CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187

Avalable online at: http://www.iajps.com *A Case Report*

OPHTHALMOLOGIC MANIFESTATIONS AS INITIAL PRESENTATION OF PATIENT WITH ACUTE LYMPHOID LEUKAEMIA-CASE REPORT

Yousef Alotaibi
Demonstrator at Bisha University/ College of Medicine/ Department of Ophthalmology

Article Received: March 2021 **Accepted:** March 2021 **Published:** April 2021

Abstract:
Leukemia is a proliferative and malignant syndrome of hematopoietic stem cells of the bone marrow. The ocular manifestations could be used as predictors of leukemiaor they can be detected after confirming the diagnosis of leukemia. We report a case of 19 years old male presented with sudden painless decrease of vision of both eyes, left more than right, for 3 days associated with fatigue, headache, and palpation for 2 days duration. After diagnosis, the case suffered from acute lymphoid leukemia which was associated with some ophthalmic manifestations including multiple blots and flame shaped hemorrhage of the right eye, macular hemorrhage, cotton wall spot of the left eye and white centered hemorrhage of both eyes. OCT revealed left thickening of sensorial retinal consistent with macular hemorrhage. After conducting all investigations, the patient was confirmed to be suffering from acute lymphoid leukemia.

Corresponding author:
Yousef Alotaibi*,
Demonstrator at Bisha University/ College of medicine/ Department of Ophthalmology

QR code

Please cite this article in press Yousef Alotaibi., ***Ophthalmologic Manifestations As Initial Presentation Of Patient With Acute Lymphoid Leukaemia-Case Report..,*** *Indo Am. J. P. Sci, 2021; 08(04).*

INTRODUCTION:

Leukemia is defined as one of the most common malignant tumor of bone marrow ensuing atypical white blood cells production which could affect several body organs[1]. Leukemic patientsusuallysuffer from ocular symptoms. The etiology may be either due to direct leukemic cellspermeation or indirect originsincludingadverse effects of drugs, infections, the leukemia secondary hematologic abnormalities, and central nervous system involvement[2].

Usually, most of the cases show the ocular manifestations after confirming the diagnosis of leukemia. On the other hand, ocular symptoms could be used as predictor of leukemia presence. Recently, about 25% of patients diagnosed with leukemia after presenting with ophthalmic manifestations [3]. However, some patients may show clinical ophthalmic manifestations throughouta complete remission or systemic degeneration[4].

Ophthalmic manifestations related to leukemia can unfavorably cause a major effect on vision and can be used in demonstrating systemic leukemia survival prognosis[5]. Thus, a completeinvestigationof the eye should be evaluated among acute leukemia patients [6]. In this study, a case with ocular symptoms is presented with subsequent diagnostic strategies.

CASE PRESENTATION

A 19 years old male with no history of medical problems was presented with sudden painless decrease of vision of both eyes with left more compromised than the right for 3 days. The decrease of vision was associated with fatigue, headache, and palpation for 2 days.

After history taking, the patient had a history of flu like symptoms before 3 weeks that was resolved completely. He reported no other systemic symptoms and state to be in good health. On physical examination, best corrected visual acuity was 20/30 and 20/100 in his right and left eyes, respectively.

Other investigations were conducted including measuring the intraocular pressure using Goldman applanation tonometry which was 15 mm of Hg in both the eyes. His pupillary reflex and ocular adnexa examination were normal of both eyes. There were no pathologic findings on ophthalmic examination of anterior segment of both eyes.

Color Fundus examination revealed Multiple blot and flame shaped hemorrhage of the right eye, macular hemorrhage, cotton wall spot of the left eye and white centered hemorrhage of the both eyes (roth spots) (Figure 1).

