Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Ophthalmology

A Case of Terson-Like Syndrome in a Newly Diagnosed AIDS Patient with Cryptococcal Meningitis

Houda Brarou[1*], Zakaria Chaibi[1], Manal Bouggar[1], Taoufik Abdellaoui[2], Zineb Saif[1], Soundous Sebbata[1], Nermine Belayachi[1], Mohamed Boukssim[1], Yassine Mouzari[1], Abdelbare Oubaaz[1]

[1]Ophthalmology Department, Mohammed V Military Hospital, Mohammed V University of Rabat
[2]Mohamed Ibn Abdellah University of Fes

DOI: 10.36347/sjmcr.2024.v12i04.022 | **Received:** 05.03.2024 | **Accepted:** 09.04.2024 | **Published:** 16.04.2024

***Corresponding author:** Houda Brarou
Ophthalmology Department, Mohammed V Military Hospital, Mohammed V University of Rabat

Abstract **Case Report**

***Introduction*:** Terson's syndrome has been associated with many conditions that increase intracranial pressure that leads to dilation of the retrobulbar optic nerve and compression of the central retinal vein. ***Materials and Methods*:** A 36 years old military male patient, presented with gradual visual impairment in both eyes for five days. The patient reported a history of repeated episodes of headache, fever and progressive weight loss. Best corrected visual acuity was 20/200 (RE), 20/40 (LE). Fundoscopic examination showed papilledema and multilayered retinal hemorrhages consistent with Terson syndrome. ***Results*:** The patient tested positive for HIV1. Computed tomography and magnetic resonance venography of the brain did not reveal any subdural, subarachnoid, or intracranial hemorrhages. However, cerebrospinal fluid analyses were significant for increased opening pressure and the presence of Cryptococcus Neoformans. ***Conclusion*:** It is important for ophthalmologists to be aware of the link between infectious meningitis and retinal conditions such as Terson-like syndrome because it can ease rapid diagnosis and management.

Keywords: Terson Syndrome, HIV, Cryptococcus Neoformans, Intraocular Hemorrhage.

INTRODUCTION

Terson's Syndrome is defined by the presence of a vitreous, retrohyaloid, retinal, or subretinal hemorrhage secondary to an acute intracranial hemorrhage or elevated intracranial pressure [1].

We describe a case of fungal meningitis in an HIV patient with multilayered retinal hemorrhages suggestive of a Terson-like syndrome.

MATERIELS AND METHODS

A 36 years old military male patient, presented to the emergency department in February 2023 with gradual visual impairment in both eyes for five days associated with mild photophobia and dizziness.

He reported having severe episodes of generalized and non-throbbing headache for the past two months along with multiple episodes of vomiting. Weight loss was gradual, progressive and associated with a reduced appetite. He denied alcohol or smoking use ever, however, gave a history of unprotected sex with multiple partners.

At presentation at the ophthalmology department, his best corrected visual acuity on the right was 20/200 and on the left was 20/40. The intraocular pressures (IOP) were of 14 mmHg in both eyes. No afferent pupillary defect was noted. Anterior segment examination in both eyes was unremarkable.

Funduscopic examination revealed in the right eye a Friesen grade-four optic disc edema, blurring of optic disc margin, and obscuration of vasculature of the optic nerve. Preretinal and intraretinal hemorrhages were present, largely concentrated in the peripapillary retina, but extending to the mid-peripheral retina. In the left eye, there was a Friesen grade two optic disc edema and flame hemorrhages. (Figure 1)

Physical examination revealed a young man who was drowsy, febrile (temperature 38.6C). He was chronically ill looking, pale with generalized lymphadenopathy. He had neck stiffness with positive Kernig's and Brudzinski's signs. He has an oral thrush, a penile ulcer and a mild splenomegaly.

The CT scan and MRI of brain were normal.

