

Clinical Neuro-Ophthalmology in Sarcoidosis and Ocular Complications of Acute Leukemia

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Abstract

Neuro-ophthalmological manifestations of sarcoidosis and neuro-ophthalmic manifestations of acute leukemia can involve various eye and neurological symptoms. These conditions affect the eyes and visual pathways differently, and here's an overview of their respective neuro-ophthalmological manifestations. Neuro-sarcoidosis has important ophthalmic and neuro-ophthalmic manifestations. Sarcoidosis most commonly affects the uveal tract (iris, ciliary body, and choroid) however the optic nerve is commonly involved. Sarcoid related optic neuritis is an important differential diagnosis in optic neuritis especially in atypical presentations. The use of multimodal imaging techniques available in the ophthalmic setting can enable the detection of choroidal or optic nerve granulomas and aid the diagnosis. Efferent manifestations of neuro-sarcoidosis are broad and can range from isolated cranial neuropathies or multiple as well as pupil abnormalities [1]. Acute leukemia is a type of cancer that affects the blood and bone marrow, leading to an overproduction of immature white blood cells. While the primary symptoms of acute leukemia are related to the blood and bone marrow, it can also have neurological and ophthalmic manifestations. Neuro-ophthalmic manifestations in acute leukemia are relatively rare, but they can occur and may be indicative of advanced disease.

Introduction

Sarcoidosis is a chronic multisystem granulomatous disease that commonly affects the neurological and visual systems. The estimated ocular involvement in sarcoidosis is between 25 and 63%. Ocular sarcoidosis has a bimodal presentation with the first between 20 and 30 and the second after 50 years of age. Ocular or neuro-ophthalmological sarcoidosis may be the initial manifestation of sarcoidosis or develop during the disease course (Niederer et al., 2021). However, it is not uncommon for patients to present with neuro-ophthalmological manifestations of sarcoidosis without ocular involvement. Since the publication of this paper there have been significant improvements in the reporting of ocular sarcoidosis in observational studies [2]. Biopsy in patients with neuro-ophthalmological manifestations is often challenging and not without risks hence the reliance on the diagnostic criteria. Similarly, there may be neuro-ophthalmic manifestations of sarcoidosis without ocular involvement. Currently there is a diagnostic framework for ophthalmic manifestations of neuro-sarcoidosis.

Neuro-ophthalmological manifestations of sarcoidosis

Optic neuropathy: Sarcoidosis can lead to inflammation of the optic nerve, causing optic neuropathy. This can result in visual loss, reduced color vision, and visual field defects.

Anterior uveitis: Inflammation of the uvea (the middle layer of the eye) is common in sarcoidosis. Anterior uveitis can lead to eye pain, photophobia, and blurred vision [3].

Cranial nerve palsies: Sarcoidosis can affect the cranial nerves, leading to double vision and other eye movement abnormalities.

Orbital involvement: In severe cases, sarcoidosis can involve the tissues surrounding the eye (orbit). This may cause proptosis (bulging eyes), periorbital edema, and compressive optic neuropathy.

Dry eye syndrome: Sarcoidosis can affect the lacrimal glands, leading to dry eye symptoms.

Paradoxical pupillary reaction: Sarcoidosis can affect the pupillary reflexes, leading to paradoxical responses to light, where the pupil constricts when exposed to light and dilates in darkness.

Neuro-ophthalmic manifestations of acute leukemia

Optic Nerve Infiltration: Leukemic cells can infiltrate the optic nerve, leading to optic nerve swelling, visual disturbances, and reduced visual acuity [4].

Retinal hemorrhages: Leukemia can affect blood clotting, leading to retinal hemorrhages, which can cause floaters and vision loss.

Cranial nerve palsies: Acute leukemia can affect the cranial nerves, causing double vision, ptosis (drooping eyelid), and abnormal pupillary responses. Cranial nerve palsies refer to a group of neurological conditions characterized by dysfunction or weakness of one or more of the twelve cranial nerves, which emerge directly from the brain or brainstem. These cranial nerves are responsible for various functions, including controlling eye movement, facial muscles, taste sensation, swallowing, and more. Cranial nerve palsies can result from various causes, including trauma, infections, inflammation, tumors, and vascular issues. The specific symptoms and consequences depend on the affected cranial nerve and its function. Here are some common cranial nerve palsies [5-7].

