Scientific Research Publishing

Open Journal of Ophthalmology, 2025, 15(4), 207-214
https://www.scirp.org/journal/ojoph
ISSN Online: 2165-7416
ISSN Print: 2165-7408

Subconjunctival Hemorrhage—Unusual Presentation of Systemic Lupus Erythematosus (SLE): A Case Report

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How to cite this paper: Alselaimy, R., Alhashim, M. and Elrakhawy, A. (2025) Subconjunctival Hemorrhage—Unusual Presentation of Systemic Lupus Erythematosus (SLE): A Case Report. *Open Journal of Ophthalmology*, **15**, 207-214.
https://doi.org/10.4236/ojoph.2025.154024

Received: August 3, 2025
Accepted: September 22, 2025
Published: September 25, 2025

Abstract

Systemic Lupus Erythematosus (SLE) is an autoimmune disease, affecting connective tissues, associated with a variety of systemic symptoms, including ocular manifestations. These ocular signs are diverse and have been reported in the literature, including keratoconjunctivitis sicca, retinopathy (as in retinal vascular occlusions), and choroidal and optic nerve involvement. Of these, subconjunctival hemorrhage is reported in the literature as a potential sign of SLE-related coagulopathies. Recognizing rare SLE presentations is essential for accurate diagnosis and effective treatment, and the involvement of multidisciplinary teams and comprehensive diagnostic work-up can significantly improve management strategies. We reported a case of rare SLE presentation in Saudi Arabia, in a young female otherwise healthy and presented to the emergency department with dense subconjunctival hemorrhage, ecchymosis, and Hemi Retinal Vein Occlusion (HRVO), and was later diagnosed with SLE.

Keywords

Systemic Lupus Erythematosus, Subconjunctival Hemorrhage, HRVO, Retinal Vasculitis

1. Introduction

Systemic Lupus Erythematosus (SLE) is a systemic autoimmune disease affecting connective tissue, with multisystemic involvement, including eyes. The systemic characteristics of SLE were mucocutaneous manifestations in the form of alopecia and malar rash, with percentages of 59.1% and 36.9% respectively. Osteoarticular signs reported in the literature were diffuse arthralgia 65.9%, arthromyalgia, joint

stiffness, and non-erosive arthritis. Moreover, cardiovascular 18.2%, pulmonary 26.1%, and neurological 9.1% signs frequently encountered with SLE include pericarditis, endocarditis, pleurosis, dyspnea, cough, ischemic stroke, and convulsions as observed by Anthelme *et al.* [1]. Mortality rate was reported to be 17% in SLE patients, more likely associated with renal impairment, infectious complications, lymphopenia, and thrombocytopenia. The reported percentage of renal involvement was 44.3%, infectious complications up to 40%, lymphopenia of 43.1%, and thrombocytopenia with 31.7% [1] [2].

The most common ocular manifestation of SLE is keratoconjunctivitis sicca, also known as dry eye syndrome [3] [4]. Ocular manifestations that may occur in SLE individuals are retinopathy, uveitis, scleritis, episcleritis, and choroidopathy [3] [4]. Retinopathy, which is characterized by abnormalities in blood vessels, is frequently seen in 34.5% of SLE patients. Cotton wool spots and retinal hemorrhages, which generally show good visual prognosis, are found in 80% of those cases. On the other hand, retinal vascular occlusions are associated with poor visual prognosis and found in 6.7% of all SLE patients [5]. SLE-associated retinopathy often indicates disease activity; it is crucial to involve multidisciplinary teams (ophthalmologists and rheumatologists) to collaborate and achieve optimal control and management of the disease. In our case, we will highlight the various and rare systemic and ocular features of SLE in a previously healthy young Saudi female.

2. Case Presentation

A 21-year-old female, not known to have any medical illnesses, presented to our emergency department with a six-week history of high-grade fever, reaching 39.5˚C. Her condition began as a severe sore throat and fever, requiring her to seek treatment at a local hospital, where she received conservative management and oral antibiotics on an outpatient basis. Although her sore throat improved, her fever persisted, prompting her to visit her local hospital with subsequent admission for further investigations and management of her non-resolving fever. Multiple and different empirical antibiotics were initiated without significant remission or improvement of her fever.

