

# Vedolizumab-Induced Reversible Lymphoproliferative Disorder in a Patient with Ulcerative Colitis

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## Introduction

- Vedolizumab is a monoclonal antibody therapy used in the treatment of moderately to severely active ulcerative colitis.
- It targets  $\alpha 4\beta 7$  integrin receptor on T lymphocytes and prevents its migration into the intestinal tissue (anti-leucocyte trafficking agent).
- It was approved by the FDA in 2014.
- As a novel agent, its side effect profile is not fully understood. Common adverse reactions are nasopharyngitis, headache, arthralgia, nausea, pyrexia, upper respiratory tract infection, fatigue, cough, bronchitis, influenza, back pain, rash, pruritus, sinusitis, oropharyngeal pain, and pain in extremities.

We report a novel case of reversible T-cell lymphoproliferative disorder in a patient on vedolizumab for ulcerative colitis.

## Case presentation

- A 44-year-old female with no prior medical history presented with bloody diarrhea in 2013. She was diagnosed with ulcerative pancolitis on colonoscopy (Mayo 2 sub-score).
- She was treated with mesalamine showing no response. She started adalimumab with partial clinical response for a year. Colonoscopy redemonstrated moderate pancolitis (Mayo 2 sub-score).
- In 2020, she was switched to vedolizumab for persistent non-bloody diarrhea.
- After the first vedolizumab infusion, she developed a pruritic skin rash that briefly improved with a course of prednisone. After the third infusion, the rash recurred along with additional symptoms of intense fatigue, joint pain, and vomiting. She had no fevers, chills, or night sweats.
- Diagnostic work-up:
  - Labs showed a new **leukocytosis** (15,000/microliter) with significant elevation in lymphocytes (66% absolute lymphocyte count).
  - Peripheral blood smear showed 10% **atypical lymphocytes** and LDH was elevated.
  - CT abdomen with contrast showed small lymph nodes in the perirectal area and **splenomegaly** of 17 cm.
  - EBV and CMV PCR negative.
  - Peripheral blood flow cytometry negative for tumor markers.
  - Bone marrow biopsy showed a normocellular marrow.

## Case presentation (cont.)

- Despite a thorough work-up, the etiology for this lymphoproliferative process remained elusive.
- As there was a temporal relationship between the onset of systemic symptoms and start of vedolizumab, vedolizumab was discontinued.
- Her systemic symptoms significantly improved within a few weeks of therapy cessation. Lymphocytosis improved and resolved within 2 months. Repeat CT-scan at 3 months showed significant regression in spleen and lymph node size.
- She was subsequently started on infliximab monotherapy for her ulcerative colitis.

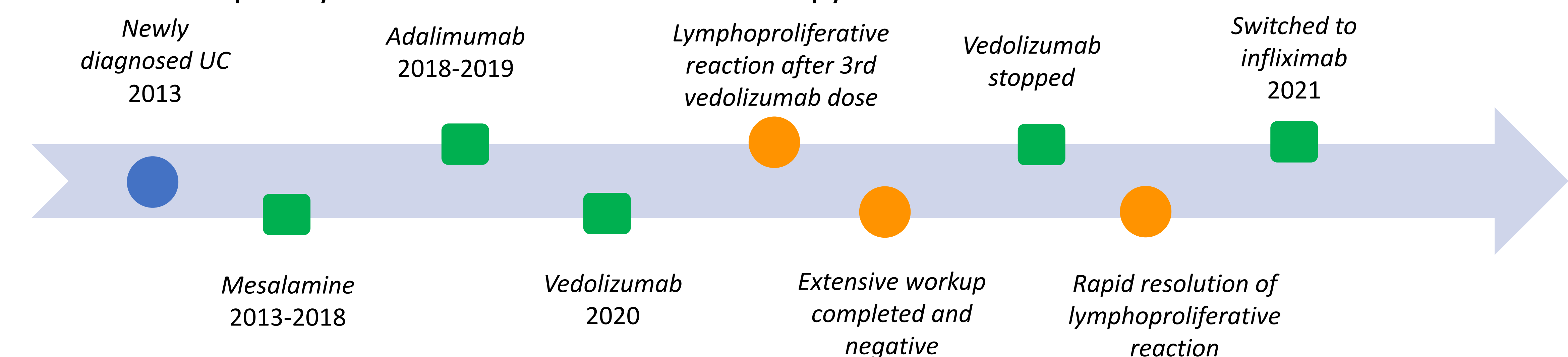


Figure 1- Disease & treatment course

## Discussion

- Vedolizumab, a selective  $\alpha 4\beta 7$  integrin receptor antagonist, causes inhibition of leukocyte migration from the peripheral vasculature into intestinal tissue. It does not typically induce peripheral leukocytosis based on animal and human studies.
- The enhanced risk of lymphoproliferative disorders in patients with inflammatory bowel disease on anti-tumor necrosis factor alpha agents is well documented, attributed to its potent immunosuppressive effects. This phenomenon has not been reported with vedolizumab.
- To our knowledge, this is the first case of vedolizumab-induced reversible lymphoproliferative disorder.

Our case highlights the importance of routine blood cell count monitoring while on vedolizumab. Vedolizumab can cause a lymphoproliferative reaction, which is an indication for cessation of therapy.