Proptosis in Acute Myeloid Leukemia: An Under-Recognized Presentation of Hematological Malignancy

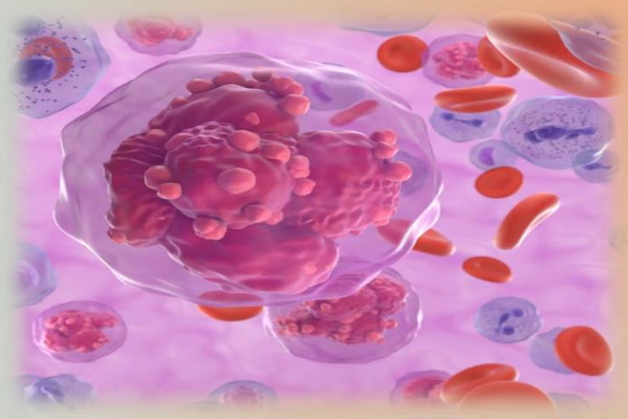
Tanzeela Farah
Department of Pediatrics Oncology, Combined Military Hospital, Rawalpindi

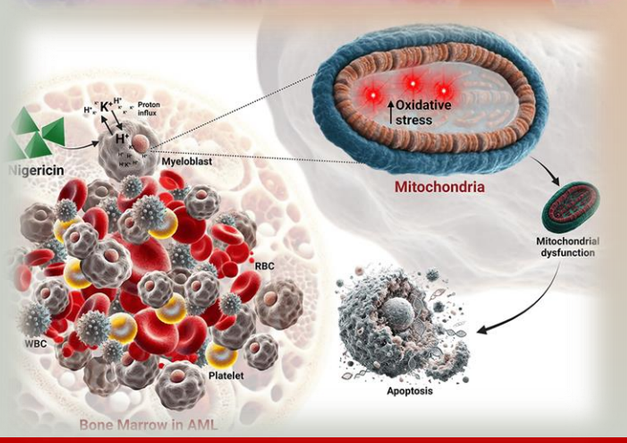
Abstract

Acute Myeloid Leukemia (AML) can present with a wide range of systemic and extramedullary manifestations. Among these, proptosis remains an uncommon but clinically significant sign, particularly in pediatric cases. This study presents an illustrative case of AML initially manifesting with unilateral proptosis, highlighting diagnostic challenges, treatment outcomes, and the importance of early clinical suspicion for hematologic malignancies.

Introduction

Acute Myeloid Leukemia (AML) is a malignant disorder characterized by clonal proliferation of myeloid precursors, leading to marrow failure and systemic complications. Ocular involvement occurs in approximately 10–20% of patients, often secondary to leukemic infiltration. Proptosis may precede hematological abnormalities, creating diagnostic uncertainty. This poster aims to increase clinical awareness of this atypical presentation and reinforce the significance of prompt diagnosis.





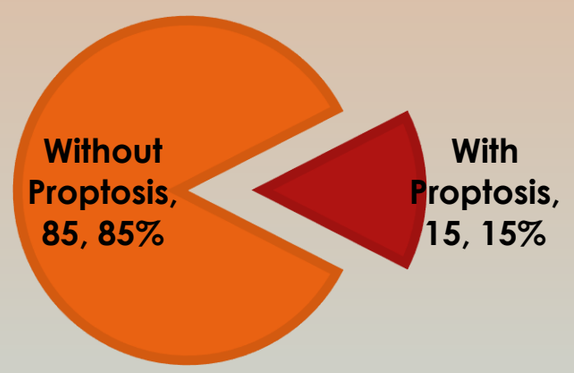
Methods

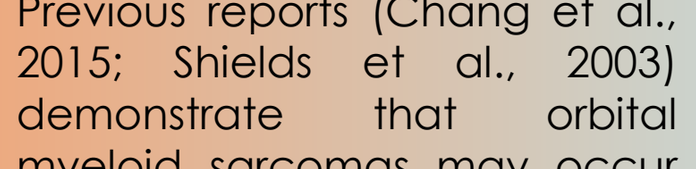
A retrospective observational review of pediatric AML patients presenting with ocular symptoms was conducted at the Department of Pediatrics Oncology, CMH Rawalpindi. Data included demographic information, AML subtype classification (FAB), diagnostic modalities such as peripheral smear, bone marrow biopsy, and orbital imaging, and response to induction chemotherapy. Treatment was administered per institutional AML protocol, and visual outcomes were assessed after two cycles.

Results

Of all pediatric AML cases reviewed (n=40), 15% presented with ocular manifestations, primarily unilateral proptosis. AML-M4 was the most frequent subtype (50%), followed by AML-M2 (30%), AML-M5 (10%), and others (10%). Patients with early ophthalmologic assessment and timely chemotherapy initiation demonstrated significantly improved visual prognosis.

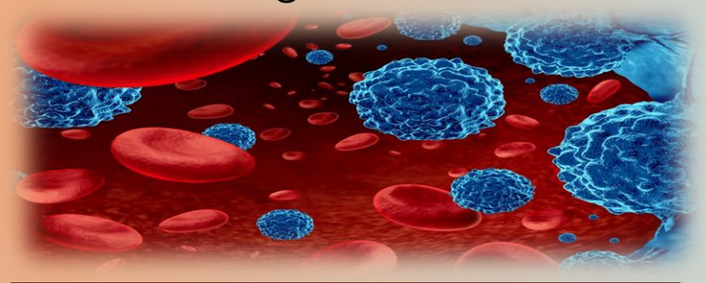
Parameter	Observation
Total AML cases	40
Proptosis presentation	15% (n=6)
Predominant subtype	AML-M4
Mean age (years)	8 ± 2.3
Visual recovery after therapy	70%





Discussion

Ocular involvement in AML is an uncommon but clinically relevant finding, with proptosis often mistaken for infectious or inflammatory conditions. Previous reports (Chang et al., 2015; Shields et al., 2003) demonstrate that orbital myeloid sarcomas may occur before hematologic confirmation of leukemia. In this study, early recognition of proptosis allowed faster diagnosis and management. Multidisciplinary cooperation between ophthalmologists and oncologists is crucial for improved patient outcomes and reducing vision loss.



Conclusion

Proptosis can serve as an early and sometimes solitary clinical sign of Acute Myeloid Leukemia in pediatric patients. Its recognition as a possible leukemic manifestation is critical for timely diagnostic workup and initiation of treatment. Clinicians should maintain a high index of suspicion when evaluating unexplained orbital masses or proptosis to prevent diagnostic delays and improve prognosis.

References:
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Contact:+92-331-8150750
Email : tan2667@gmail.com