Complete hemogram showed total leucocyte count 2500/cmm (Neutrophil 70%, Lymphocyte 25%, Monocyte 4%, Eosinophil 1%, Basophil 0%), Hb 11 g/dl, Platelet count 8,4x103 /µl. Biochemical tests revealed fasting plasma glucose 94 mg/dl, total bilirubin 0.3 mg/dl, total protein 6.7 mg/dl, albumiû =nn 2.6 mg/dl, SGOT 17 IU/L, SGPT 15 IU/L, ALP 219 IU/L, Serum sodium 139 =meq/l, serum potassium 3.5 meq/l, urea 0,27mg/dl, creatinine 7 mg/dl. X-ray chest was within normal limits. Electrocardiogram showed no abnormality.

The patient tested positive for HIV1 in the ELISA and Western Blot tests, and his HIV viral load was 6,3 log copies while his CD4 cell count was 7 cells.

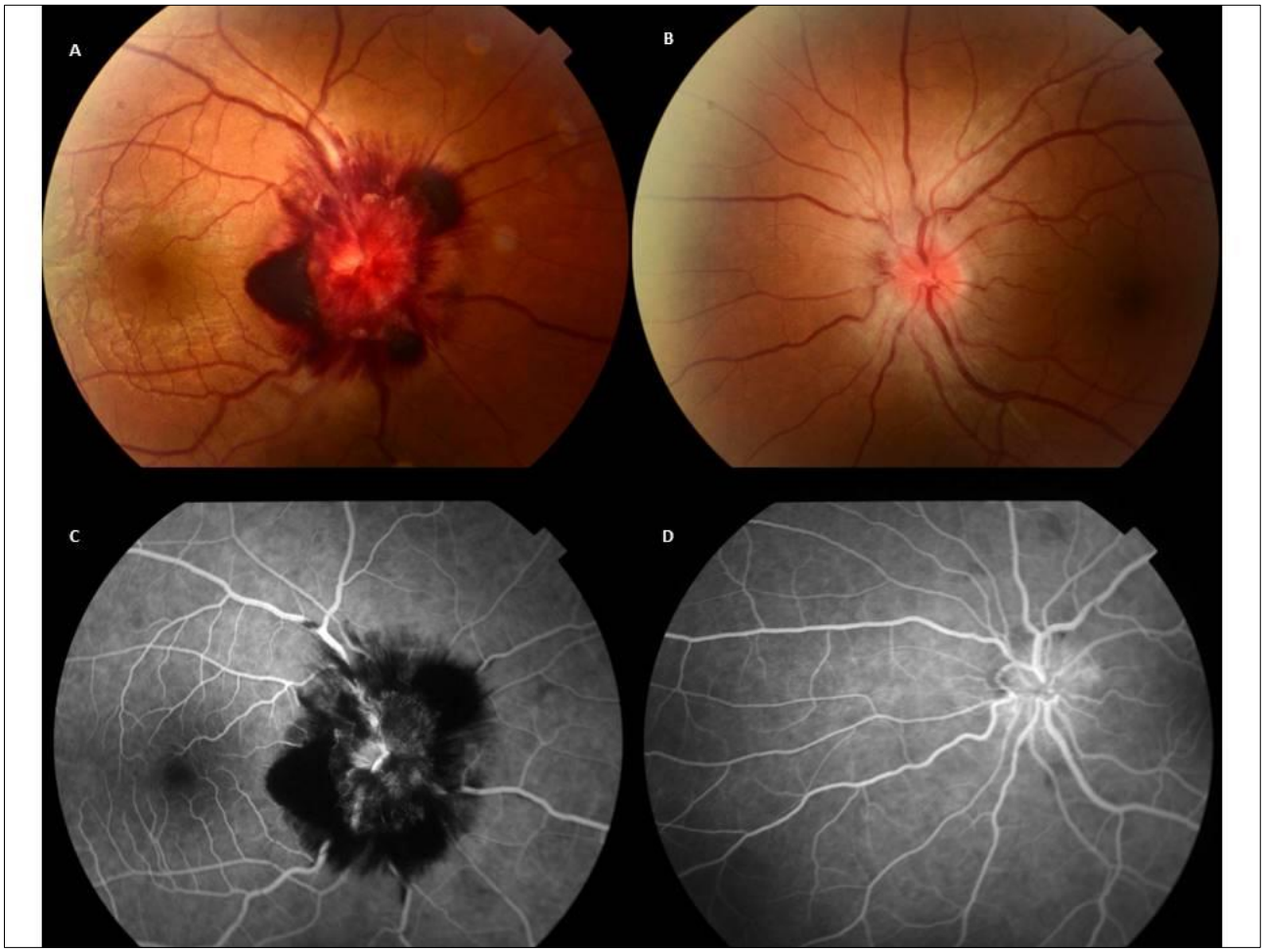

Figure 1(A,B) : Color fundus photos showing (A) right eye and (B) left eye at presentation showing preretinal hemorrhages, flame hemorrhages, and intraretinal blot hemorrhages with optic disc edema consistent with Terson syndrome.

