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Association of Deep Vein Thrombosis with Ulcerative Colitis - A Case Report.

Glancy B Anand[1], Nihal Muhammed[2], Dhanya Dharman3, Shaiju S Dharan4

1. Pharm D Intern (Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Thiruvananthapuram, Kerala, India)

2. Pharm D Intern (Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Thiruvananthapuram, Kerala, India)

3. Associate Professor (Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Maryamuttom, Thiruvananthapuram, Kerala, India

***4.** Principal/HOD (Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Thiruvananthapuram, Kerala, India)*

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ABSTRACT:

Ulcerative colitis (UC) and Crohn's disease (CD), collectively known as inflammatory bowel diseases (IBD), are chronic inflammatory conditions affecting the gastrointestinal tract, resulting from a complex interplay between genetic, environmental, immunological, and microbial factors.Among Asian nations, India exhibits the highest incidence and prevalence rates of ulcerative colitis (UC), although these figures remain substantially lower compared to those reported in Western countries[1].Individuals suffering from inflammatory bowel diseases (IBD), encompassing both Crohn's disease and ulcerative colitis, are prone to deep vein thrombosis, a potentially life-threatening complication. The underlying pathophysiological mechanisms contribute deep vein thrombosis involve inflammation, alterations in coagulation factors, endothelial dysfunction, and platelet activation[2].We report a case of a 60-year-old male patient who presented with frequent bowel movements, intermittent melena, pain and swelling in both lower limbs for 2 weeks. Initial evaluation revealed moderately active ulcerative colitis, with laboratory findings including anemia (hemoglobin 9.7 g/dL), elevated C-reactive protein (139.5 mg/L), vitamin D deficiency (8 ng/mL), hyponatremia, hypokalemia, normal creatinine, and severe hypoalbuminemia. Doppler ultrasonography of the lower limbs demonstrated venous thrombosis bilaterally. The patient was initiated on oral steroid for ulcerative colitis, low molecular weight heparin for deep vein thrombosis (DVT), and later transitioned to warfarin. The strict requirement for anticoagulation and the risk of rebleeding after initiating anticoagulant therapy were thoroughly explained to the patient and his relatives. Following a 17-day hospital stay, the patient was discharged.The prevalence of DVT in UC patients is estimated to be around 1.3% to 6.4% in various studies. Early recognition and appropriate management of DVT in UC patients are crucial to prevent potential life-threatening complications.

I. INTRODUCTION:

Deep vein thrombosis (DVT) is a potentially serious condition that occurs when a blood clot forms in a deep vein, typically in the legs or pelvic area.The clot can partially or completely block blood flow thereby leading to swelling, pain, and potential complications. DVT is a potentially life-threatening condition because the clot can break off and travel to the lungs, causing a pulmonary embolism[3]. Immobility, obesity, age (particularly age >60 years), inherited blood clotting disorders, injury or trauma, hormonal changes during pregnancy and the six weeks after childbirth can increase the risk of DVT[4]. Ulcerative colitis (UC) is a chronic inflammatory bowel disease that affects the large intestine (colon) and rectum. The exact cause of UC is unknown, but it is believed to result from an abnormal immune response to certain environmental factors, such as bacteria or viruses, in genetically predisposed individuals[5]. The immune system overreacts and causes inflammation and ulceration in the inner lining of the colon and rectum. The main symptoms of UC include abdominal pain, bloody diarrhea, fatigue, weight loss, and fever but there have some complications such as bowel complications like severe bleeding, toxic megacolon, perforation of the colon, strictures and extra-intestinal Complications like Arthritis, episcleritis, primary

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sclerosing cholangitis, increased risk of blood clots, malnutrition.[6]

Studying the underlying mechanisms and pathways that link UC and DVT can provide valuable insights into the inflammatory and coagulation processes involved in both conditions. UC is characterized by chronic inflammation of the colon and rectum.[7] This persistent inflammatory state can lead to the activation of various inflammatory pathways, including the release of pro-inflammatory cytokines, such as interleukin-6 (IL-6), tumor necrosis factor-alpha (TNF-α), and C-reactive protein (CRP). These inflammatory mediators can promote a hypercoagulable state by inducing endothelial dysfunction, increasing the expression of tissue factor, and altering the balance between pro-coagulant and anticoagulant factors. Patients with UC often exhibit dysregulated coagulation, which can contribute to an increased risk of thrombosis. This dysregulation may involve elevated levels of pro-coagulant factors, such as fibrinogen, von Willebrand factor, and factor VIII, as well as decreased levels of natural anticoagulants, such as antithrombin.Endothelial cells play a crucial role in maintaining vascular homeostasis, and their dysfunction can result in increased expression of adhesion molecules, pro-coagulant factors, and decreased production of vasodilators and anticoagulants.UC can cause malnutrition and deficiencies in vitamins, such as vitamin K, vitamin K deficiency can impair the activation of coagulation factors and increase the risk of thrombosis[8,9,10].The mechanisms underlying the association between DVT and UC are complex and likely involve a combination of above mentioned factors. Further research is needed to fully understand the interplay between inflammation, coagulation, and other factors associated in the development of DVT in UC patients. We present a case of 60 year old male with moderately active ulcerative colitis and associated deep vein thrombosis.

