Periorbital Edema as the Initial Manifestation of Pediatric Systemic Lupus Erythematosus

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ABSTRACT: Periorbital edema as a sole initial manifestation, without any evidence of other significant cutaneous or systemic involvement, is rare in systemic lupus erythematosus (SLE). We report a 16 year-old female who presented with bilateral periorbital edema as the sole initial manifestation of SLE. As the disease progressed, a kidney biopsy was performed demonstrating lupus nephritis stage II. This report emphasizes the importance of the index of suspicion of SLE as one of the differential diagnosis of patients with periorbital edema in the relevant clinical context.

KEYWORDS: Periorbital edema, pediatric systemic lupus erythematosus

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Introduction

Systemic lupus erythematosus (SLE) is a chronic, autoimmune, connective tissue disorder that affects multiple organ systems often in a relapsing and remitting clinical course.[1] It predominantly affects women in their child-bearing age.[2,3]

Since central nervous system (CNS) and kidney disease are more frequent and severe in children, they are particularly of great concern in juvenile SLE (jSLE), which is considered a rare disease with an incidence rate ranging from 0.3 to 0.9 per 100 000 children and a prevalence rate ranging from 1.89 to 25.7 per 100 000 children.[3]

Ocular manifestations may occur in up to one-third of patients. The most common manifestation is keratoconjunctivitis sicca. However, other manifestations have been described such as orbital masses, orbital myositis, panniculitis, acute orbital ischemia and infarction,[1,4]infections, subcutaneous nodules, angioedema, secondary dermatomyositis, periorbital mucinosis, and edema due to hypoalbuminemia related to nephrotic syndrome or hepatic disease.[4,5]

Periorbital edema that is not due to hypoalbuminemia is an unusual cutaneous manifestation reported in only a few patients with SLE mostly adults.[1] In most cases a biopsy is often necessary to confirm the diagnosis.[4] The overall reported incidence is 0.1% for the presenting manifestation of systemic lupus erythematosus, with an overall incidence of 4.8%.[6]

In this report, we present a case of an adolescent patient, in which the periorbital edema was the initial manifestation of SLE.

Case Presentation

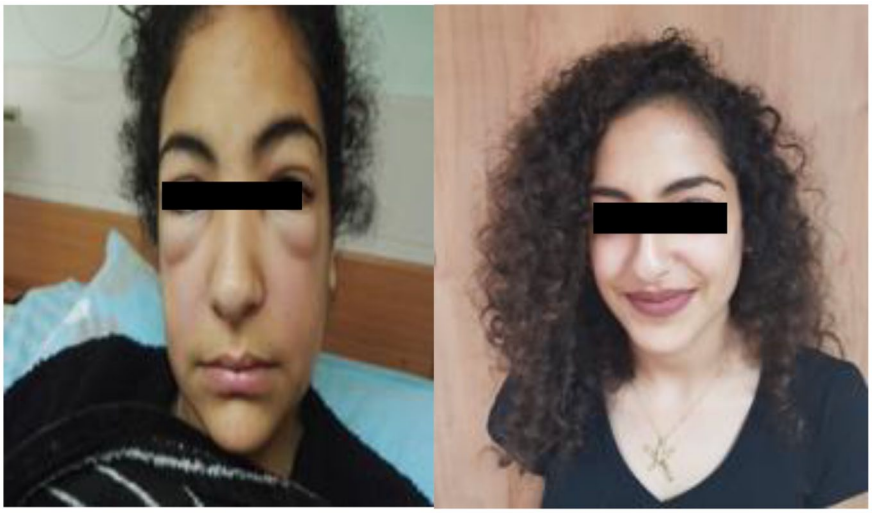
A 16 year-old female patient presented to our emergency room with a periorbital edema for few days without erythema, telangiectasia, atrophy, or pigmentary changes (Figure 1A). She had no signs or symptoms of a systemic disorder. Her past medical and family history was unremarkable.

At presentation, her vital signs were normal, and her physical examination was unremarkable other than periorbital edema with no swelling noticed at her lips, hands or feet. Urinalysis was normal, and initial blood tests showed mildly elevated liver enzymes, elevated ESR, normal renal function, normal albumin, total protein, and blood count as detailed in Table 1. Chest X-ray was normal as well. The ophthalmologist examination was also normal except for periorbital edema. Further investigations were performed during her hospitalization that demonstrated: low C3 and C4, positive ANA with high titer (1:640 – homogeneous pattern), positive Ribosomal P Ab, elevated dsDNA Ab, low level of vitamin D, and a normal C1 esterase level. A 24 hours urine collection showed 200 mg of protein (Table 1).

