Acute Lymphoblastic Leukemia masquerading as surgical third nerve palsy: a case report

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Abstract

Purpose: To describe a case of Acute Lymphoblastic Leukemia masquerading as surgical third nerve palsy.

Method: A 50-years old gentleman presented with a one week history of sudden right eye ptosis with headache and vomiting. Complete ptosis was noted over the right eye with a positive relative afferent pupillary defect (RAPD) over the affected eye. There was a restricted medial, superior and inferior gaze movement. Funduscopy was normal with no evidence of papilloedema. Urgent Computed tomography (CT) Brain was done to rule out surgical cause of third nerve palsy; but came back normal. Patient subsequently came back one month later with left eye ptosis in addition to the unresolved right eye ptosis. Cranial nerve examination depicted bilateral 3rd cranial nerve palsy and right 7th cranial nerve palsy.

Results: Routine blood investigations and blood smear showed presence of hyperleukocytosis with 90% abnormal cells. Bone marrow aspirate and trephine (BMAT) was done and result depicted T-cell Acute Lymphoblastic Leukemia (T-ALL). He was referred to a haematologist and started on chemotherapy.

Conclusion: Acute lymphoblastic leukemia is not very common and diagnosis is a challenge due to its uncommon presentation. Surgical oculomotor nerve palsy usually necessitates neuro-imaging to rule out life-threatening aneurysms and tumours. However, other uncommon causes such as central nervous system infiltration by leukemia may also occur. Proper history and physical examination, and laboratory blood investigations would aid in coming to an accurate diagnosis.

Introduction

Acute lymphoblastic leukemia (ALL) is a haematological malignancy that can involve the central nervous system (CNS). Less than 10% of patients with ALL have CNS involvement at presentation. We report a very unusual case of ALL, masquerading as surgical third nerve palsy at presentation, and discuss the assessment, diagnosis and management of this patient.

Case report

A 50-years old gentleman presented with a one-week history of sudden right eye ptosis with headache and vomiting. He did not have any fever and other systemic symptoms. His past ocular and medical history was insignificant. On ocular examination his best corrected visual acuity was 6/12 in the right eye and 6/9 in the left eye. Intraocular pressure (IOP) on applanation tonometry was 12 mmHg bilaterally. Complete ptosis was noted over the right eye with a positive relative afferent pupillary defect (RAPD) over the affected eye. The pupil was also mid dilated; 5mm but was reactive to light. There was a restricted medial, superior and inferior gaze movement, which was highly suggestive of third cranial nerve palsy. There was no proptosis. Funduscopy was normal with no evidence of papilloedema. Ocular examination over the fellow eye was unremarkable. Based on his systemic complaints and clinical findings, an urgent Computed Tomography (CT) Brain was done to rule out surgical cause of third nerve palsy. Routine blood investigations including white cell count of 105×10^6/μL (Normal range = 4–10 × 10^3/μL) and peripheral blood smear showed presence of hyperleukocytosis with 90% abnormal cells which are heterogenous in sizes, have scanty cytoplasm, slightly clumped homogenous nuclear chromatin and inconspicuous nucleoli. Patient was advised for bone marrow aspirate and trephine (BMAT) biopsy and sent for immunophenotyping. Result depicted T-cell Acute Lymphoblastic Leukemia (T-ALL). He was referred to a haematologist and started on chemotherapy.

Discussion

Acute lymphoblastic leukemia is not very common, with a crude incidence rate of 1 new ALL case for every 100,000 male patients, and
Ting Jacqueline YL (2018) Acute Lymphoblastic Leukemia masquerading as surgical third nerve palsy: a case report

New Front Ophthalmol, 2018         doi: 10.15761/NFO.1000203

Acknowledgement
We thank the patient for allowing us to report his case.

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Figure 1. Right eye mild ptosis, left eye severe ptosis with loss of forehead and brow movements.

Figure 2. Right sided loss of nasolabial folds and drooping of lower lip

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