HIV-associated Myositis and Response to Immune Therapy

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Objective

- To report two cases of HIV-associated myositis, including their clinical features, diagnostic workup, and discuss their response to immune therapy.

Background

- Inflammatory muscle disease is more common in HIV-infected than in non-HIV infected patients.
- Inflammatory myopathies associated with HIV may have features overlapping inclusion body myositis (IBM) and polymyositis (PM).
- Response to immune therapy has been reported in cases of HIV-associated IBM, which is less commonly seen in sporadic IBM (sIBM).
- HIV-associated PM may progress to IBM.
- Few literature reports of such patients are available; documenting response to immune therapy is useful to guide management decisions.

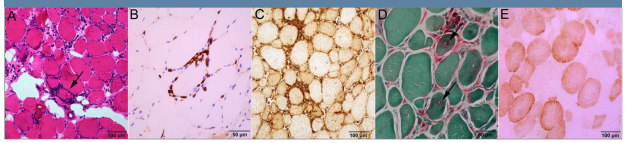
Case (1)

- A 67-year-old African-American woman with HIV and Sjogren's syndrome presented with progressive proximal lower extremity weakness and myalgias over the course of 2 years, which eventually required a walker. She had been on abacavir, lamivudine and raltegravir for the preceding 6 years.
- Her neurological exam was notable for symmetric weakness in neck flexors (4+/5), hip flexors (4-/5), and knee extensors (4/5).
- Initial serum creatine kinase (CK) was 3,407 IU/L. Magnetic Resonance Imaging (MRI) of the lower extremities shows multifocal areas of increased T2 signal with abnormal enhancement. Biopsy was consistent with inclusion body myositis (Figure 1).
- Oral prednisone therapy was started at 60mg daily in addition to azathioprine. She showed significant improvement in her strength with CK reduction to 265 IU/L.
- Azathioprine was discontinued due to leukopenia. Steroids were tapered off, and she developed a decline in strength and increase in CK to 3,705 IU/L. Reinitiation of treatment with IV immunoglobulins and pulse dose steroids produced favorable results with decrease in CK and improvement in her weakness.

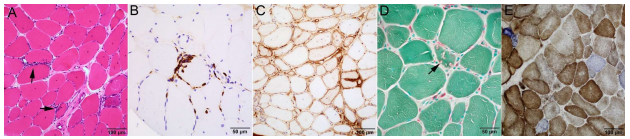
Case (2)

- A 37-year-old African-American man with HIV presented with two years of progressive gait dysfunction and frequent falls requiring a walker within one year of symptom onset. At initial evaluation, he was largely wheel chair bound with only the ability to stand. The patient had been on darunavir, cobicistat, emtricitabine and tenofovir for 3 years.
- Neurological exam in the upper limbs demonstrated weakness in bilateral elbow flexion (4/5), bilateral elbow extension (4/5), bilateral wrist extension and flexion (5-/5), and finger flexion (4/5 on the right and 4-/5 on the left). More prominent weakness was noted in the legs with hip flexors (3-/5 on the right, 2/5 on the left), knee extensors (3-/5 on the right, 2/5 on the left), bilateral knee flexors (2/5), and ankle dorsi/plantar flexion (2/5). There was no facial or bulbar weakness.
- Initial CK was 5,255 IU/L. EMG of the left tibialis anterior found reduced insertional activity as well as positive sharp waves, fibrillations, and myokymia. Myopathic motor units were seen throughout all muscles tested. Biopsy was consistent with inclusion body myositis (Figure 2).
- IV pulse steroids were initiated. On follow up, his hip flexors improved to 4+/5 bilaterally. His upper extremity demonstrated only mild weakness on left finger flexor (4-/5). He was able to walk with mild assistance. CK decreased to 4,494 IU/L.
- The patient was unfortunately lost to follow up.

Pathology



Case 1: A: H&E chronic myopathy with primary inflammation (arrow). B: CD8+ lymphocyte invading muscle fiber. C: MHC1 diffuse upregulation. D: Acid phosphatase highlights rare rimmed vacuoles (arrows). E: COX: frequent COX- fibers.



Case 2: Very similar pathology as case 1, with less chronic myopathic changes and fewer COX- fibers. A: H&E. B: CD8. C: MHC1 D: Acid phosphatase E: COX/SDH double stain.

Discussion

- Sporadic inclusion body myositis and polymyositis are both idiopathic inflammatory myopathies. Features such as age of onset, sex, pattern of weakness, CK levels, and rate of progression all help differentiate these two conditions. The two presenting cases show clinical and histologic features of both IBM and PM.
- There is no treatment for sIBM, however HIV-associated PM/IBM may be initially steroid responsive. PM is more steroid responsive. HIV-PM/IBM eventually progresses into a similar pattern of sIBM. It is unclear if treatment prevents or slows this transition.
- Prompt initiation of immunotherapy for HIV-associated myositis can produce laboratory and meaningful clinical improvement. The exact pathogenesis of HIV-PM/IBM is uncertain.
- Immunotherapy suppresses the acute inflammatory process seen in sporadic cases of these inflammatory myopathies. Immunosuppression has not been an effective treatment for sIBM, perhaps due non-immune related insults. It is reasonable to consider HIV precipitating a progressive neurodegenerative process via non-immune related pathways.

Conclusion

- These cases document the clinical overlapping syndrome of IBM and PM in the setting of HIV and their favorable response to immunotherapy.

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