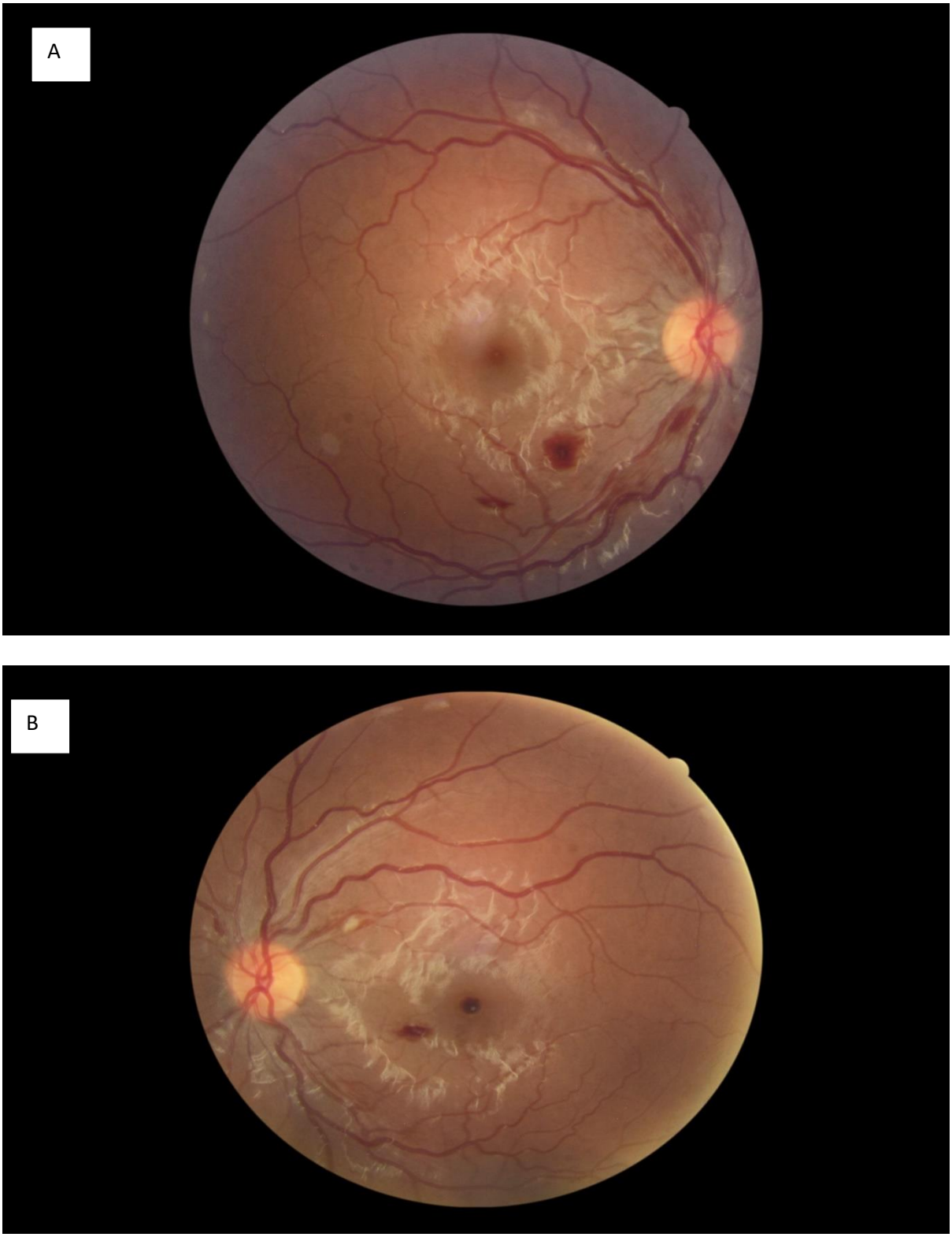

Figure 1: Colour fundus photo of the (A) right eye showing blot and flame shaped hemorrhage and roth spots. (B) left eye showing macular hemorrhage and roth spot.

Optical Coherence Tomography revealed left thickening of sensorial retinal consistent with macular hemorrhage (Figure.2).

