**Case report**

**STELLATE NEURORETINITIS REVEALING HYPERTENSION IN A YOUNG MAN: A CASE REPORT**

**Abstract**

Stellate neuroretinitis is a rare but potentially serious retinal condition that can occur due to a variety of factors , including severe arterial hypertension .retinal lesions in the shape of , particularly around the optic disc , and ispathologies . In this case , we present a 20-year-old man with bilateral stellate neuroretinitis .acuity and characteristic retinal exudates . He also had a history of tuberculosis and exposure to cats . The patient was initially treated with corticosteroids.Investigations revealed malignant hypertension, which was subsequently managed with antihypertensive therapy . This case highlights the importance of early diagnosis and appropriate management to prevent permanent vision loss.

Stellate neuroretinitis is a rare but potentially serious retinal condition that can result from a variety of factors, including severe hypertension. The condition is characterized by star-shaped retinal lesions, particularly around the optic disc, and is often associated with vascular pathologies. In this case, we present a 20-year-old man with bilateral stellate neuroretinitis. His condition manifested as decreased visual acuity and characteristic retinal exudates. He had a history of tuberculosis and exposure to cats. The patient was initially treated with corticosteroids, but further investigations revealed malignant hypertension, which was subsequently managed with antihypertensive therapy. This case highlights the important role of hypertension in retinal lesions, and the need for early diagnosis and appropriate management to prevent permanent vision loss.

**Introduction**

Stellate neuroretinitis is a rare but potentially serious eye condition manifesting as retinal damage, often associated with systemic disorders [1-3]. This condition can result from a number of factors, including severe arterial hypertension. Hypertension is a major risk factor for a range of vascular pathologies, including those affecting the visual system [4,5]. Stellate neuroretinitis, as a complication of arterial hypertension, remains a subject of interest to researchers due to its impact on vision and its still poorly understood pathophysiological mechanisms [6-9].

We report an unusual case of bilateral stellate neuroretinitis.

**Clinical case:**

We report the case of a 20-year-old man with the following history: Tuberculosis contage , Contact with cats with scratching

Presents a bilateral decrease in visual acuity for 1 month in a context of uncalculated weight loss.

On examination :

right eye: visual acuity 3/10, normal anterior segment, fundus: peripapillary hemorrhage, cottony nodules, macular exudates in a stellate pattern, macular sub-retinal detachment (MRD).

Left eye: visual acuity 8/10, anterior segment normal, fundus incomplete perimacular exudate

Investigations:

Angiography: no vascular anomalies, particularly in the macular air

Macular OCT: macular edema

Cerebral CT scan: no process

Bartonellosis serology: ongoing

Tuberculin TST: negative

Quantiferon assay: normal

Hepatitis B;C serology: normal



Figure 1: Angiographic images showing papilledema and exudates in the right eye and exudates in the left.

- Our initial course of action :

corticosteroid bolus of methyl prednisolone 1g/d for 3 days

- Evolution and management

Appearance of lower-limb edema

Stationary appearance of papilledema

 Onset of headache

 What to do next

 Measure TA 22/11

perform an ECG HVG systolic

patient subsequently transferred to cardiology department for malignant arterial hypertension with good evolution after appropriate antihypertensive treatment

#### Definition and Clinical Manifestations

Stellar neuroretinitis is marked by specific retinal lesions, typically in a star-shaped configuration, especially around the optic disc. These lesions are caused by fluid accumulation and deposits around retinal blood vessels, leading to local inflammation. This condition can result in decreased visual acuity, sometimes irreversible if not diagnosed and treated in time.

Patients with stellar neuroretinitis may present symptoms such as:

* Blurred vision
* Altered color perception
* Increased light sensitivity
* Visual distortions (metamorphopsia)

In severe cases, peripheral and central vision loss may occur. The rapid progression of the condition is often correlated with the severity of uncontrolled hypertension.

#### Pathophysiological Mechanisms

Chronic or poorly controlled hypertension exerts excessive pressure on the walls of blood vessels, which can lead to several pathological phenomena in the retina, contributing to stellar neuroretinitis:

1. **Retinal Vascular Damage**: High blood pressure can cause structural alterations in the vascular walls, including arterial sclerosis, and rupture of small vessels. This leads to leakage of fluid into surrounding retinal tissues, creating the characteristic deposits of stellar neuroretinitis.
2. **Inflammation and Edema**: Disrupted blood flow can trigger localized inflammation of the retinal tissues, contributing to edema formation and other abnormalities visible on fundoscopy. This inflammation is exacerbated by inflammatory chemicals released during vessel rupture.
3. **Retinal Ischemia**: Hypertension can also result in retinal ischemia, or reduced blood supply to retinal areas. Ischemia can lead to degenerative changes in the retina and macula, critical areas for sharp central vision.

