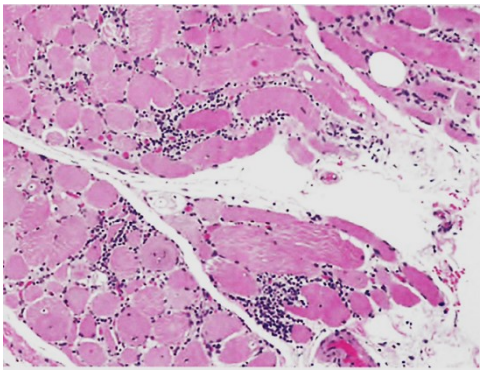
Muscle disease:

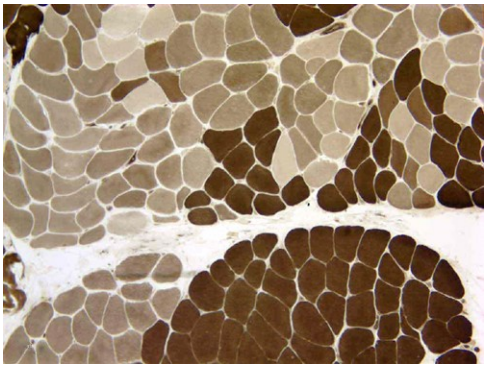
- Inflammatory myositis:
  - Polymyositis
  - Dermatomyositis
  - IBM
- Myopathy:
  - Duchenne
  - Myotonia
  - Congenital
    - Central core myopathy
    - Myotubular/centronuclear
    - Nemaline rod myopathy
  - Mitochondrial
  - Metabolic

Polymyositis:

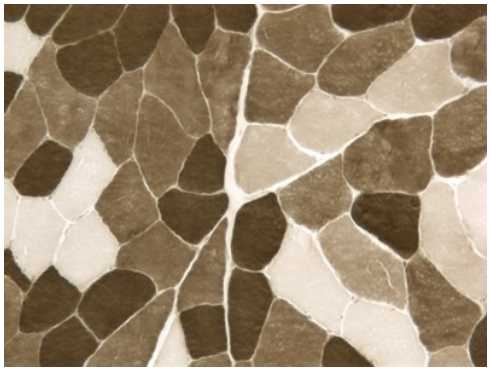
- Endomysial mononuclear infiltrates (between and around individual myofibers.)
- Fiber type grouping
- Type II atrophy



Endomysial infiltration

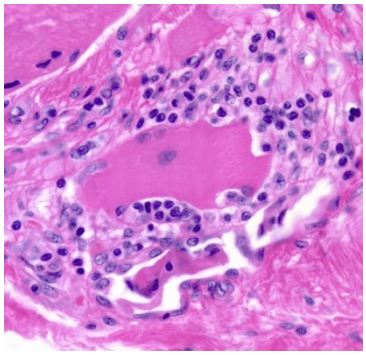


Fiber type grouping



Normal muscle fibers

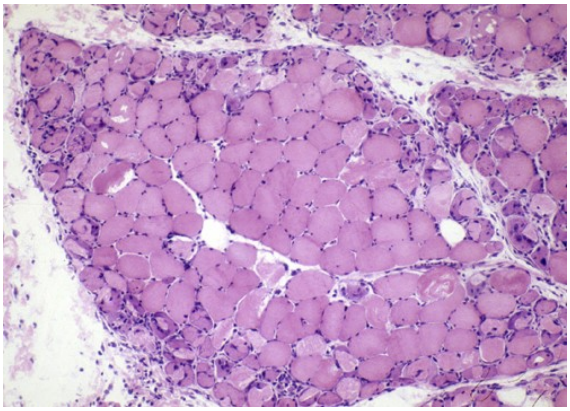
ATPase histochemical stain showing 3 levels of activity corresponding to type 1-dark, 2a-light, and 2b-intermediate fibers.