Lumbar puncture was performed in the emergency room which revealed an opening pressure of 32 cm/H2O the protein of 0.6 g/L, nucleated cells of 4 × 106 L, glucose of 0,98 mg/dl. The cerebrospinal fluid (CSF) and blood cultures grew Cryptococcus neoformans which were also supported by positive India ink test. (Figure 2)

Based on the fundoscopic findings and the patient screening, he was diagnosed as having a Terson-like syndrome caused by an increased intracranial pressure due to cryptococcal meningitis. He immediately started on injection of amphotericin B (1 mg/kg/day) along with high dose fluconazole (800 mg/day) as per WHO recommendations. During amphotericin B therapy serum potassium and urea, creatinine was monitored on every alternate day.

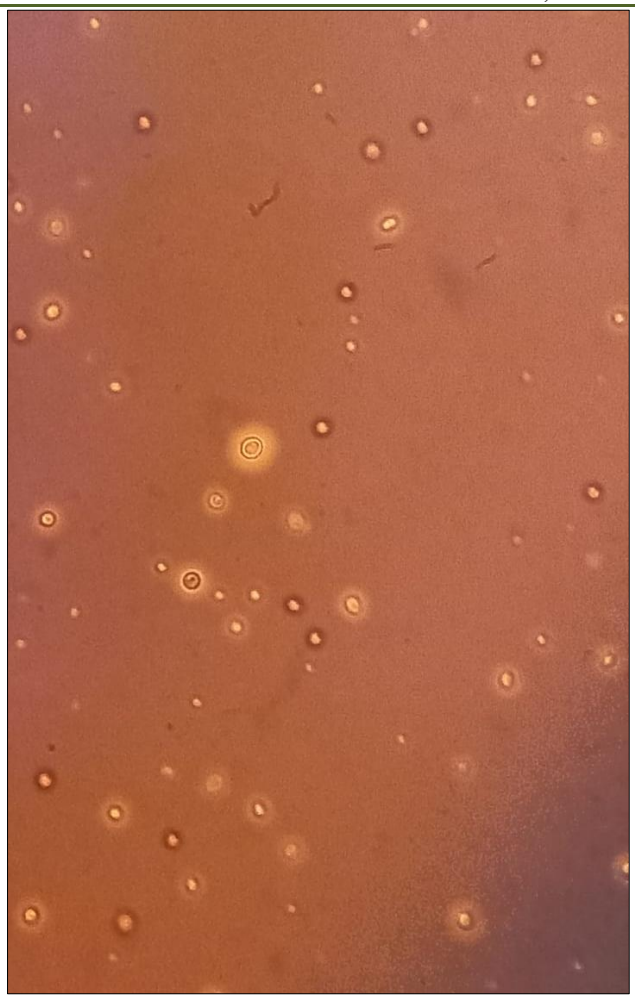

Figure 2 : Cryptococcus neoformans in India Ink from culture Microscopic Footage.

