **granuloma annulare**
- **Rheumatoid nodules**
- **Vasculitis**
- **Eosinophilic cellulitis**
- **Insect bites (arthropod bites)**
- **Sweet syndrome**
- **Pretibial myxedema**
- **Necrobiosis lipoidica**
- **Pseudolymphoma** and some forms of **lymphoma** can mimic panniculitis.

- **Leprosy**
- Traumatic fat necrosis
- **Subcutaneous panniculitis-like T-cell lymphoma**
- **Radiation dermatitis**
- **Lipodermatosclerosis**
- **Botryomycosis**
- **Majocchi granuloma**
- **Pyoderma gangrenosum**
- **Superficial thrombophlebitis**

Best Tests

Skin biopsy will confirm panniculitis. The biopsy specimen must contain adequate adipose tissue. Further testing is aimed at elucidating the underlying cause of the panniculitis.

If an infectious etiology is being entertained, submit a small portion of the specimen to microbiology for Gram stain and culture for bacteria, mycobacteria, and fungi. Also consider an ASO titer, tuberculin skin test, and histoplasmin complement fixation. Polymerase chain reaction (PCR) allows for rapid detection of *Mycobacterium tuberculosis* DNA in skin biopsy samples of suspected erythema induratum.

Other testing on skin biopsy specimens may be performed if the clinical scenario so dictates. These include PCR (as above) and immunoperoxidase and gene rearrangement studies.

The clinical scenario may also lead the clinician to order rheumatologic serologic tests (ANA, ESR, anti-dsDNA antibodies, etc), a serum α_1-antitrypsin level, serum amylase and lipase, or an abdominal CT or MRI.

All patients with EN should have a chest x-ray and CBC, due to occasional associations with lymphoma and sarcoidosis.

Management Pearls

In refractory cases of EN, potassium iodide (400–900 mg/day) has been successful (contraindicated in pregnancy).

Patients often require referral to or consultation by a dermatologist, a rheumatologist, an oncologist, or an infectious disease specialist.

Therapy

Erythema nodosum:
Spontaneous resolution occurs in most cases of EN. Treat any identified underlying cause of the condition. Bed rest, wet compresses, limb elevation, and NSAIDS (aspirin 325–650 mg p.o. every 4–6 hours, naproxen 275 mg p.o. every 6–8 hours, or indomethacin IR 25–50 mg p.o. 3 times daily) may be helpful.

Colchicine (0.6 mg twice daily) has been successful, as has hydroxychloroquine (200 mg twice daily). Intralesional corticosteroids have also been of some benefit. Applying topical corticosteroids with Saran wrap occlusion at night may help to reduce inflammation. Systemic corticosteroids have been used on rare occasion. Isolated case reports have touted the success of the following treatments: dapsone, erythromycin, infliximab, and mycophenolate mofetil.

Drug Reaction Data

Below is a list of drugs with literature evidence indicating an adverse association with this diagnosis. The list is continually updated through ongoing research and new medication approvals. Click on Citations to sort by number of citations or click on Medication to sort the medications alphabetically.

Medication	Citations
Alkylating agent	1
Antineoplastic antibiotic	1
apomorphine	2
BCR-ABL tyrosine kinase inhibitor	2
BRAF kinase inhibitor	4
busulfan	1
clarithromycin	1
Dasatinib	2

Medication	Citations
diethylstilbestrol	1
hydroxyurea	1
ibrutinib	1
macrolide	1
Monoclonal antibody	1
Oral contraceptives	1
pembrolizumab	1
penicillin antibiotic class	1
potassium bromide	2
sulfonamide	1
tetracycline antibiotic class	1
Therapeutic gold & gold compounds exposure	1
topotecan	1

Medication	Citations
Tyrosine kinase inhibitor	1
vemurafenib	4