II. CASE REPORT:

A 60 year old male was bought to medical gastroenterology department with the complaints of increased frequency of bowel opening and intermittent episodes of melena for 1 year. He had history of weight loss. He had pain and swelling in both lower limbs for 2 weeks. He underwent evaluation around 1 month and diagnosed as having moderately active ulcerative colitis. He had known complaints of type II diabetes mellitus, hypertension. Admission examinations showed. Under laboratory investigation haematological examination showed haemoglobin-9.7 g/dL, normal blood counts. His other examinations shownC-reactive protein 139.5 mg/Land vitamin D was 8 ng/mL. He had hyponatremia hypokalemia and normal creatinine. Liver function test showed severe hypoalbuminemia. Doppler ultrasonography of lower limb showed venous thrombosis in both limbs. Nerve conduction study appeared as sensory motor axonopathy affecting lower limb nerves. CT brain was also taken to rule out cerebral venous sinus thrombosis and it was normal. Peripheral smear study showed dimorphic anaemia.

Patient treatment was started with IV antibiotics (Inj. PIPERACILLIN+TAZOBACTUM 4.5 g IV Q8h & Inj. METRONIDAZOLE 500mg IV Q8h), oral steroid (PREDNISOLONE 40mg p/o OD), MESALAZINE 2g p/o BD and other supportive measures. He was started on low molecular weight heparin for DVT and then started on warfarin later. Patient developed hematochezia and hypotension 2 days after starting warfarin and he was shifted to medical ICU. Anticoagulants were temporarily withheld and he was managed with IV fluids, ionotrops and PRBC transfusion. He was shifted back to room once his condition became clinically stable. Anticoagulant was restarted later but patient had recurrence of bleeding per rectal, hence it was stopped. Even after adequate therapy patient doesn't show satisfactory improvement in his GI symptoms. Hence the dose of steroids was reduced and he was started on Tofacitinib 10 mg twice daily. He received 5 units of PRBS transfusion, 2 units of FFP and Inj. Human albumin 20% 100ml during hospital stay. After explaining potential risk of rebleeding he was again started on warfarin, but patient was unwilling to continue inpatient care. The strict requirement of anticoagulants and the risk of rebleeding after starting anticoagulant were well explained to the patient and his relative. After 17 days of hospital stay patient was discharged at request with advise of follow up.

III. DISCUSSION:

The potential mechanisms underlying the association between deep vein thrombosis and ulcerative colitis are multifactorial and involve various inflammatory and coagulation pathways such as chronic inflammation, dysregulated coagulation, endothelial dysfunction, immobilization, dehydration, malnutrition and vitamin deficiencies. This was presented with ulcerative colitis and the immobilization due to

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disease condition and hospital stays lead to DVT.[11]

In the case report entitled as "Extensive venous thrombosis–A rare presentation of ulcerative colitis in a young female"by Durgam R, et.al also presents a case of 28-year-old female with history of loose stools and bilateral lower limb edema. Lately the condition diagnosed as extensive deep venous thrombosis of bilateral lower limbs.Also colonoscopy study showed superficial ulcers, mucosal friability, erythema, edemaand large slough based ulcer in rectum. She was also treated with oral steroids[12].

The association between DVT and UC has important implications for disease management and patient care.Some suggestive implications that may improve patient care are:

- Risk stratification tools or scoring systems may be developed to identify UC patients at higher risk for DVT, considering factors such as disease severity, inflammatory markers, immobilization, and other risk factors.
- Mechanical prophylaxis such as compression stockings should be considered for UC patients at high risk for DVT, particularly during hospitalization or periods of immobilization.
- Regular monitoring for signs and symptoms of DVT, such as leg swelling, pain, or tenderness, should be implicated in the care of patients with ulcerative colitis.
- Doppler ultrasound or D-dimer testing may be used more liberally in UC patients with suspected DVT to aid early detection and prompt treatment.
- Evidence-based guidelines or consensus statements may be developed to guide clinicians in the prevention, early detection, and treatment of DVT in the context of UC.

Implementing appropriate preventive measures, and providing comprehensive multidisciplinary care, healthcare professionals can improve patient outcomes and reduce the burden of this potentially life-threatening complication in individuals with ulcerative colitis[13,14,15,16].

IV. CONCLUSION:

Ulcerative colitis is a chronic inflammatory bowel disease that primarily affects the colon and rectum. While the main symptoms are related to the gastrointestinal tract, people with ulcerative colitis may also have an increased risk of developing blood clots, including deep vein thrombosis.Patients with ulcerative colitis have an elevated risk of developing DVT compared to the general population.Immobility, dehydration and surgery can increase the risk of DVT in these patients.If left untreated, DVT can lead to life-threatening complications like pulmonary embolism, where the clot travels to the lungs and obstructs blood flow.The presence of DVT in ulcerative colitis patients necessitates prompt anticoagulation therapy (e.g. warfarin) to prevent clot extension and reduce the risk of pulmonary embolism.Early recognition and treatment of DVT can prevent potentially life-threatening complications and improve overall patient outcomes[17,18].The significance lies in the need for vigilance and proactive management of thromboembolic risk in ulcerative colitis patients, particularly during active disease flare-ups or periods of immobility.

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