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Tuberculosis Meningitis Associated with Poncet's Disease: A Rare Case in a Young Senegalese Patient

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Abstract

Described by Antonin Poncet in 1897, Poncet's disease is a non-destructive (non-erosive) inflammatory arthritis secondary to a mycobacterial infection, without an identified infectious agent in the affected joints. Neuromeningeal localization of tuberculosis (TB) is rare but remains the most severe with hight mortality and permanent neurological damage. Association of Poncet's rheumatism and TB is rare, even less a neuromeningeal localization. We report here a case of optic nerve compression syndrome complicating tuberculous meningitis associated with Poncet's rheumatism characterized by a good outcome. This was an 18-year-old female with no reported pathological history, who was admitted for obnubilation. The symptoms started two weeks before her hospitalization and were marked by fever and headache. On admission, the examination revealed obnubilation, bilateral pyramidal deficit syndrome, right ptosis and areactive mydriasis predominating on the right, meningeal syndrome, and intense inflammatory polyarthralgia. The brain CT showed meningeal contrast enhancement with moderate dilatation of ventricles. GeneXpert MTB/rif in CSF was positive. Rheumatoid factors (latex and Waaler-Rose test) and anti-CCP antibodies were negative. Anti-nuclear, anti-native DNA and anti-NAS antibodies were negative. Ophthalmological examination revealed optic nerve compression syndrome associated with extrinsic and intrinsic oculomotor paralysis in the right eye. Orbito-encephalic MRI showed compression of the optic nerve, and hydrocephalus. Under antituberculosis treatment, we noticed disappearance of arthralgia in three weeks, regression of intracranial hypertension and improvement of vision.

Keywords

Tuberculosis, Meningitis, Poncet's Disease

1. Introduction

Described by Antonin Poncet in 1897, Poncet's disease is a non-destructive (non-erosive) inflammatory arthritis secondary to a mycobacterial infection and without an identified infectious agent in the affected joints [1] [2]. Neuromeningeal localization of tuberculosis (TB) is rare but remains the most severe form of tuberculosis with high mortality and permanent neurological damage [3]. Association of Poncet's disease and TB is rare, even less a neuromeningeal localization. We report here a case of optic nerve compression syndrome complicating tuberculous meningitis associated with Poncet's rheumatism characterized by a good outcome.

2. Observation

This was an 18-year-old female student, with no reported pathological history, admitted for obnubilation. Symptoms started two weeks before her hospitalization and were marked by fever and headache. On admission, the examination revealed obnubilation, bilateral pyramidal deficit syndrome, right areactive mydriasis, right ptosis, meningeal syndrome, and intense inflammatory polyarthralgia of the wrists, metacarpophalangeal joints, proximal interphalangeal joints, knees, and ankles.

The brain CT showed meningeal contrast enhancement with moderate dilatation of ventricles. Cytobacteriological study of the CSF showed pleiocytosis (287 /mm^3) with lymphocytic predominant (80%), chemistry of the CSF showed hypoglycorahia (0.15 g/l) and hyperproteinorachia (1.26 g/l); GeneXpert MTB/rif in the CSF was positive. C-reactive protein was 97 mg/l. HIVl serology, HBS antigen, and HCV antibodies were negative. Rheumatoid factors (latex and Waaler-Rose test) and anti-CCP antibodies were negative. Anti-nuclear, anti-native DNA and anti-NAS antibodies were negative. X-rays of the knees, feet, hands, pelvis, and spine didn't find abnormalities.

During hospitalization she presented intracranial hypertension with decreased visual acuity. Ophthalmological examination revealed optic nerve compression syndrome (absence of light perception in both eyes, papilledema beginning) and oculomotor palsy in the right eye. Orbito-encephalic MRI showed compression of the optic nerve, and hydrocephalus.

The patient received anti-tuberculosis treatment (2RHZ/10RH) and corticosteroid. A ventriculoperitoneal shunt was performed. The evolution was marked by a disappearance of arthralgia after 04 weeks of antituberculosis treatment, and improvement of vision (visual acuity at 8/10 at 18 months after the end of antituberculosis treatment).

3. Discussion

Poncet's disease is a rare form of tuberculosis characterized by a polyarthritis associated with pulmonary or extra-pulmonary tuberculosis, without evidence of mycobacterial infection in joints. Among forms of tuberculosis associated with poncet's disease, neuromeningeal tuberculosis is unusual. The clinical manifestations of Poncet's disease are variable, as the circumstances of its occurrence. Poncet's disease presents as a non-destructive aseptic polyarthritis that develops in the presence of active TB [4] [5] [6]. It mainly affects the large joints without axial involvement [7]. The most frequently affected joints are ankles (63.3%), knees (58.8%), wrist (29.1%) and elbows (23.1%) [4] [8]. The proximal interphalangeal and metacarpophalangeal joints are rarely affected and are accompanied by morning stiffness that seems rheumatoid arthritis [9]. In our patient, the joint involvement concerned the small and large joints, without axial involvement as described in literature.