One week prior to her presentation at our Emergency Department (ED), she developed additional symptoms, including generalized headache, vague abdominal pain, vomiting, productive cough, chest pain, along with facial and right palm rash. Importantly, she denied a history of recent travel, contact with sick patients, being in close contact with pets/animals, raw milk consumption, substance/drug abuse, or smoking, nor a history of high-risk behavior of Human Immunodeficiency Virus (HIV). Moreover, other systemic symptoms were absent, including diarrhea/constipation, hemoptysis or shortness of breath, joint pain/stiffness, oral ulcers, or sicca. She reported constitutional symptoms, such as night sweats and loss of appetite, but denied any significant weight loss.

Ophthalmic manifestations were notable, presenting as bilateral dense subconjunctival hemorrhage and right inferior visual field loss with no history of ocular

trauma. Upon examination, she was febrile but otherwise stable. Her rash was characterized as multiple erythematous macules and papules involving the face, upper chest, and right palm (Figure 1). There was no evidence of lymphadenopathy, oral or genital ulcers, or joint swelling. Pericardial and chest examinations were unremarkable.

Upon inspection of her ophthalmic examination, a facial rash was revealed and bilateral dense subconjunctival hemorrhage with left inferior periorbital hematoma, as in Figure 2 and Figure 3. Visual acuity measured 20/60 in the right eye (OD) and 20/20 in the left eye (OS). Her Intra-Ocular Pressure (IOP), pupil assessment, and Extra-Ocular Motility (EOM) examinations were normal in both eyes, but confrontation visual field testing showed an inferior visual field defect in the right eye (OD). Slit Lamp Examination showed significant dense subconjunctival hemorrhage in both eyes, with the left eye exhibiting lower lid periorbital

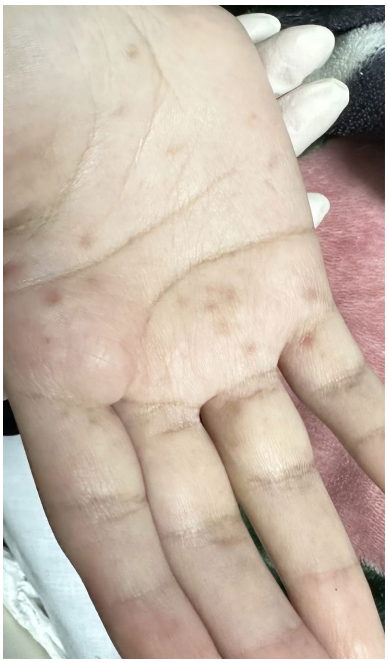

Figure 1. Right palm rash.

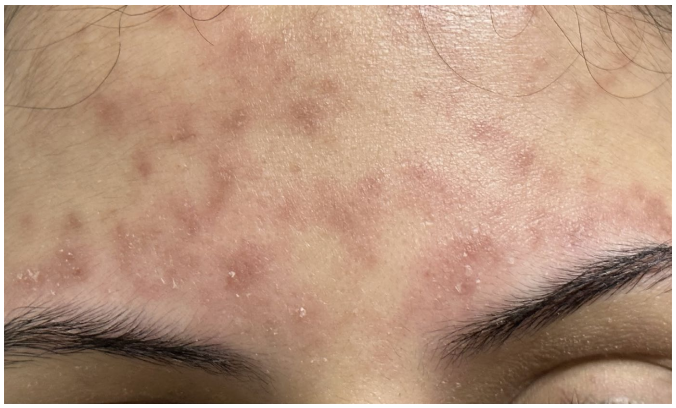

Figure 2. Facial rash.

