

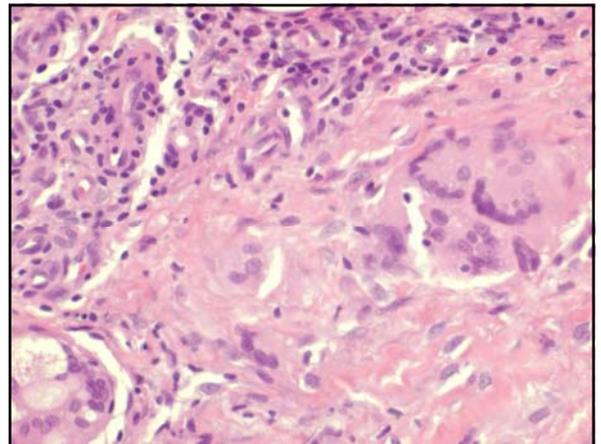
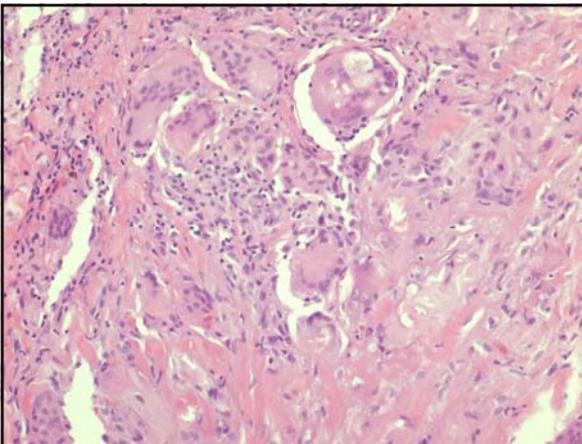
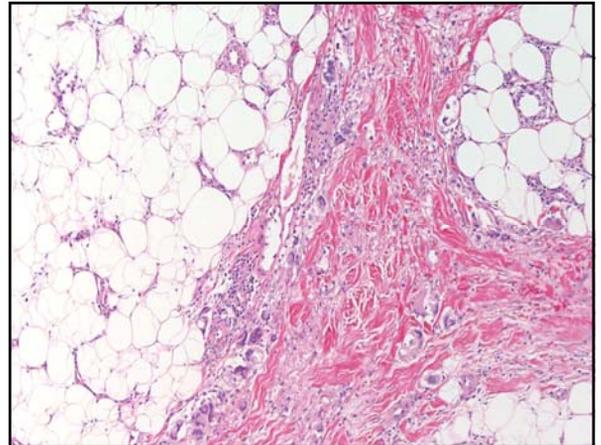
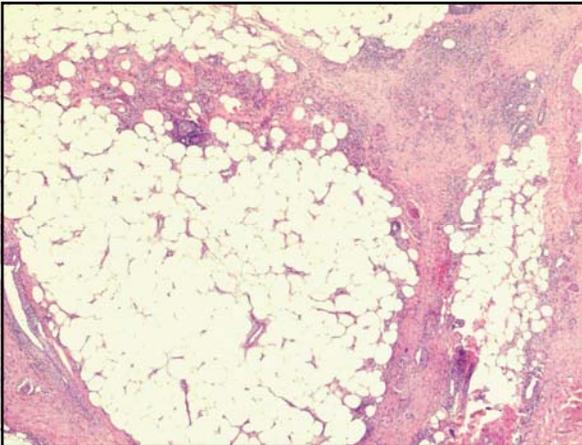
## CASE 5

Bonnie Balzer, M.D., Ph.D,  
Cedars Sinai

## Clinical Findings

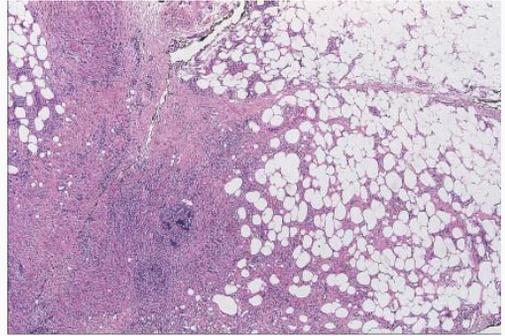


- 33 year-old woman
- Tender, firm, dome-shaped, erythematous, subcutaneous nodules
- Extensor surfaces of lower legs

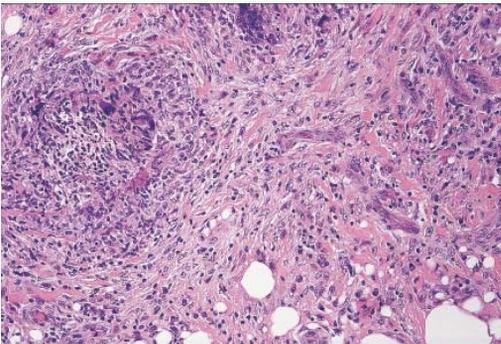


## Diagnosis: Erythema nodosum

## Erythema nodosum migrans



## Erythema nodosum migrans



## Subcutaneous Panniculitis

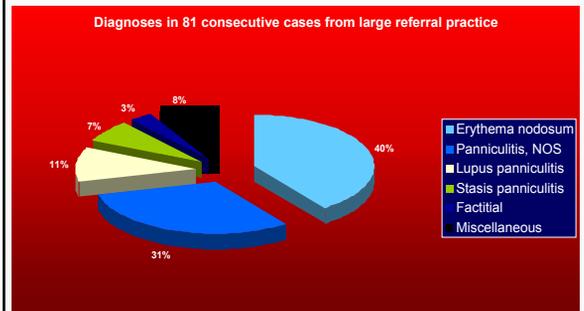
- "It is not unusual at medical meetings to encounter physicians, both clinicians and pathologists, who express frustration over disorders of the subcutaneous fat. It is interesting to speculate on the reasons for this relative unpopularity of panniculitis."