DISCUSSION

Terson's syndrome was first described by a German ophthalmologist Mortiz Litten in 1881. The cause was presumed to be subarachnoid blood directly transmitting through the optic nerve sheath [2]. Lately, Terson's syndrome has been comprehended within the framework of heightened intracranial pressure stemming from various conditions leading to subdural, subarachnoid, or intracranial hemorrhage [3]. The sudden elevation of the intracranial pressure seems to play a major role in this syndrome as the hemorrhage is consequent to the raise of intraocular venous pressure and the rupture of the superficial vessels. Furthermore, the pressure is propagated along the optic nerve sheath and the space surrounding retinal vessels, resulting in the occlusion of retinal and choroidal anastomoses at the lamina cribrosa [1].

Fungal infections affecting the central nervous system (CNS) are uncommon conditions characterized by diverse clinical symptoms, challenging diagnostic scenarios, and unique treatment obstacles [4, 5]. Usually, most fungi are innocuous to normal subjects but can cause opportunistic CNS mycosis in immunocompromised hosts such as HIV patients.

The CNS fungal infections have multiple clinical presentations. Among these, common syndromes are basal meningitis, hydrocephalus, space occupying lesions, stroke syndromes (aspergillosis, zygomycosis) and spinal infections. Generally, symptomatic CNS fungal infections pose greater risks of morbidity and mortality compared to viral, bacterial, or parasitic CNS disorders. Therefore, prompt recognition and implementation of appropriate medical and surgical management strategies are crucial for enhancing the overall prognosis in CNS mycosis [6, 7].

In Terson's syndrome, patients often experience neurological impairment, making it difficult to assess visual acuity. However, the extent of vision loss typically correlates with the severity of intraocular hemorrhage, ranging from 20/20 to light perception [8].

The intraocular hemorrhage is in general bilateral and superficial and infrequently intraretinal or subretinal. A preretinal hemorrhage can cause a vitreous hemorrhage weeks after the initial event [8].

This case report presents a patient in whom increased intracranial pressure was associated with

hemorrhage from the peripapillary retinal vessels [9]. Based on the papilledema and peripapillary hemorrhages, we hypothesize that a Terson-like mechanism of increased intracranial pressure led to dilation of the central retinal veins and subsequent retinal hemorrhaging. The mechanism of increased intracranial pressure was presumed to be due to inflammation from fungal meningitis.

Proteinaceous material and leukocytes in the subarachnoid space can reduce the resorption ability of arachnoid granulations, hindering cerebrospinal fluid (CSF) flow [9]. The presence of both vasogenic and cytotoxic edema can lead to increased intracranial pressure in individuals with fungal meningitis or meningoencephalitis. This case is an important addition to the literature because it provides an etiology for some of the approximately 5.3% of patients with meningitis or meningoencephalitis with retinal hemorrhages [10]. Such hemorrhages have been described in a wide range of CNS infections ranging from West Nile Virus to Rickettsia [11, 12].

Our patient was managed conservatively, as intraretinal hemorrhages tend to resolve spontaneously in most cases [13]. Vision typically improves with resolution of the intraretinal hemorrhages, but permanent vision impairment can occur. Pars plana vitrectomy has demonstrated effectiveness as a treatment for patients with persistent vitreous hemorrhage or premacular hemorrhage [14]. A high level of suspicion for Terson's syndrome is necessary, and we advocate for early fundoscopic screening in instances of visual disturbances with unknown causes. While this particular case did not display a typical presentation of Terson's syndrome, it's conceivable that Terson's syndrome could be linked to a broader range of neurological conditions.