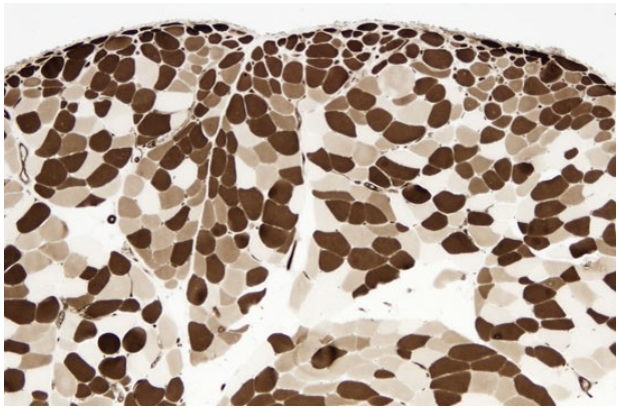
Lymphocytes invading muscle myofiber

Dermatomyositis:

- Perifasicular infiltration and atrophy (at the periphery of fascicles)
- dermatomyositis is a vasculitis, which involves endomysial capillaries and arterioles



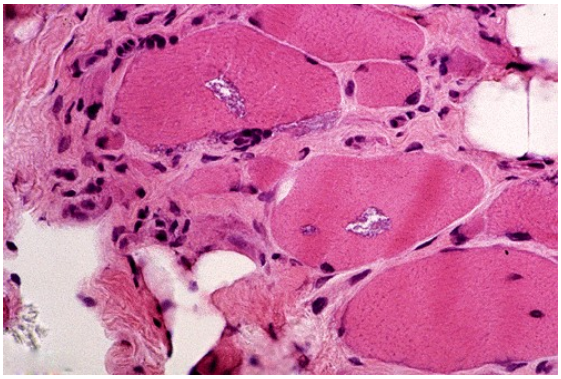
Perifasicular infiltration and atrophy

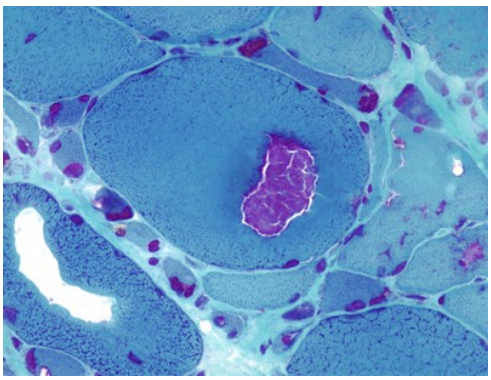


Perifasicular atrophy (ATPase stain)

Inclusion body myositis:

- The hallmark of IBM is “rimmed vacuoles” in the muscle fibers lined with an eosinophilic rim
- Affected myofibers have vacuoles which contain basophilic granules
- The granules consist of myelinoid membranous bodies and small chunks of amyloid similar to the neurofibrillary tangles of Alzheimer's disease