It's uncommon to find tuberculosis meningitis as a form associated with Poncet rheumatism. However, this localization doesn't influence the severity of poncet's disease clinical presentation, even less how it improves [10]. Our case meets criteria proposed by Rueda *et al.*, [11]:

- evidence of active extra-articular tuberculosis.
- involvement of more than one joint, including knees and ankles.
- no axial or sacroiliac joint involvement.
- a non-specific biological work-up.
- complete remission after anti-tuberculosis treatment.
- exclusion of other rheumatological diseases.

This is in perfect agreement with our observation.

The treatment of mycobacterial infection allows complete recovery of the joint signs between five weeks and six months according to the observations [10]. However, it should be noticed that neuromeningeal tuberculosis is the most serious form of tuberculosis, with a high case fatality rate, especially in the case of consciousness disorders. In our patient, the rapid management of hydrocephalus was a determining factor in outcome. No case of evolution towards chronicity has been reported in Poncet's rheumatism [5]. In our case, the joint signs disappear after four weeks of anti-tuberculosis therapy. Neurological and ophthalmological improvement after ventriculoperitoneal shunting allowed patient going back to school after two-years off.

4. Conclusion

Poncet's disease is a rare entity of tuberculosis with a favorable prognosis under anti-tuberculosis treatment. For this reason, it should be considered as a differential diagnosis, especially in countries where tuberculosis is endemic and in patients with febrile polyarthritis of unknown cause, particularly if active tuberculosis is suspected. Elsewhere, the speed of management of intracranial hypertension is a factor in determining outcome of our patient.

Consent

The patient's father has signed an informed consent form, which is disponible.

Authors' Contributions

Daouda Thioub, Alassane Sarr and Aboubakar Sidikh Badiane wrote the manuscript with input of Papa Latyr Junior Diouf and Mamadou Seck.

Ndeye Aissatou Lakhe and Agbogbenkou T. Déla-dem LAWSON drafted the manuscript for important intellectual content. Moussa SEYDI and Sylvie Audrey Diop drafted and approved the final version to be published.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Isaacs, A.J. and Sturrock, R.D. (1974) Poncet's Disease Factor Fiction? A Reappraisal of Tuberculous Rheumatism. *Tubercle*, **55**, 135-142. https://doi.org/10.1016/0041-3879(74)90007-5

[2] Poncet, A. (1897) De la polyarthrite tuberculous deformante ou pseudo rheumatisme chronique tuberuleux. *Congrès Français de Chirurgie*, **2**, 732-739.

[3] Wilkinson, R.J., Rohlwink, U., Misra, U.K., *et al.* (2017) Tuberculous Meningitis. *Nature Reviews Neurology*, **13**, 581-598. https://doi.org/10.1038/nrneurol.2017.120

[4] Lugo-Zamudio, G.E., Barbosa-Cobos, R.E., González-Ramírez, L.V. and Delgado-Ochoa, D. (2016) Tuberculous Rheumatism "Poncet's Disease" Case Report. *Cirugía y Cirujanos*, **84**, 169-172. https://doi.org/10.1016/j.circir.2015.06.022

[5] Silva, I., Mateus, M. and Branco, J. (2013) Poncet's Disease: A Symmetric Seronegative Polyarthritis with Enthesopathy Refractory to Therapy. *Acta Reumatologica Portuguesa*, **38**, 192-195.

[6] Ariza-Prota, M., Pando-Sandoval, A., Garcia-Clemente, M. and Casan, P. (2016) Poncet's Disease Mimicking Rheumatoid Arthritis in a Patient with Suspected Crohn's Disease. *Clinical Case Reports*, **4**, 72-75. https://doi.org/10.1002/ccr3.455

[7] Sait, S., Mubashir, M., Anwar, R. and Khan, N. (2016) Poncet's Disease (Tubercular Rheumatism) with Primary Involvement of the Foot—A Case Report. *Foot and Ankle Surgery*, **22**, e17-e20. https://doi.org/10.1016/j.fas.2016.01.006

[8] Sasaki, H., Inagaki, M., Shioda, M. and Nagasaka, K. (2015) Poncet's Disease with High Titers of Rheumatoid Factor and Anti-Citrullinated Peptide Antibodies Mimicking Rheumatoid Arthritis. *Journal of Infection and Chemotherapy*, **21**, 65-69. https://doi.org/10.1016/j.jiac.2014.07.015

[9] Lugo-Zamudio, G.E., Yamamoto-Furusho, J.K., Delgado-Ochoa, D., *et al.* (2010) Human Leukocyte Antigen Typing in Tuberculous Rheumatism: Poncet's Disease. *The International Journal of Tuberculosis and Lung Disease*, **14**, 916-920.

[10] Pugh, M.T. and Southwood T.R. (1993) Le rhumatisme tuberculeux de Poncet: Une controverse stérile? *Revue du Rhumatisme*, **60**, 855-860.

[11] Rueda, J.C., Crepy, M.F. and Mantilla, R.D. (2013) Clinical Features of Poncet's Disease from the Description of 198 Cases Found in the Literature. *Clinical Rheumatology*, **32**, 929-935. https://doi.org/10.1007/s10067-013-2270-y