Abdominal US demonstrated splenomegaly (16 cm dimension), with a small amount of free intraperitoneal fluid without hepatomegaly. Echocardiography was performed without evidence of pericardial effusion.

At this stage, there was a high suspicion of SLE, especially the ANA titer, low complement levels and high DsDNA with proteinuria supported the diagnosis, there were no prominent typical findings such as fatigue, skin rashes, joint pain, or fever. Other infectious or inflammatory etiologies were ruled out, though there were no sufficient criteria to reach the diagnosis according to SLICC or new ACR/EULAR criteria. She was discharged with the treatment of vitamin D daily and was scheduled for a follow-up.

A 2 weeks later, she presented again due to arthralgia of both wrists and knees and a maculopapular rash on her arms that resolved the next day spontaneously (a biopsy was not performed). A few days later, her periorbital edema had worsened with new complaints of headache and burning sensation in her eyes with blurred vision in her left eye. A repeated ophthalmologist examination demonstrated mild papilledema confirmed with *Optical Coherence Tomography* (OCT). Though a



A B

Figure 1. (A) The patient at presentation with bilateral periorbital edema. (B) 2 weeks after initial therapy.

Table 1. Blood test results on diagnosis and treatment of presented case.

	FIRST ADMISSION (DAY 1)	FIRST ADMISSION (DAY 5)	SECOND ADMISSION (DAY 15)	SECOND ADMISSION (DAY 25)	OUTPATIENT CLINIC FOLLOW UP (DAY 35)
WBC (K\uL)	5.5	7.24	3.89	12.89	10.93
Hemoglobin (g\dL)	12	12.8	11.6	12.4	11.9
Platelets (K\uL)	225	218	194	387	245
AST (U\L)	51	40	46	14	13
ALT(U\L)	53	51	54	23	16
Bilirubin total (g\dl)	0.74	0.79	0.83	0.8	1.15
Total protein (g\dl)	7.5	-	7.4	7.4	7.9
Albumin (g\dL)	4.1	-	3.7	4	4.5
Urea (mg%)	14	20	12	21	26
Creatinine (mg\dl)	0.42	0.47	0.39	0.5	0.6
C-reactive protein (mg\dL)	0.14	0.12	0.21	<0.06	<0.06
ESR (mm\h)	48	41	71	39	21
C3 (mg%)	65	64	62	55	67
C4(mg%)	3	<2	<2	<2	3
ANA Titer	1:80	-	1:640	-	-
DsDNA Ab (IU\ml)	41	-	35	-	21
24 Urine protein (mg\24 h)	200	-	578	-	25

head CT was completed and revealed a bilateral swelling of the eyelids otherwise was normal, sagittal sinus thrombosis was ruled out.

Repeated lab tests demonstrated mild anemia and leukopenia with a further elevation of ESR and the same mild elevation at the liver enzymes (Table 1).

A few days later, she suffered from several small aphthous lesions on her upper palate that resolved spontaneously over the next few days. Subsequently, a decreased air entry at the base of her left lung was noted at a routine daily physical examination. Her chest x-ray demonstrated a small amount of pleural fluid at the base of her left lung, confirmed by an ultrasound.

Echocardiography and ECG were also repeated and were normal.

A 24 hours urine collection test showed 580 mg of urine protein, indicating significant proteinuria. Therefore, a renal biopsy was performed and demonstrated proliferation of mesangial cells without endocapillary proliferation consistent with Lupus Nephritis Type II.

At this stage, 4 weeks after her initial presentation, she fulfilled the criteria for SLE diagnosis according to the new ACR/EULAR criteria including: class II lupus nephritis, joint involvement, pleural effusion, oral ulcers, and positive autoantibodies (ANA, DsDNA) with low complement.

She was started on hydroxychloroquine and corticosteroids with a significant improvement in her edema and other complaints (Figure 1B).

At the follow-up visit 2 weeks later, she felt well, and her periorbital edema resolved with no other complaints. Her labs, including urine tests, were all normal (Table 1). The corticosteroids therapy was tapered down while continuing treatment with hydroxychloroquine with good response in later visits without flares in the next two.

Discussion and Conclusion

To the best of our knowledge and after the literature review, we described the first pediatric case of bilateral periorbital edema as the initial and sole manifestation of SLE.

