IBM: Is it an inflammatory disease or am I just getting old?

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Normal Muscle
Autoimmune myositis (i.e., polymyositis) muscle

Muscle cells surrounded and invaded by inflammatory cells (CD8+ T cells)
Genetic muscle disease (oculopharyngeal muscular dystrophy) muscle

Rimmed vacuoles
Inclusion Body Myositis

Inflammation and rimmed vacuoles

Figure courtesy of Dr. Amato

Inflammation and rimmed vacuoles
Inclusion body myositis

• Degeneration?
  – Vacuoles contain abnormally folded proteins
  – Some patients who look like they have sIBM have genetic mutations (e.g., VCP mutations)
  – No response to immunosuppression

• Autoimmune?
  – Very aggressive inflammatory cells (CD57+ T cells) identified in blood and muscle
  – Autoantibodies identified
Approaches to treat IBM

• Prevent/improve abnormal protein folding and accumulation (as seen in rimmed vacuoles)
  – E.g., arimoclomol
• Immune suppression
  – Traditional drugs
  – Drugs designed to target the autoaggressive T cells in IBM
• Make existing muscle stronger
  – E.g., Bimagrumab
  – Exercise
• Combination therapy