CASE 5
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Clinical Findings

- 33 year-old woman
- Tender, firm, dome-shaped, erythematous, subcutaneous nodules
- Extensor surfaces of lower legs
Diagnosis: Erythema nodosum

Erythema nodosum migrans

Subcutaneous Panniculitis

“"It is not unusual at medical meetings to encounter physicians, both clinicians and pathologists, who express frustration over disorders of the subcutaneous fat. It is interesting to speculate on the reasons for this relative unpopularity of panniculitis.””

James Patterson, M.D., 1987

Subcutaneous Panniculitis

- The majority of lesions if not readily identifiable as erythema nodosum are often signed out as "panniculitis" or "lobular panniculitis" followed by a long differential diagnosis.

- Why?
  - Subcutaneous fat has a limited number of ways in which it can respond
  - Few good studies document histologic or sequential changes observed in different forms of panniculitis.
  - It is not clear that all forms of panniculitis have been defined, nor is it clear that all forms described are valid entities.
  - Not all biopsies showing pathologic changes in the fat are panniculitis

How common is panniculitis?

Diagnoses in 81 consecutive cases from large referral practice

- Erythema nodosum: 11%
- Panniculitis, NOS: 31%
- Lupus panniculitis: 7%
- Stasis panniculitis: 4%
- Factitial: 31%
- Miscellaneous: 6%

Less than 1% of dermatopathology biopsies in large referral service.
Classification of panniculitides

- Traditionally divided into **septal** and **lobular** patterns or **mixed**
  - Only three or four forms of panniculitis that produce a septal pattern
  - Subclassify as:
    - **With** vasculitis
    - **Without** vasculitis
- Alternatively can be classified as:
  - **Primary** septal, lobular or mixed
  - **Secondary** to another disease process

Septal panniculitides without vasculitis

- Erythema nodosum
  - Erythema nodosum migrans (subacute nodular migratory panniculitis)
- Alpha1-antitrypsin deficiency
- Scleroderma/morphea

Lobular panniculitides without vasculitis

- Pancreatic panniculitis (fat necrosis)
- Subcutaneous fat necrosis of the newborn
- Sclerema neonatorum
- Cold panniculitis
- Weber-Christian disease
- Calciphylaxis
- Factitial or traumatic fat necrosis
- Lipodystrophy/lipoatrophy
- Infective panniculitides/arthropod bites
- Histiocytic cytophagic panniculitis

Pancreatic panniculitis
Pancreatic panniculitis

Subcutaneous fat necrosis of the newborn

Mixed lobular and septal

- Lupus erythematosus panniculitis
- Erythema induratum (nodular vasculitis)
  - Involvement of medium sized vessels
- Lipodermatosclerosis
- Infectious panniculitis
- Connective tissue disease
  - Sarcoidosis
  - Dermatomyositis

Erythema induratum
Summary of approach 1

- **True vasculitis** or associated with another primary process?
  - Medium sized vessel involvement, could be polyarteritis nodosa, etc.

- **Septal, lobular or mixed pattern**
  - Not always easy if superficial or inadequate depth of biopsy

Summary of approach 2

- **Character of cellular infiltrate**
  - Neutrophils, eosinophils, plasma cells, giant cells
  - Lymphoid follicle formation -- Lupus panniculitis
  - Cytologic atypia or cytophagocytosis by macrophages -- panniculitic T-cell lymphoma

- **Fat necrosis, present or absent**
  - Hyalin necrosis -- lupus panniculitis
  - Ghost cells -- pancreatic fat necrosis

Summary of approach 3

- **Vasculitis, present or absent**
  - If present, think nodular vasculitis or lupus panniculitis

- **Crystals, foreign bodies, organisms, and calcium**
  - Crystals:
  - Foreign bodies:
  - Organisms: Infectious (special stains useful for fungal organisms)
  - Calcium: Think calciphylaxis

Summary of approach 4

- **Examine the epidermis**
  - Look for evidence of changes, one might see in lupus, for example

- **Liberal use of multiple levels**
  - A septal pattern of E. nodosum might emerge
  - Vasculitis can become obvious