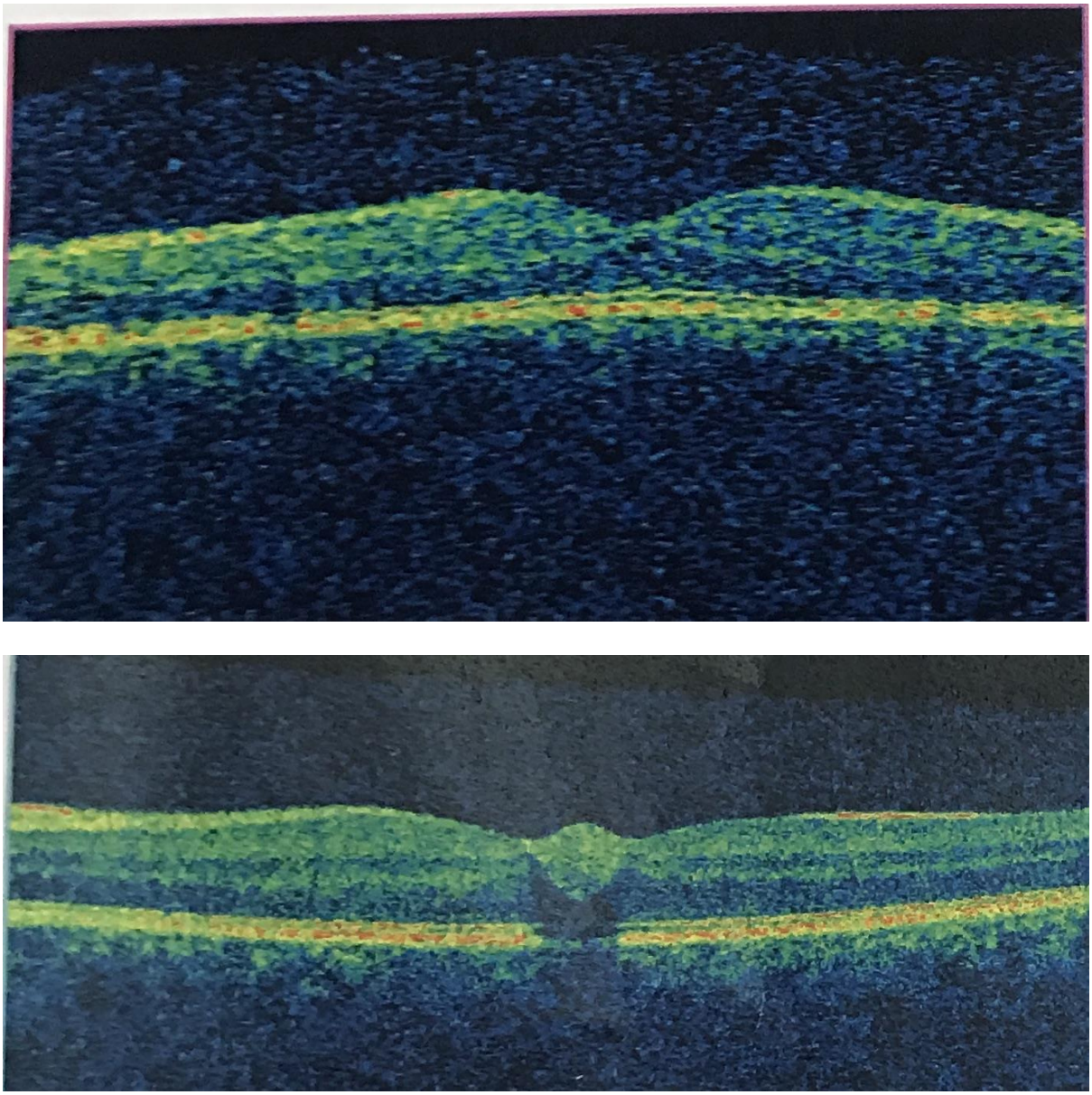

Figure 2 : oct : normal on right eye . left eye show hyporeflective area corresponding to macular hemorrhage

Blood investigation and peripheral blood smearwere conducted and referred to internal medicine which came with the diagnosis of acute lymphoid leukemia.

Table 1: Blood investigations:

White blood cells	**5.79 (4-10)**
Hematocrit	23.9 (40-50)
Mean capsular volume	67.9 (80-101)
Mean capsular hemoglobulin	22.4 (27-32)
Red distribution width -CV	21.2 (11.6-14.6)
Platelet count	41 (150 -400)
Hemoglobulin	7.9 (13-17.5)
Urea	40 (10-50)
Creatinine	0.79 (0.5-1.3)
Sodium	136 (135-153)
Potassium	3.9 (3.5-5.3)
Total protein	6.1 (6.4-8.3)
Albumin	3.2 (3.4-4.8)

DISCUSSION:

Leukemia is a malicious neoplasm of bone marrow which could affect various organs. Ocular manifestations are very common among leukemic patients with a prevalence of 9 to 90% [7]. The signs can be manageable after treatment of systemic leukemia but sometimes it can appear due to disease recurrence [8].

In our case, the patient had no systemic illness and stated to be in good health. The patient was suffering from loss of vision with the left eye more affected than the right one. After conducting physical, clinical and laboratory investigations, the patient was diagnosed with acute lymphoid leukemia. In the same consistence many studies, loss of vision was reported among leukemic patients which could be the only manifestation compromised with various types of ocular involvements [9-11].

On the anterior segment examination of both eyes, no pathological conditions were found, but multiple blots and flame shaped hemorrhage of the right eye, macular hemorrhage, and cotton wall spot of the left eye and white centered hemorrhage of the both eyes (roth spots) were found by fundus examination. Posterior segment ophthalmic symptoms were commonly reported in earlier studies including hemorrhage as the most common finding [6, 8, 12, 13].

The lower platelet count was associated with presence of acute leukemia which was manifested by macular hemorrhage and thickening ofretina [14, 15].

Thiscaseshowed that ocular manifestations could be used as diagnostic factor for inspecting leukemia.