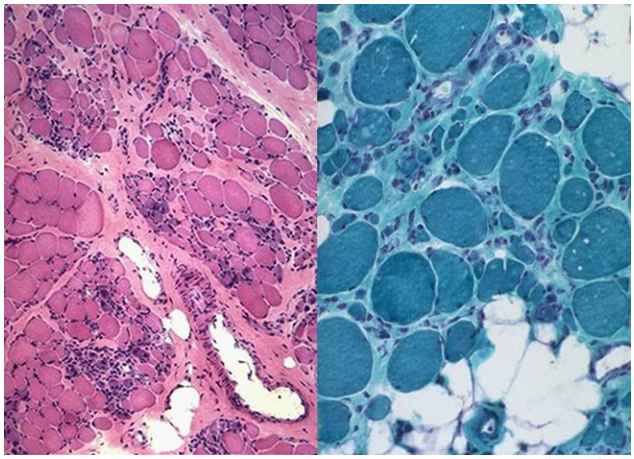


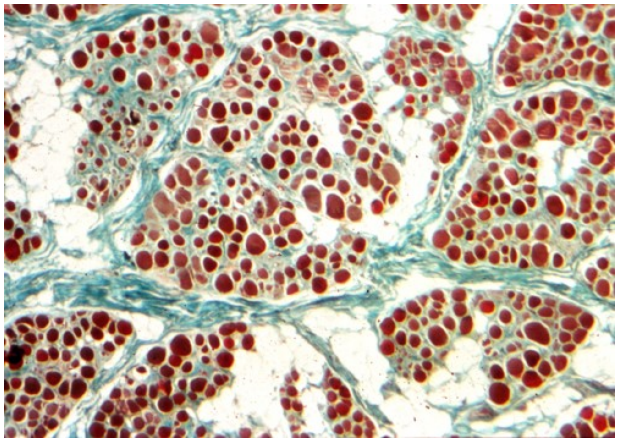


Modified Gomori trichrome stain

Duchenne dystrophy

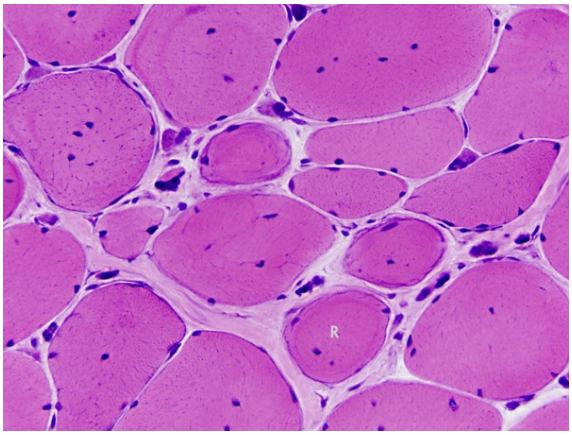
- Muscle fiber degeneration (rounded and variable size)
- Increased fat and connective tissue

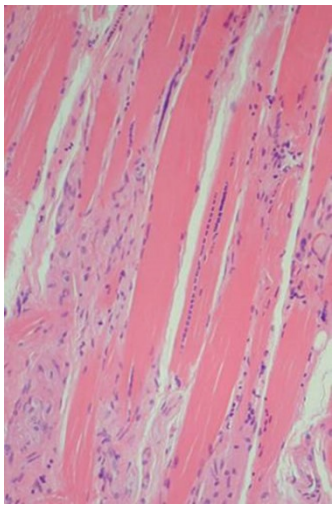




Myotonic dystrophy

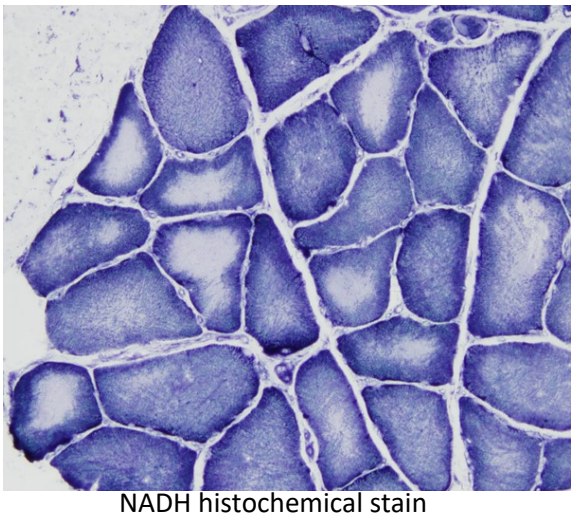
- More internal nuclei than any other muscle disorder.
- Longitudinal section shows that the internal nuclei within the muscle fibers also tend to line up.
- Increase in connective tissue