REFERENCES

1. Moraru, A., Mihailovici, R., Costin, D., & Brănişteanu, D. (2017). Terson's Syndrome–case report. *Romanian Journal of Ophthalmology*, *61*(1), 44. doi: 10.22336/rjo.2017.8.
2. Czorlich, P., Skevas, C., Knospe, V., Vettorazzi, E., Richard, G., Wagenfeld, L., ... & Regelsberger, J. (2015). Terson syndrome in subarachnoid hemorrhage, intracerebral hemorrhage, and traumatic brain injury. *Neurosurgical review*, *38*, 129-136. doi: 10.1007/s10143-014-0564-4.
3. Kim, H. S., Lee, S. W., Sung, S. K., & Seo, E. K. (2012). Terson syndrome caused by intraventricular hemorrhage associated with moyamoya disease. *Journal of Korean Neurosurgical Society*, *51*(6), 367. doi: 10.3340/jkns.2012.51.6.367.
4. Anaissie, E. J., Meginnie, M. R., & Pfaller, M. A. (2023). (Eds.), Clinical mycology, Churchill Livingstone, New York.
5. Sharma, R. R., Lad, S. D., Pawar, S. J., Gurusinghe, N. T., Bhagwati, S. N., & Mahapatra, A. K. (2006). Surgical management of fungal infections of the central nervous system. H.H. Schmidek, D.W. Roberts (Eds.), Schmidek & Sweet's operative neurosurgical techniques, indications, methods and results (5th ed.) 1633-1671.
6. Bennett, J. E. (2005). Introduction to mycoses, G.L. Mandell, J.E. Bennett, R. Dolin (Eds.), Mandell, Douglas, and Bennett's principles and practice of infectious diseases (6th ed.), Elsevier, *Churchill Livingstone*, 2935-2938
7. Chimelli, L., & Mahler-Araújo, M. B. (1997). Fungal infections. *Brain pathology*, *7*(1), 613-627.
8. Moraru, A., Mihailovici, R., Costin, D., & Brănişteanu, D. (2017). Terson's Syndrome–case report. *Romanian Journal of Ophthalmology*, *61*(1), 44. doi: 10.22336/rjo.2017.8.
9. Kuhn, F., Morris, R., Witherspoon, C. D., & Mester, V. (1998). Terson syndrome: results of vitrectomy and the significance of vitreous hemorrhage in patients with subarachnoid hemorrhage. *Ophthalmology*, *105*(3), 472-477. doi: 10.1016/S0161-6420(98)93030-5.
10. Pachapure, D. S., & BS DM, T. A. D. (2014). Occurrence of ocular fundal changes in cases of infective meningitis and meningoencephalitis in our hospital. *IOSR Journal of Dental and Medical Sciences*, *13*(1), 54-59. doi: 10.9790/0853-13185459.
11. Chan, C. K., Limstrom, S. A., Tarasewicz, D. G., & Lin, S. G. (2006). Ocular features of West Nile virus infection in North America: a study of 14 eyes. *Ophthalmology*, *113*(9), 1539-1546. doi: 10.1016/j.ophtha.2006.04.021.
12. Khairallah, M., Ladjimi, A., Chakroun, M., Messaoud, R., Yahia, S. B., Zaouali, S., ... & Bouzouaia, N. (2004). Posterior segment manifestations of Rickettsia conorii infection. *Ophthalmology*, *111*(3), 529-534. doi: 10.1016/j.ophtha.2003.04.012.
13. Kumar, G., Kalita, J., & Misra, U. K. (2009). Raised intracranial pressure in acute viral encephalitis. *Clinical neurology and neurosurgery*, *111*(5), 399-406. doi: 10.1016/j.clineuro.2009.03.004.
14. Narayanan, R., Taylor, S. C., Nayaka, A., Deshpande, R., Aubin, D. S., Hrisomalos, F. N., ... & Apte, R. S. (2017). Visual outcomes after vitrectomy for terson syndrome secondary to traumatic brain injury. *Ophthalmology*, *124*(1), 118-122. doi: 10.1016/j.ophtha.2016.09.009.