CONCLUSION:

The case suffered from loss of vision, macular hemorrhage and retinal thickness. After physical, clinical and laboratory examination, it was found to be associated with the presence of acute lymphoid leukemia. Thus, we recommend that patients suffering from ophthalmic manifestations should be diagnosed for the presence of other systemic disease including leukemia to prevent severe damage of the eye. Also, leukemic patients should be diagnosed for the presence of ocular symptoms associated with the presence of leukemia.

REFERENCES:

1. Hafeez MU, Ali MH, Najib N, Ayub MH, Shafi K, Munir M, et al. Ophthalmic Manifestations of Acute Leukemia. Cureus. 2019;11(1):e3837-e. doi:10.7759/cureus.3837.
2. Khadka D, Sharma AK, Shrestha JK, Shrestha GS, Shrestha PN, Pant SR, et al. Ocular manifestations of childhood acute leukemia in a tertiiary level eye centre of Kathmandu, Nepal. Nepalese journal of ophthalmology : a biannual peer-reviewed academic journal of the Nepal Ophthalmic Society : NEPJOPH. 2014;6(2):197-204. doi:10.3126/nepjoph.v6i2.11678.
3. Delestre F, Blanche P, Bouayed E, Bouscary D, Mouthon L, Brezin A, et al. Ophthalmic involvement of chronic lymphocytic leukemia: A systematic review of 123 cases. Survey of ophthalmology. 2021;66(1):124-31. doi:10.1016/j.survophthal.2020.05.001.
4. Ohanian M, Borthakur G, Quintas-Cardama A, Mathisen M, Cortés JE, Estrov Z, et al. Ocular granulocytic sarcoma: a case report and literature review of ocular extramedullary acute myeloid leukemia. Clinical lymphoma, myeloma & leukemia. 2013;13(1):93-6. doi:10.1016/j.clml.2012.07.008.
5. Eze BI, Ibegbulam GO, Ocheni S. Ophthalmic manifestations of leukemia in a tertiary hospital population of adult nigerian africans. Middle East Afr J Ophthalmol. 2010;17(4):325-9. doi:10.4103/0974-9233.71599.
6. Koshy J, John MJ, Thomas S, Kaur G, Batra N, Xavier WJ. Ophthalmic manifestations of acute and chronic leukemias presenting to a tertiary care center in India. Indian journal of ophthalmology. 2015;63(8):659-64. doi:10.4103/0301-4738.169789.
7. Hafeez MU, Ali MH, Najib N, Ayub MH, Shafi K, Munir M, et al. Ophthalmic Manifestations of Acute Leukemia. Cureus. 2019;11(1):e3837. doi:10.7759/cureus.3837.
8. Sharma H, Majumder PD, Rao C, Biswas J. A case of Acute Myeloid Leukemia masquerading as unilateral exudative detachment. American journal of ophthalmology case reports. 2016;4:47-9. doi:10.1016/j.ajoc.2016.08.004.
9. Sharma T, Grewal J, Gupta S, Murray PI. Ophthalmic manifestations of acute leukaemias: the ophthalmologist's role. Eye (London, England). 2004;18(7):663-72. doi:10.1038/sj.eye.6701308.
10. Koshy J, John MJ, Thomas S, Kaur G, Batra N, Xavier WJ. Ophthalmic manifestations of acute and chronic leukemias presenting to a tertiary care center in India. Indian journal of ophthalmology. 2015;63(8):659-64. doi:10.4103/0301-4738.169789.
11. Pchejetski D, Alshaker H, Babovic R, Maw K. A case of severe dry eye disease with corneal melting as presenting complaint of acute myeloid leukaemia. SAGE open medical case reports. 2021;9:2050313x21994411. doi:10.1177/2050313x21994411.
12. Gawai D, Jhavar S, Patil SJIJHSR. Orbital and ocular manifestations of acute and chronic leukemia. Int J Health Sci Res. 2016;6(9):61-4.
13. Bitirgen G, Belviranli S, Caliskan U, Tokgoz H, Ozkagnici A, Zengin N. Ophthalmic manifestations in recently diagnosed childhood leukemia. European journal of ophthalmology. 2016;26(1):88-91. doi:10.5301/ejo.5000647.
14. Reddy SC, Jackson N. Retinopathy in acute leukaemia at initial diagnosis: correlation of fundus lesions and haematological parameters. Acta ophthalmologica Scandinavica. 2004;82(1):81-5. doi:10.1046/j.1600-0420.2003.00197.x.
15. Orhan B, Malbora B, Akça Bayar S, Avcı Z, Alioğlu B, Özbek N. Ophthalmologic Findings in Children with Leukemia: A Single-Center Study. Turk J Ophthalmol. 2016;46(2):62-7. doi:10.4274/tjo.03880.