Central Core Myopathy

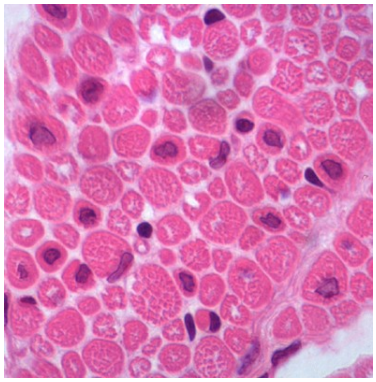
- pale central core in nearly every type I muscle fiber (results from absence of mitochrondia)

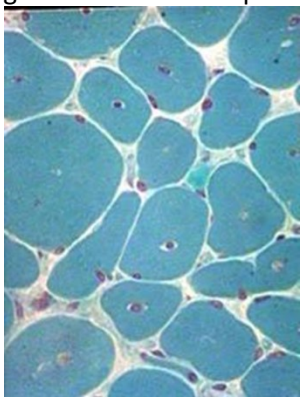


NADH histochemical stain

Myotubular/Centronuclear Myopathy

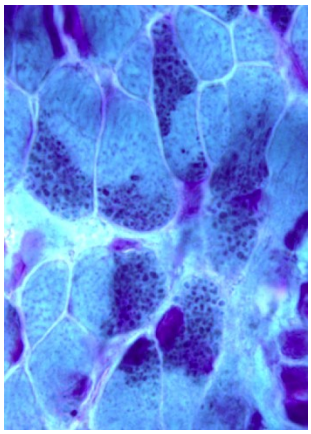
- Centrally-located nuclei with perinuclear halos. (surrounding area clear due to absence of myofibrils)
- Different from myotonic dystrophy as only single internal nucleus per muscle fiber





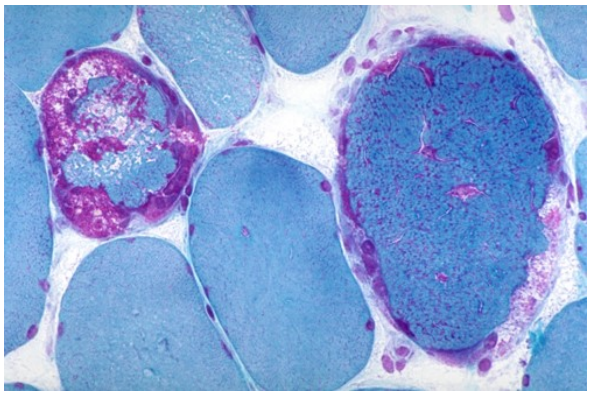
Nemaline Rod Myopathy

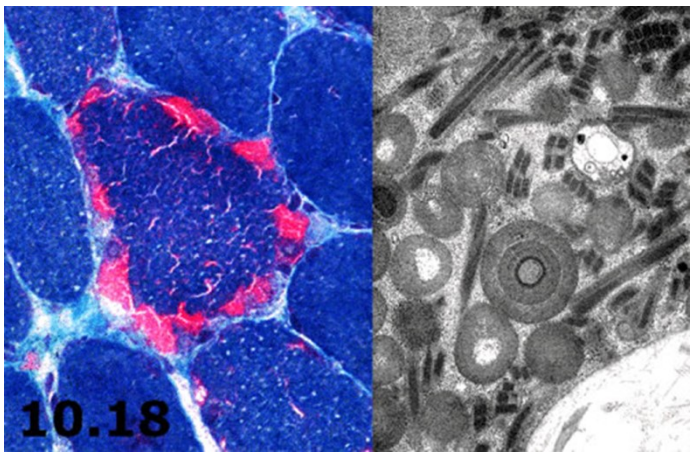
- Trichrome stain showing dark fibrillar material (nemaline rods) within the muscle fiber



Mitochrondrial Myopathy:

- Trichrome stain showing subsarcolemmal accumulations of “ragged red fibers” in muscle cell
- The red color of these fibers is due to large numbers of abnormal mitochondria that represent a compensatory proliferation





Denervation atrophy

- Small angular fibers
- Fiber type grouping then group atrophy