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Muscle involvement in Lymphoplasmacytic Lymphoma : A Rare Case illustrating the Significance of Biopsy

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Background

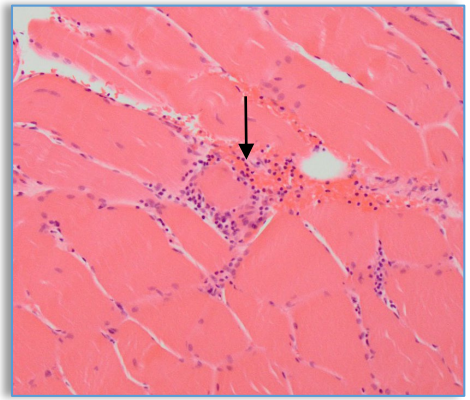
- Lymphoplasmacytic lymphoma (LPL) is a B and plasma cells (PCs) neoplasm, usually involving the bone marrow (BM) and/or secondary lymphoid organs.
- Inflammatory myopathies are rare muscle diseases causing weakness and, potentially, pain.
- The incidence of LPL/Waldenström macroglobulinemia (WM) is approximately three per million people per year with presentation of extramedullary disease(EMD) and visceral disease previously identified in 4% and 11% of WM, respectively. Most frequent EMD sites involved are pulmonary (30%) and central nervous system (23%) with only handful of cases of soft tissue involvement.

Aim

- We present a rare case of LPL showing clonal plasma cells infiltration in the muscle associated with clinical significance.

Case Presentation

- A 62 year old lady presented with anemia, thrombocytopenia, hypoalbuminemia, weight loss, splenomegaly and left leg pain after a fall in June 2020.
- Bone marrow biopsy showed IgG lambda LPL infiltration, with 50-60% of clonal PCs and small lymphoplasmacytic component; which were negative for MYD88 mutation.
- She received 6 cycles of DRC chemotherapy (Dexamethasone, Rituximab, Cyclophosphamide), leading to complete bone marrow response and improvement in the pain. Unfortunately, she relapsed and was treated with BRD (Bortezomib, Rituximab and Dexamethasone) therapy.
- While on BRD her symptoms improved temporarily but returned on completion of 6 cycles. This pattern of waxing and waning of symptoms prompted further investigation.
- PET scan revealed increased uptake in the distal muscles, and a subsequent MRI showed increased signal intensity in bilateral vastus medialis with muscle oedema, consistent with active myositis. Her creatinine kinase and lactate dehydrogenase were mildly increased. However, EMG, autoantibody and myositis panel were negative.
- She then proceeded to undergo muscle biopsy that showed features of inflammatory myopathy showing patchy inflammation, necrotic fibres, basophilic rimmed vacuoles with p62 deposition and HLA-DR and HLA-ABC positivity on Immunohistochemical stain(IHC) initially thought to be suggestive of Inclusion Body Myositis (IBM).
- Interestingly, she had small (<1%) infiltration of plasma cells, with few small lymphocytes and occasional plasmacytoid cells infiltrating the muscle fibres. IHC stain performed showed CD3 highlighting many T-cells in the inflammatory process, CD20 was negative (probably Rituximab effect), CD79a and CD138 showed <1% of lymphoplasmacytic cells (within the muscle fibres).Lambda positivity confirmed clonal nature of these cells. This was highly suspicious of muscle involvement with LPL.



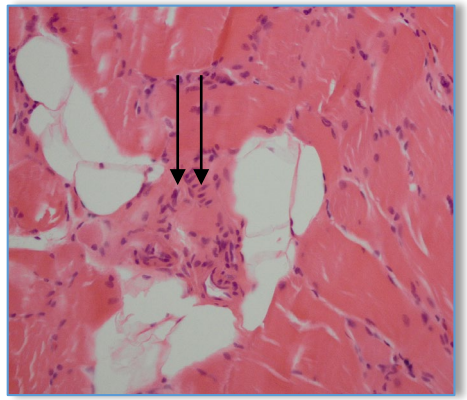


Figure 1 & 2(H&E, 10x & 20x magnification respectively) shows vastus lateralis muscle with scaterred lymphocytes (single arrow) and occasional plasmacytoid cells (double arrow)

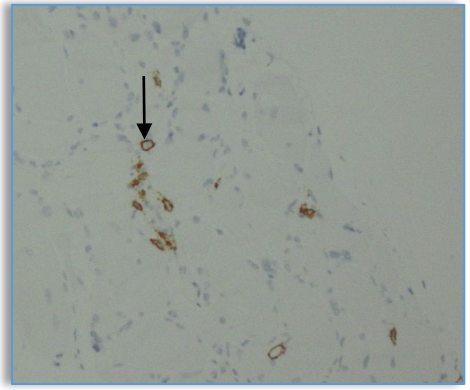


Figure 3 Immunohistochemistry stain(IHC)- CD 138 highlights 1%plasma cell (single arrow)

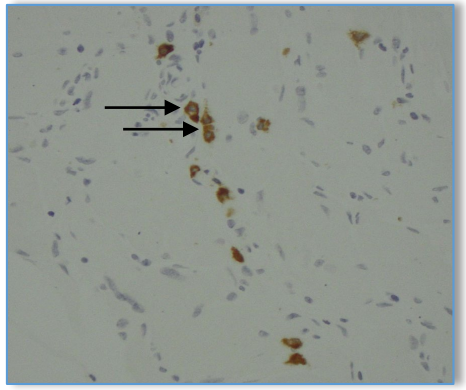


Figure 4(IHC stain)-Shows lambda light chain clonal plasma cells (double arrow)

Discussion and Conclusion

- This rare case sheds light on the infrequent manifestation of LPL with muscle infiltration, previously reported in extraocular muscles. This should prompt further LPL- targeted therapy with a Bruton Kinase-Inhibitor(BTK-i)
- Moreover, no known association between myositis and LPL has been previously reported.
- Hence, unusual clinical presentations should prompt further investigations, including affected organ biopsies, to exclude rare extranodal and extramedullary infiltration of LPLs.

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