Another reported pediatric case described an adolescent girl who presented with localized angioedema in eyelids and lips and was diagnosed with SLE.[7]

A few cases of periorbital involvement were reported in adults. Ghaninejad et al[8] described a 23 years old male who presented with bilateral swelling of eyelids and cheeks for a year before SLE diagnosis was reached and a 36 years old male patient who presented with a history of swelling, erythema, and edema on the left side of his face and severe left eye proptosis with prominent periorbital swelling for 2 years prior to SLE diagnosis, in the 2 cases a skin biopsy revealed a marked dermal mucin deposition. Other cases also showed a similar pattern of prolonged periods between the onset of the periorbital swelling and reaching SLE diagnosis.[5,6,9]

Interestingly, Wu et al[9] described a large cohort of 25 patients with localized eyelid erythema and swelling as a unique ocular manifestation of Cutaneous Lupus Erythematosus, where most of the patients were middle-aged females. Unilateral involvement with upper left side predominance occurred in 84% of patients, with a mean duration of 59 weeks between the onset of clinical manifestation and the time of diagnosis. At biopsy, 80% of the patients had interface dermatitis and melanin incontinence, 44% had periadnexal infiltration, 40% had follicular plugging, and 48% had mucin deposition.

In our case we reached the diagnosis at an early stage of 4 weeks from the first atypical presentation compared to longer duration in other published jSLE studies; the length of this duration was 4 to 6 months in Latin America and Asia, whereas it was between 2 and 3 months in Europe.[3]

The etiology of localized periorbital edema in patients with SLE flares is unclear. As noted in this report, some cases were related to nephrosis, but there was no evidence of this in others. In these cases, the hypothesis of increased vascular permeability in patients with connective tissue diseases proposed by Marks et al[10] is a feasible possibility. Other authors have found increased dermal mucin deposits in the biopsy of patients with periorbital edema. Angioedema related to C1 deficiency as another cause has also been described.[5] In our patient this deficiency was ruled out.

Our patient presented with bilateral periorbital edema as the initial and sole manifestation of SLE. A high index of suspicion was raised in the clinical context of an adolescent female patient along with the initial abnormal lab test results led us to continue investigations until we reached the diagnosis at an early stage with a complete response to treatment

In conclusion, SLE should be kept in mind as one of the differential diagnosis of patients with periorbital edema in the relevant clinical context.

Contributors' Agreement

Dr. Rim Kasem Ali Sliman and Dr. Mohamad Hamad Saied coordinated and collected the data, drafted the initial manuscript, reviewed and revised the manuscript.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

The Final Diagnosis

Systemic Lupus Erythematous.

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REFERENCES

1. Palejwala NV, Walia HS, Yeh S. Ocular manifestations of systemic lupus erythematosus: a review of the literature. *Autoimmune Dis*. 2012;2012:1-9.
2. Kemeny-Beke A, Szodoray P. Ocular manifestations of rheumatic diseases. *Int Ophthalmol*. 2020;40:503-510.
3. Sahin S, Adrovic A, Barut K, et al. Juvenile systemic lupus erythematosus in Turkey: demographic, clinical and laboratory features with disease activity and outcome. *Lupus*. 2018;27:514-519.
4. Sivaraj RR, Durrani OM, Denniston AK, Murray PI, Gordon C. Ocular manifestations of systemic lupus erythematosus. *Rheumatology*. 2007;46:1757-1762.
5. Gómez-Puerta JA, Levy S, Khamashta MA, Hughes GR. Periorbital oedema in systemic lupus erythematosus. *Lupus*. 2003;12:866-869.
6. Al-Khaldi M, Alsabbagh M. Systemic lupus erythematosus presented with bilateral orbital edema and negative serology. *Case Rep Rheumatol*. 2019;2019:7140534.
7. Tekin ZE, Yener GO, Yüksel S. Acquired angioedema in juvenile systemic lupus erythematosus: case-based review. *Rheumatol Int*. 2018;38:1577-1584.
8. Ghaninejad H, Kavusi S, Safar F, Asgari M, Naraghi ZS. Persistent periorbital edema as a sole manifestation of cutaneous lupus erythematosus: report of two cases. *Dermatol Online J*. 2006;12:14.
9. Wu M, Wang C, Ng C, et al. Periorbital erythema and swelling as a presenting sign of lupus erythematosus in tertiary referral centers and literature review. *Lupus*. 2018;27:1828-1837.
10. Marks J, Birkett DA, Shuster S. "Capillary permeability" in patients with collagen vascular diseases. *Br Med J*. 1972;1:782-784.