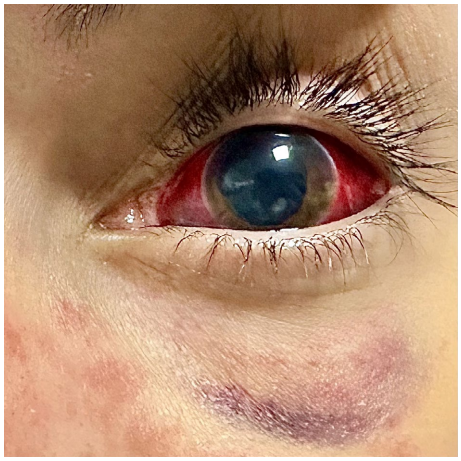

Figure 3. Subconjunctival hemorrhage and ecchymosis of the left eye.

hematoma. Dilated fundus examination of the right eye revealed superior hemiretinal vein occlusion (HRVO), with cotton wool spots and an area of sclerosed blood vessels suggestive of occlusive vasculitis. The left eye examination was unremarkable.

Our differential diagnosis for her dense subconjunctival hemorrhage was trauma, systemic diseases (hypertension, liver diseases that might affect clotting factors), coagulopathies (thrombocytopenia or hemophilia or anti-phospholipid), medication-related (anti-coagulants or anti-platelets), and valsalva-related.

Laboratory investigations upon presentation indicated lymphopenia, normocytic normochromic anemia, with a hemoglobin level of 8 grams/deciliter (8 g/dl) and platelet count of 17.9×10^3/microliter (μL). Coagulation studies revealed prolonged Prothrombin Time (PT) with level of 21 seconds, Partial Thromboplastin Time (aPTT) of 59 seconds, and International Normalized Ratio (INR) of 1.6. Inflammatory markers were significantly elevated, with an Erythrocyte Sedimentation Rate (ESR) of 130 millimeter/hour (130mm/hr) and C-Reactive Protein (CRP) of 29.9 milligrams/liter (29.9 mg/l). Tests for infectious causes, including HIV, Syphilis, Brucella, Q-fever, Hepatitis, and Tuberculosis, returned negative.

Autoimmune studies showed positive results for Anti-Nuclear Antibodies (ANA) at a titer of (1:320), elevated Anti-Double Stranded DNA (anti-dsDNA) of 561 international units per milliliter (561 IU/ml), along with positive Anti-Phospholipid Anti-bodies (APLA) reaching 28 units/milliliter (28 U/ml). Other specific antibodies, including Anti-Smit Antibodies (Anti-Sm), antinuclear ribonucleoprotein (Anti-RNP), high titer of Anticardiolipin Antibodies (ACA), and Beta-2 glycoprotein 1 antibody (B2GP), were also detected. Both complement levels, C3 and C4 were low, as were protein C and S levels.

Ophthalmic ancillary test that was done to her was only ocular coherent tomography (OCT), which showed macular edema and retinal thickening. Fundus Fluorescein Angiography (FFA) was not available at the time of her presentation.

Based on American College of Rheumatology/European Alliance of Associations for Rheumatology (ACR/EULAR) classification criteria [6], she was diag-

nosed with SLE. The patient was initiated on pulse systemic Intravenous Methylprednisolone at a dose of 20 milligrams (mg) for 1 day, then increased to 40 mg for 1 day, followed by 500 mg for 5 days, finally maintained by oral prednisolone 30 mg orally, alongside cyclophosphamide 500 mg, hydroxychloroquine 200 mg daily, and warfarin 8mg. Upon discharge, she was prescribed oral steroids 30 mg with hydroxychloroquine 200 mg and warfarin 8 mg, and frequent follow-ups with both ophthalmology and rheumatology teams.

In her ophthalmology follow-up visits, the patient developed areas of ischemia with neovascularization necessitating pan-retinal photocoagulation (PRP). No neovascularization was detected in her latest visits, and her vision remained the same.

