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Ophthalmic Manifestations Revealing Acute Leukemia: A Case Report

Jihad Chaakouk, Yassine Morsli, Younesse Hidan, Mohamed Reda Bentouhami, Adil Mchachi, Leila Benhmidoune, Rayad Rachid, Mohamed El Belhadji.

Department Of Adult Ophthalmology, Faculty Of Medicine And Pharmacy, Hassan Ii University-Casablanaca, Hospital 20 August 1953,Ibn Rochd Uhc, Morocco.

Abstract *:*
Introduction: *ocular involvement may be the first initial sign of the disease or the first manifestation of recurrence of leukemia after complete remission. The presence of specific ocular lesions of leukemia indicates a progressive course of the disease: on the one hand increases the risk of recurrences and on the other hand worsens the vital prognosis of the leukemic disease.*
Materiels and methods *: sixthy six year old patient who presented to emmergency room .for rapidly progressive visual loss.*
Discussion *: ocular envolvement in leukemia has been descibed in many studies, and may be the only clinical sign revealing of the disease or an indicator of recurrent leukemia. The signs are polymorphic, differentiating between leukemic infiltration and leukemic retinopathy linked to retinal vasculopathy, because it changes the treatment and prognosis,*
Conclusion *: ocular manifestations in acute leukemia are not uncommon, hence the interest of regular ophthalmological examination in the follow-up of all leukemia patients, even asymptomatic.*
Key words *: acute leukemia, retinal infiltration, papilledema*

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I.Introduction :

Knowledge of ophthalmic manifestations of acute leukemia is essential because ocular involvement may be the only clinical sign revealing of the disease or an indicator of recurrent leukemia. The ocular damage is secondary either to oculo-orbital invasion by immature hematopoietic cells (blasts), or occurring by contiguity from the central nervous system, or also secondary to the vasculopathy and rheological disorders [1]. This damage may also be linked to the effects of local and systemic treatments.

Oculo-orbital localization is the equivalent of a damage to the central nervous system and must be treated as such**[2]**.

II.Observation :

We report the case of a 66 year-old man with no pathological history, who presented to the emergency room for progressive painless bilateral loss of vision within one month, and intermittent diplopia.

Visual acuity is 2/10 right eye 3/10 Oculomotor examination shows a limited adduction in the right eye, pupillary reflex and relative afferent pupillary defect (RAPD) was normal. Anterior segment was normal both eyes. Fundus however shows a bilateral papilloedema stage III with dark red contours, with retrohyaloid hemorrhage, retina vascular structure was normal, also the macula was normal (figure 1).

Biological blood tests shows a severe anemia and thrombocytopenia, and bone marrow biopsy confirms acute myeloid leukemia. CT- scann demonstrates a bilateral subdural hematoma, confirms papilledema without sign of infiltration of the optique nerve, and neurological exam shows increased intra cranial pressure (figure 2).

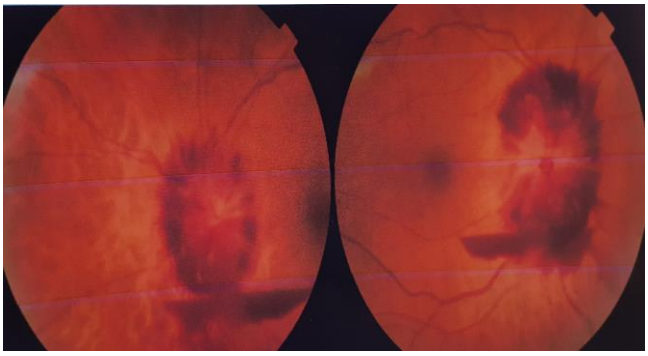

Figure 1: retinography image shows bilateral papilledema stage III, along with a subhyaloid hemorrhage

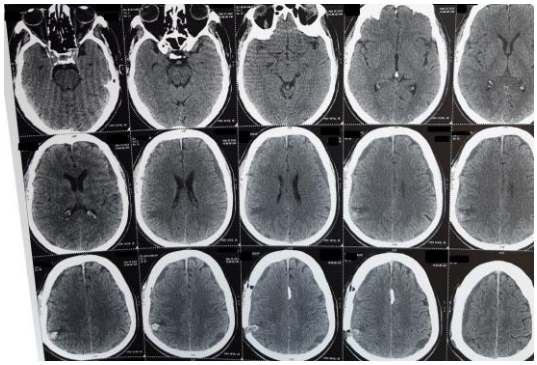

Figure 2 : orbito cerebral CT bilateral subdural hematoma.