#### Contributing Factors and Risks

Hypertension alone is not always sufficient to cause stellar neuroretinitis; additional factors may contribute to the development of the condition. These include:

* **Duration and Severity of Hypertension**: Patients with long-standing or severe hypertension have a higher risk of retinal complications, including stellar neuroretinitis.
* **Advanced Age**: Older individuals are more prone to cardiovascular diseases, including hypertension, which can increase the risk of retinal damage.
* **Comorbid Conditions**: Diabetes, hyperlipidemia, and coagulation disorders are factors that, in addition to hypertension, may accelerate the onset of vascular complications, including stellar neuroretinitis.

#### Diagnosis

The diagnosis of stellar neuroretinitis begins with a thorough clinical examination. Fundus examination, using an ophthalmoscope or retinal imaging device, allows visualization of the characteristic lesions of this condition: star-shaped deposits, retinal edema, and optic disc abnormalities.

Additional tests may be performed to assess the impact of hypertension on the retina and to exclude other causes of neuroretinitis:

* **Fluorescein Angiography**: This test helps visualize vascular leakage and ischemia.
* **Optical Coherence Tomography (OCT)**: OCT allows for detailed imaging of retinal structure and assessment of retinal edema.

#### Management and Treatment

The management of stellar neuroretinitis requires a multidisciplinary approach, involving both strict control of hypertension and management of retinal symptoms:

1. **Hypertension Control**: Treating the underlying cause is crucial. This includes the use of antihypertensive medications such as angiotensin-converting enzyme (ACE) inhibitors, beta-blockers, or diuretics. Rigorous control of blood pressure is vital to limit the progression of neuroretinitis.
2. **Local Treatment of Retinal Lesions**: In some cases, interventions such as laser photocoagulation may be needed to treat ischemic areas or vascular leakage.
3. **Vision Monitoring**: Regular follow-up is necessary to monitor the progression of retinal lesions and adjust treatment accordingly.

**Discussion:**

Stellate neuroretinitis is a rare but serious retinal condition that can have a variety of causes, including hypertension. This case presents a young patient who developed bilateral stellate neuroretinitis, a manifestation of hypertension-induced retinal damage. Although rare, this condition can lead to significant vision loss, underscoring the importance of early detection and intervention.

The pathophysiology of stellate neuroretinitis in hypertensive patients involves chronic arterial hypertension that damages the vascular walls of the retina. These lesions lead to vascular leakage, causing fluid accumulation and the characteristic star-shaped exudates seen in the retina. In addition, the disruption of blood flow leads to localized inflammation and edema, which can worsen the retinal condition.

Our patient's case is particularly noteworthy, as his initial clinical picture suggested infectious causes, such as tuberculosis or bartonellosis. However, on further investigation, it was determined that malignant hypertension was the main underlying cause. This underlines the importance of considering systemic conditions, such as hypertension, in the differential diagnosis of retinal diseases.

Hypertension is a major risk factor for retinal vascular changes. In this case, the patient's condition was managed with corticosteroids and antihypertensive treatment. The improvement in retinal signs and stabilization of symptoms underline the importance of blood pressure control to prevent further retinal damage. Regular follow-up and careful monitoring of hypertensive patients are essential to manage systemic and ocular complications.

In conclusion, stellate neuroretinitis, although rare, is a serious complication of poorly controlled hypertension. Early diagnosis and prompt treatment of hypertension are essential to prevent permanent visual impairment. This case reinforces the need for a multidisciplinary approach in the management of hypertensive patients, taking into account both systemic and ocular aspects of care.

#### Conclusion

Stellar neuroretinitis is a serious complication of hypertension, but it can be prevented or better managed with early diagnosis and appropriate treatment of hypertension. The key role of blood pressure control in preventing this condition underscores the importance of effective management strategies for hypertensive patients. Additionally, diligent ophthalmic monitoring is essential to prevent severe visual complications, which can lead to permanent vision loss.

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