IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 19, Issue 2 Ser.19 (February. 2020), PP 57-59
www.iosrjournals.org

A Case Report of Leukemic Retinopathy

Dr.ChandanaDampuru[1],Dr.N.LaxmiChowdary[2],Dr.K.ChandraMohan[3]
1:Postgraduate In Ophthalmolgy, NRI Medical College and General Hospital, Chinakakani, Andhra Pradesh
2: Professor & HOD of Ophthalmolgy, NRI Medical College and General Hospital, Chinakakani, Andhra Pradesh 3: V.R.Surgeon,NRI Medical College and General Hospital, Chinakakani, Andhra Pradesh

Abstract
Introduction: *Leukemias are a group of neoplasms arising due to malignant transformation of blood forming cells. Ocular involvement in leukemia is most common .*
Case report :*A 11 year old female child presented with defective vision in both eyes more in left eye compared to right eye .Subconjunctival haemorrhage present in both eyes.Preretinal haemorrhages,hard exudates ,cotton wool spots in right eye and vitreous haemorrhage in left eye. Based on clinical findings she was advised systemic evaluation .*
Discussion: *Ocular findings in leukemia mostly due to hyperviscosity status and medications used in treatment .*
Conclusion :*Ocular involvement has been described in up to 50% of patients at the time of diagnosis .So diagnosis of leukemia based on ocular findings is life saving as survival rate is increasing with chemotherapy .*
Key words*: Leukemia , Acute promyelocyticleukemia .*

Date of Submission: 19-02-2020 Date of Acceptance: 03-03-2020

I. Introduction

Leukemias are a group of neoplasm occurring due to malignant transformation of blood forming cells .It may be acute or chronic ,four basic types are present . Acute myeloblasticleukemia (AML) , Acute lymphoblastic leukemia (ALL), Chronic myeloid leukemia (CML) ,Chronic lymphatic leukemia (CLL).Acute leukemias are more common in children and usually affect boys more often than girls[1]. Almost all patients with leukemia develop eye findings at some stage of malignancy, less than5% of patients with leukemia present first to the ophthalmologist for an ocular manifestation which then leads to a diagnosis of leukemia[2].Ocular features may be proliferative or non proliferative retinopathy.

II. Case Report

A 11 years old female child presented with defective vision in both eyes left eye more compared to right eye since 20 days . Visual acuity in right eye unaided was counting fingers at 1 meter with pin hole no improvement and in left eye unaided was hand movements with pinhole no improvement .
Anterior segment findings are subconjunctival haemorrhage in both eyes.

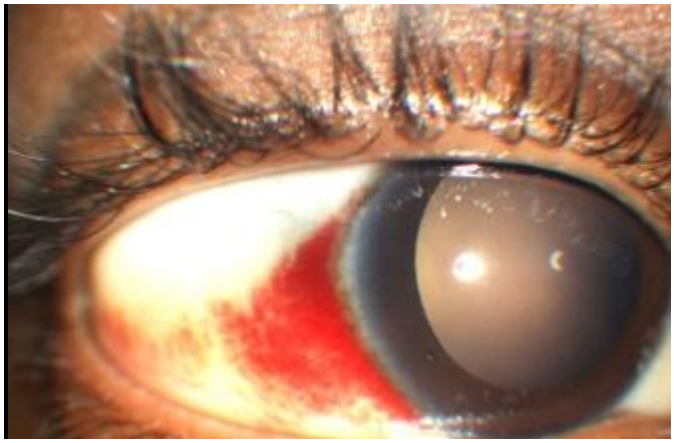

Fig-1 Subconjunctival haemorrhage in right eye

Posterior segment findings are

Right eye – Media is clear , Optic disc – temporal pallor , blood vessels are normal , Macula - haemorrhages,cotton wool spots,hard exudates present ,multiple preretinal haemorrhages present in inferior quadrant of background retina .Left eye – Media is hazy due to vitreous haemorrhage.

A . B.