■ 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?



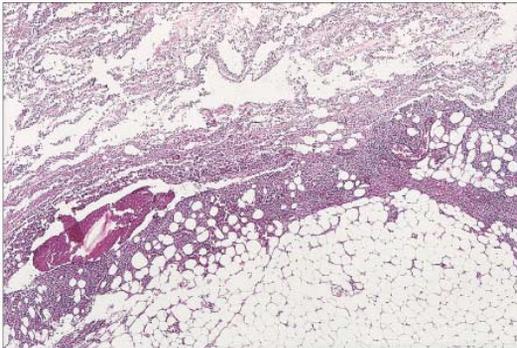
## Classification of panniculitides

- 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

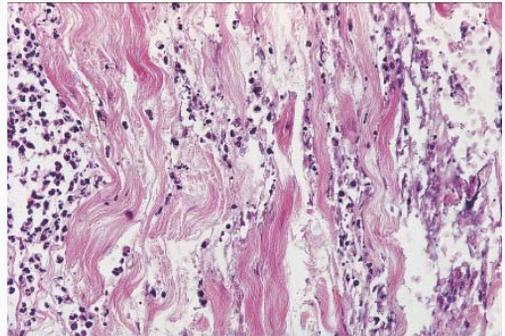
## Septal panniculitides without vasculitis

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

## Alpha1-antitrypsin deficiency



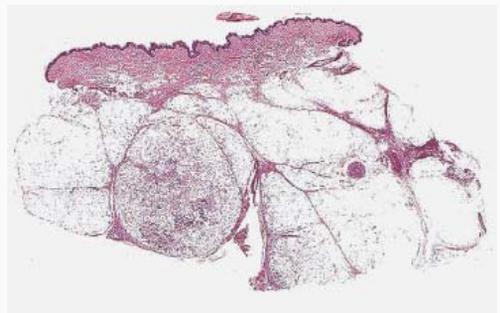
## Alpha1-antitrypsin deficiency



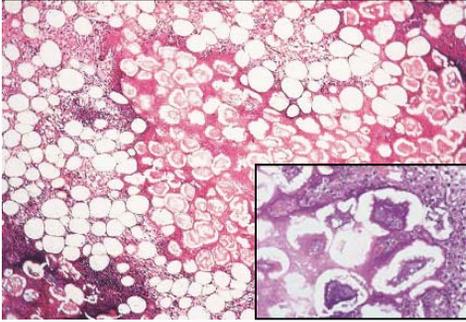
## Lobular panniculitides without vasculitis

- 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

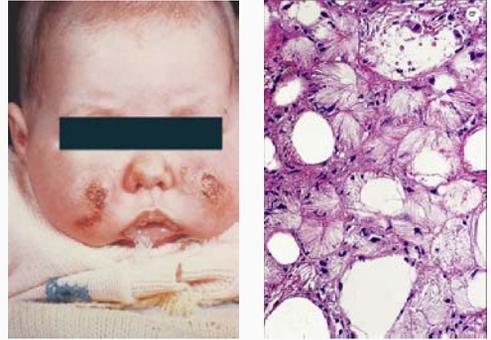
## Pancreatic panniculitis



## Pancreatic panniculitis



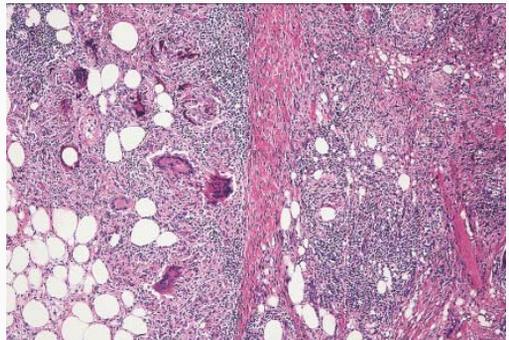
## Subcutaneous fat necrosis of the newborn



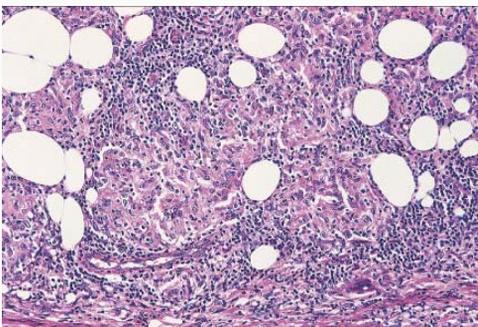
## Mixed lobular and septal

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

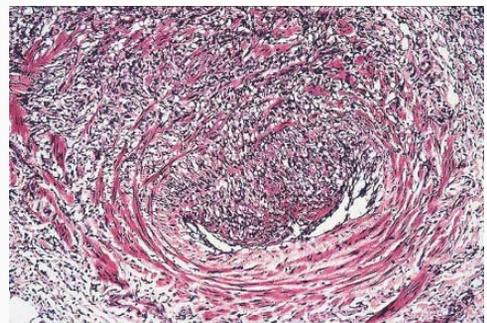
## Erythema induratum



## Erythema induratum



## 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