3. Discussion

We reported a unique, uncommon presentation of SLE in a young Saudi female patient who presented with dense subconjunctival hemorrhage and HRVO. Retinal occlusive vasculitis is reported in the literature to be around 3% - 11% in patients with SLE although it is considered uncommon, it is actually contemplated to be a life-threatening manifestation [5]. As observed in our patient, retinal vasculitis can precede the diagnosis of SLE, similar to our findings. Kunavisarut *et al.* reported a 30-year-old Thai female who presented with bilateral retinal occlusive vasculitis prior to establishing an SLE diagnosis [7]. Visual outcome secondary to underlying retinal vasculitis was reported to be poor. Jabs DA and colleagues found that 55% of their studied group suffered visual loss of 20/40 and worse; the remaining group had an acuity of 20/200 and worse [8].

Another finding seen in our case is the positive anti-phospholipid antibody, which has been correlated in the previously published articles with SLE-related retinal vascular occlusion. Asherson *et al.* concluded that elevated anti-phospholipid antibody in SLE patients carries a high risk of developing vaso-occlusive ocular diseases [9]. Therefore, performing an anti-phospholipid antibody test is a must for all patients suspected of having SLE and presenting with occlusive vasculitis. Ocular manifestations are considered an important clue to disease activity; generally, the presence of retinopathy is indicative of disease activity. Evaluating ocular diseases in SLE patients every 6 months is recommended, as the disease may relapse during immunosuppression therapy. Moreover, it is advised to observe for any medication side effects like developing cataract, glaucoma, and maculopathy [10]. In contrast to our case, Katherine J Donnithorne *et al.* described two pediatric female patients who presented first with fever, rash, and weight loss, which contributed to the diagnosis of SLE, and then months later they developed retinal vasculitis [11].

As is known, hematological involvement is common in juvenile SLE, with a frequency of 50% - 100% of patients [12] [13]. The most encountered hematological involvement is anemia, with all its etiologies representing 80% - 90%, of which anemia of chronic disease (ACD) is the most common, followed by iron deficiency

anemia (IDA), and then hemolytic anemia. In addition to anemia, leukopenia, thrombocytopenia, and abnormalities in the coagulation system are also considered common hematological findings in JSLE [12]-[14]. In addition to the previously mentioned hematological entities, subconjunctival hemorrhage, as reported by Eberhard and co-authors, is considered a sign of SLE coagulopathies [15]. As reported in our case, our young female patient presented similar to the mentioned study with bilateral dense subconjunctival hemorrhage.

In Saudi Arabia, there have been a few reported SLE cases with unusual presentation. Recently, there was a published case of a young Saudi female who presented with orbital pseudotumor secondary to SLE. Another interesting case reported in the Kingdom of Saudi Arabia was Purtscher-like retinopathy as the first presentation in a 21-year-old female who was diagnosed with SLE after her ocular complaint [16] [17].

This is a rare case of a previously healthy, young Saudi female with an unusual SLE presentation of dense subconjunctival hemorrhage, ecchymosis, and HRVO.

4. Conclusion

In this study, we highlighted the various, rare, and complex systemic features of SLE, particularly in young Saudi female patients with significant ocular manifestations. The diversity of SLE symptoms may be overlooked, making thorough clinical evaluation and multidisciplinary collaboration essential for accurate SLE diagnosis. We reported rare ocular signs, including bilateral dense subconjunctival hemorrhage, ecchymosis, and HRVO. Alongside miscellaneous systemic symptoms are persistent fever with unknown origin, generalized headache, vague abdominal pain, productive cough, and a uniquely distributed maculopapular rash. Crucially, laboratory results played a significant role in reaching the final diagnosis. As previously mentioned, she was positive for ANA, anti-dsDNA, and negative infectious tests, which all follow the established guidelines in diagnosing SLE patients. Due to the rarity and nonspecific nature of her presenting symptoms, her disease journey was prolonged and lasted for six weeks, until a definitive diagnosis was established. Finally, this case emphasizes the importance of raising awareness among health practitioners about the various and rare ocular presentations of SLE. Early detection and management are crucial to improving outcomes of such treatable diseases.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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