Intracranial bleeding: Leukemia patients may be at higher risk of intracranial bleeding, which can cause various neurological symptoms, including visual disturbances if it affects the visual pathways.

Orbital involvement: Leukemia can spread to orbital structures,

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causing proptosis, periorbital swelling, and compressive optic neuropathy.

Neurologic symptoms: Some leukemia patients may develop other neurological symptoms, such as headaches, confusion, or seizures, which can indirectly affect vision and the eyes.

Optical coherence tomography (OCT) :It is a non-invasive imaging technique commonly used in ophthalmology to visualize and assess the structures of the eye, particularly the retina. OCT uses low-coherence interferometry to create high-resolution, cross-sectional images of the various layers of the eye. It provides valuable information about the retina, optic nerve, and other eye structures. Here's an overview of how OCT works and its applications [8].

While both sarcoidosis and acute leukemia can have neuro-ophthalmological manifestations, the underlying mechanisms and treatments are different. In both cases, early diagnosis and management are crucial. Patients with these conditions may require the expertise of multiple specialists, including neurologists, ophthalmologists, hematologists, and oncologists, to provide comprehensive care. The specific symptoms and course of these conditions can vary from person to person, making individualized evaluation and treatment important.

Conclusion

These neuro-ophthalmic manifestations are not unique to leukemia and can occur in various other medical conditions. However, if you have leukemia or are at risk of leukemia and experience any of these symptoms, it is crucial to seek immediate medical attention. Leukemia is typically managed by a team of healthcare professionals, including hematologists, oncologists, and sometimes neurologists or ophthalmologists, depending on the specific manifestations and complications. Treatment options for leukemia may include chemotherapy, radiation therapy, bone marrow transplantation, and other targeted therapies. While both sarcoidosis and acute leukemia can have neuro-ophthalmological manifestations, the underlying

mechanisms and treatments are different. In both cases, early diagnosis and management are crucial. Patients with these conditions may require the expertise of multiple specialists, including neurologists, ophthalmologists, hematologists, and oncologists, to provide comprehensive care. The specific symptoms and course of these conditions can vary from person to person, making individualized evaluation and treatment important. Cranial nerve palsies can be caused by various underlying conditions, including neurological disorders, infections, head trauma, tumors, and vascular problems. Treatment options depend on the underlying cause and may include medications, surgery, physical therapy, or management of the associated condition. Neurologists, ophthalmologists, and other medical specialists often collaborate to diagnose and manage cranial nerve palsies effectively.

References

1. Twelves D, Perkins KS, Counsell C (2003) Systematic review of incidence studies of Parkinson's disease. *Mov Disord* 18: 19-31.
2. Schrag A, Horsfall L, Walters K, et al. (2015) Prediagnostic presentations of Parkinson's disease in primary care: a case-control study. *Lancet Neurol* 1: 57-64.
3. Driver JA, Logroscino G, Gaziano JM, et al. (2009) Incidence and remaining lifetime risk of Parkinson disease in advanced age. *Neurology* 72: 32-38.
4. De Lau LM, Breteler MM (2006) Epidemiology of Parkinson's disease. *Lancet Neurol* 5: 525-535.
5. Miller IN, Cronin-Golomb A (2010) Gender differences in Parkinson's disease: clinical characteristics and cognition. *Mov Disord* 25: 2695-2703.
6. Kleihues P, Louis DN, Scheithauer BW, et al. (2002) The WHO classification of tumors of the nervous system. *J Neuropathol Exp Neurol* 61: 215-225.
7. Reivich M, Kuhl D, Wolf A, et al. (1979) The [18F] fluorodeoxyglucose method for the measurement of local cerebral glucose utilization in man. *Circ Res* 44: 127-137.
8. Spence AM, Muzi M, Mankoff DA, et al. (2004) 18F-FDG PET of gliomas at delayed intervals: Improved distinction between tumor and normal gray matter. *J Nucl Med* 45: 1653-1659.