III.Discussion :

Loss of vision in patients with either acute or chronic leukemia may be caused either by direct leukemic invasion of the uveal tract, retina, vitreous, or optic nerve or by other associated hematologic disorders, including anemia and hyperviscosity or a combination of both. Multiple studies have described an overall ocular involvement in 9–90% of cases based on clinical examination or autopsy findings[3].

The most striking fundus pictures associated with leukemia involve the retina and they typically occur in patients with acute leukemia, frequently during a period of relapse and frequently associated with severe and coexisting anemia. These patients may develop dilation, tortuosity, and beading of the retinal veins; retinal vascular sheathing; cotton-wool patches; superficial flame-shaped hemorrhages; deep, round hemorrhages; white-centered hemorrhages; subinternal limiting membrane hemorrhages and subhyaloid hemorrhages. These changes are similar to those seen in patients with severe anemia from any cause as well as dysproteinemias [4]. Some patients may develop grayish-white nodular leukemic retinal infiltrations and perivascular retinal infiltration. Patients, particularly with chronic myelogenous leukemia, may develop peripheral retinal microaneurysms, retinal vascular closure, and retinal and optic disc neovascularization. Increased blood viscosity and reduced blood flow associated with prolonged and marked leukocytosis and thrombocytosis are probably the cause of these latter changes. Fluorescein angiography is helpful in detecting these alterations[5]. Leopard-spot RPE alterations seen in these patients, often during the stage of remission, are probably caused by choroidal infiltration. Pigment epithelial and retinal degeneration may occur in one or both eyes and occasionally may be accompanied by development of a macular hole[6].

acute visual loss by optique nerve involvement may be caused by leukemic invasion of the optic nerve, usually in children with acute lymphocytic leukemia. In some patients the infiltration may be confined to the retrobulbar area or may involve the optic nerve head[7]. Visual loss in these latter patients may be minimal, and the swollen optic nerve may be mistaken for papilledema associated with increased intracranial pressure. These patients show a dramatic response to antimetabolite, corticosteroid, or orbital irradiation therapy, which should be instituted promptly after a CT study and lumbar puncture to exclude papilledema. Infiltration of the optic nerve may be associated with occlusion of the central retinal artery and vein. Progressive visual loss and optic atrophy may occasionally occur coincident with a worsening of chronic lymphocytic leukemia or blast crisis in chronic myeloid leukemia[8] [9].

Some patients with acute leukemia may lose vision because of vitreous cellular infiltration, and vitrectomy may be of value in making the diagnosis as well as improving the vision. Other unusual causes of visual loss in patients with leukemia include iris infiltration, anterior-segment ischemia, open-angle glaucoma, and corneal ring ulcer[9].

The ocular infiltration is a therapeutic emergency which requires intrathecal chemotherapy (international protocol) associated with corticosteroids and possibly irradiation of the central nervous system. Oculo-orbital infiltration by blast cells is considered and treated as an attack of the central nervous system, it is therefore essential to make the diagnosis in order to guide treatment[10]. This attack must be differentiated from leukemic retinopathy linked to retinal vasculopathy determined by anemia and/or thrombocytopenia which is more common and has no influence on the evolution and prognosis of the disease.

In our case, the only retinal manifestation is subhyyaloid hemorrhage and papilloedema due to increased intracranial pressure and hematological disorders. There was no other systemic sign, and leukemia was revealed by ocular manifestations.

IV.Conclusion :

Ocular involvement may be the first initial sign of the disease or the first manifestation of recurrence of leukemia after complete remission [11]. Therefore, it is mandatory to perform an ophthalmic evaluation in all patients with acute leukemia.

The presence of specific ocular lesions of leukemia indicates a progressive course of the disease: on the one hand increases the risk of recurrences and on the other hand worsens the vital prognosis of the leukemic disease.

The challenge for the ophthalmologist is to differentiate between true leukemic infiltration and leukemic retinopathy linked to retinal vasculopathy, because it changes the treatment and prognosis.

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