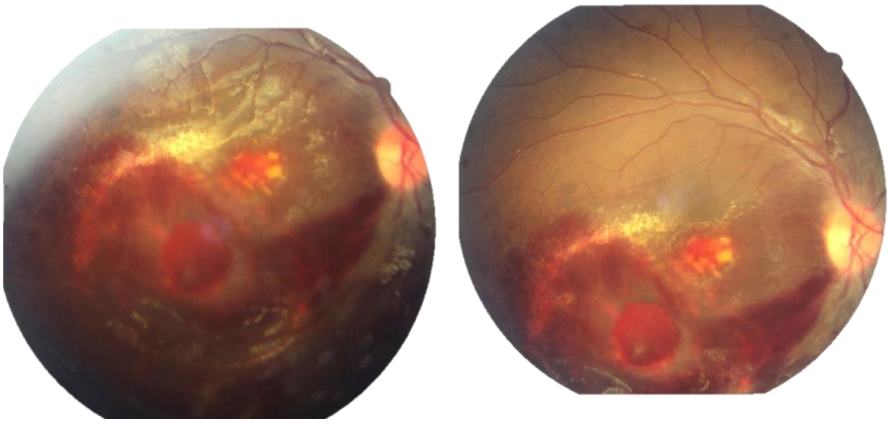

Fig -2 : A and B .Macula - haemorrhages,cotton wool spots,hard exudates present ,multiple preretinal haemorrhages present in inferior quadrant of background retina .

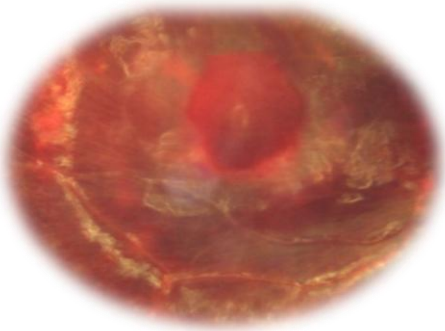

Fig -3 :Right eye – macular haemorrhage

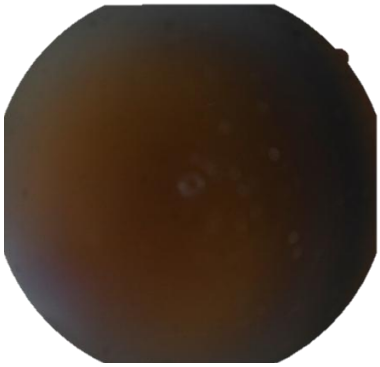

Fig -4 : Left eye – vitreous haemorrhage

Differential diagnosis are diabetic retinopathy ,hypertensive retinopathy , anaemic retinopathy ,Leukemic retinopathy .Based on clinical findings she was advised systemic evaluation.

Investigations

B – Scan

Right eye – No vitreous haemorrhage ,no retinal detachement

Left eye – vitreous haemorrhage present , no retinal detachement

Blood pressure – 100/70 mmHG , Random blood sugar values – 98mg/dl

Complete blood picture:Hb - 8.4gm/dl ; Total leucocyte count : 24,100 ; Platelets : 55,000

Peripheral smear:

RBC hypochromasia with anisocytosis comprising of normocytes, microcytes and occasional macrocytes

WBC- Leukocytosis with left shift comprising of myeloblasts and promyelocytes accounting to60%. There are Auer rods seen in some of the blasts.Platelets: thrombocytopenia, no haemoparasites.

Opinion: Acute Promyelocytic Leukemia (AML-M3)

Based on investigations we came to an assumption of Leukemic retinopathy.Patient was referred to Oncologist and Paediatrician for further management. Where they confirmed as Acute Promyelocytic Leukemia .Patient was immediately put on blood transfusions and Oral All-transretinoic acid 50 mg/day daily at 45 mg/m2/day BD, IV Idarubicin 15 mg x 3 days at 12 mg/m2 every alternate day .

After six months of chemotherapy, both eyes anterior segment was normal . Right eye vision was 6/36 temporal pallor of optic disc , preretinal haemorrhages resolved leaving an sub foveal retinal pigment detachment and in left eye vision was 6/60 pale disc ,sub foveal retinal pigment detachment due to resolved vitreous haemorrhage.

A. B.

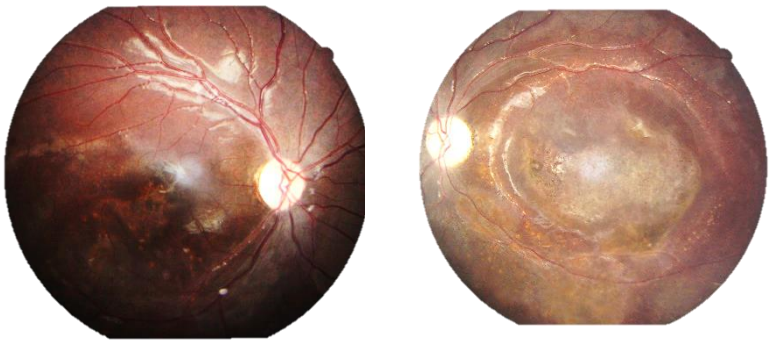

Fig 5 ;A.Right eye- temporal pallor of optic disc, sub foveal retinal pigment detachment

B.Left eye - pale disc ,subfoveal retinal pigment detachment

III. Discussion

Acute Promyelocytic leukemiais a distinct subtype of AML , designated M3 by FAB .Accounts for 10 - 15 % of cases of AMLCharacteristic molecular genetic abnormality - PML RARA t(15;17).

Ocular findings in acute leukemia is due to,leukemia induced hyperviscosity status , immunosuppressive state, medications used in the treatment ofleukemia , radiation effects used in the treatment of leukemia , effects of post bone marrow transplantation.Chronic leukemia develops proliferative retinopathy due to longstanding retinal nonperfusion , which leads to retinal haemorrhage and neovascularisation.The anterior segment findings like subconjunctival haemorrhage , cataract ,orbital involvement is less commonly involved than the posterior segment. The posterior segment findings in the form of retinal and preretinal hemorrhages, Roth spots, hard exudates, and cotton wool spots,vitreous haemorrhage[3-5]usually develop in almost all patients with leukemia . They are usually observed in diagnosed case of leukemia.Prognosis in leukemic retinopathy depends on the phase of the disease that is whether it is nonproliferative or proliferative and presence of ischemia , hemorrhages , infiltrates in macular area. Macular exudates resolves with chemotherapy in leukemic retinopathy, retinal pigment epithelial layer atrophy usually develops and decreases the visual recovery[6].Once proliferative stage develops , laser photocoagulation of the ischemic areas becomes necessary.Vitrectomy is needed if traction sets in, which is threatening or involving the macula or if vitreous hemorrhage occurs. In these case because of patients general condition was unstable.We advised good systemic control.

IV. Conclusion

Ocular involvement is common in patients with leukemia and has been described in up to 50% of patients at the time of diagnosis[7] . So diagnosis of leukemia based on ocular findings is life saving as survival rate is increasing with chemotherapy .

Acknowledgment

We would like to thankful to Department of Paediatrics, NRI Medical College and General Hospital, Chinakakani, Andhra Pradesh.

References

[1]. Champlin R, Golde DW. The Leukaemias. In: Wilson JD, Braunwald E, et al (Eds). Harrison's principles of internal medicine; 12th Edition, Chapter 296;
[2]. McGraw Hill, Inc, New York, 1991;2:1552-61 Russo V, Scott IU, Querques G, Stella A, Barone A, DelleNoci N. Orbital and ocular manifestations of acute childhood leukaemia: Clinical and statistical analysis of 180 patients. Eu J Ophthalmol 2008;18(4):619-23.
[3]. Frank RN, Ryan SJ Jr. Peripheral retinal neovascularization with chronic myelogenousleukemia. Arch Ophthalmol 1972;87:585‑9
[4]. Nobacht S, Vandoninck KF, Deutman AF, Klevering BJ. Peripheral retinal nonperfusion associated with chronic myeloid leukemia. Am J Ophthalmol 2003;135:404‑6.
[5]. Macedo MS, Figueiredo AR, Ferreira NN, Barbosa IM, Furtado MJ, Correia NF, et al. Bilateral proliferative retinopathy as the initial presentation of chronic myeloid leukemia. Middle East Afr J Ophthalmol 2013;20:353‑6.
[6]. Le JQ, Braich PS, Brar VS.Optical coherence tomography findings of bilateral foveal leukemic infiltration.Int Med Case Rep J 2016;9:237‑40.
[7]. Vardinnan, S., and E. Hyjek. 2011. World health organization classification, evaluation and genetics of the mycloproliferative neoplasm variant. Hematology Am. Soc. Hematol. Educ. Program. 2011:250–256.