Cognitive and psychiatric signs revealing Sneddon syndrome a Case Report.

Mehdi Karoui[1], Hend Riahi[2], DINA BEN MOHAMED[3], emna Baklouti[1], and Mouna Chelli-Bouaziz[4]

[1]Razi Hospital
[2]Kassab institute
[3]Institut National de Neurologie Mongi-Ben Hamida
[4]Mohammed Kassab National Institute of Orthopaedics

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Abstract

Sneddon syndrome (SS) is a clinical entity corresponding to a non-inflammatory thrombotic vasculopathy that includes livedo reticularis (typical skin lesions) and cerebrovascular lesions. We present here a case of autoimmune SS with dementia and psychosis as the main features that revealed the disease, in a 45-year-old Tunisian man

Introduction:

Sneddon syndrome (SS) is a noninflammatory thrombotic vasculopathy affecting small and medium arteries of the skin and the brain. This disease is a rare disorder (1). The SS Orpha number is ORPHA820 (2). In almost half of the cases antiphospholipid antibodies are detected (2,3). The aim of this report is to provide a description of a case of SS with cognitive impairments and psychotic symptoms as inaugural symptoms.

Case report:

The patient is a 45-year-old Tunisian male. He consulted with memory disorders, confusional episodes and delusions. The picture began three years before his first consultation with a progressive worsening. His family brought him to the clinic because of the decrease in his autonomy in daily life. At the same time, sleep disorders and mood lability were described. Initially, he was treated as suffering from major depression, with psychotic symptoms. Physical examination revealed mild dysarthria with pyramidal syndrome. The rest of the examination was normal except for multiple skin blemishes , mainly on the trunk and upper extremities, and raynauld phenomena in the fingers. Lesions were changing under pressure. The psychiatric examination found a delusion of persecution with auditory and visual hallucinations. The patient and his entourage did not recognize the skin lesions as pathologic. The neuropsychological tests revealed a score of 19/30 points on the Mini-Mental Status Examination, a dysexecutive syndrome (BREF test: 5/18), and hippocampal profile amnesic syndrome. Three years ago, his wife noticed speech disorder. He reported family history of haemorrhagic stroke with hypertension in his mother, and stroke in his father without history of vasculitis, or SS.

Immunological work up showed positive anti phospholipid antibodies (APL). The rest of the immunological and infectious investigation was negative. The test for human immunodeficiency virus, hepatitis B and C virus was negative. The thyroid workup was normal.

The brain MRI (Figure 1) – showed multiple areas of signal change over the cortical-subcortical transition and in the deep periventricular white matter with gadolinium enhancement, confirming cerebral ischemia.

Cerebral atrophy was also observed.

Cerebral angiography (Figure 2) revealed decreased vessel diameter and parietal irregularities in distal cerebral arteries suggestive of vasculitis. He was discharged on acetylsalicylic acid, corticoids and oral anticoagulants with a diagnosis of SS.

Discussion:

The collection of the data, its analysis and the presentation of the results was performed according to the declaration of Helsinki-ethical principles for medical research involving Human subjects.

Sneddon syndrome is a clinical diagnosis. It has been related to several etiologies (2). Schellong et al (4) distinguish the primary form without apparent cause from the autoimmune forms occurring with systemic lupus erythematosus or antiphosphate antibody syndrome (as in our case) (2). A thrombophilic form has also been described by the same author (4)

The estimated annual incidence of SS is four cases per million and its precise aetiology is unknown(5). The dementia of Sneddon syndrome is rarely inaugural. It may simulate an Alzheimer's type dementia, making the diagnosis more difficult (3). It is mainly due to the repetition of unnoticed cerebral ischemic accident, more rarely hemorrhagic, which cause the deterioration of intellectual functions (3).

The course of this dementia is progressive and it is preceded one time in half by a transient cerebral accident (5). Thus, cognitive disorders are other hallmark of the disease, which justifies close neurological monitoring of any patient presenting with an isolated livedo reticularis. (3). Concentration, attention, memory, visual perception and visuospatial construction are the most commonly described cognitive impairments (3).

Cases of other psychiatric symptoms are rare in the literature. We found two case reports about suicide attempts in patients with Sneddon syndrome. In the first case it was a suicide attempt in a patient with bipolar II disorder, the patient was put on antipsychotics but was resistant, and finally this episode led to the diagnosis with Sneddon syndrome (6). The second case report disused the case of a woman, with Sneddon syndrome, that had a suicide attempt in a psychotic context (7). She was finally put on a low dose of antipsychotics with a good outcome. Th authors hypothesised that the psychiatric symptoms were secondary to Sneddon syndrome. In our case, the psychiatric symptoms included delusions of persecution with auditory and verbal hallucinations.

Psycho-cognitive signs occurs generally after years, but cases of dementia and mood disorder secondary to subclinical recurrent strokes have been reported without preceding episodes of focal neurological deficit (8). In a case report, cognitive impairment was the first clinical presentation of Sneddon syndrome and it was explained by the writers as vascular dementia as they believed that it could be secondary to silent strokes that went unnoticed (2).

Lesions can be more clearly detected by MRI than by CT scan (8) . MRI may show lacunar infarcts and signal alterations in the periventricular white matter suggesting chronic ischemia and cortical atrophy (9).

There are three aspects of cerebral infarction (9). In case of occlusion of a middle-sized artery, a large cortical-subcortical infarction is observed. A smaller distal infarct is seen if a superficial perforating artery is involved, and more rarely a deep white matter infarct if the deep perforating artery is thrombosed (9,10). In addition, strokes may be supra- and infratentorial, but basal ganglia and cerebellum are rarely involved (11).

Cerebral angiography is the gold standard for diagnosis of Sneddon syndrome and it has demonstrated superior visualization of medium to small size vessels compared to CT or MR angiography. In the early stages, when angiopathy only affects the capillaries and arterioles, angiography can be normal (5). It may remain normal in up to half of cases. In the other half, it shows obstruction sometimes responsible for collateral arteriolar network (12).

Cutaneous biopsy may show occlusion of arterioles by intimal proliferation (13). For several authors, these

histological findings are of little help in the diagnosis since they are neither specific nor sensitive (14,15). In our case, no cutaneous biopsy was performed.

Conclusion:

In front of neuropsychiatric signs, especially dementia in the young and dermatologic signs, the diagnosis of SS should be evoked. MRI and Cerebral angiography are essential. Cutaneous biopsy can help in the diagnosis.

Figures:

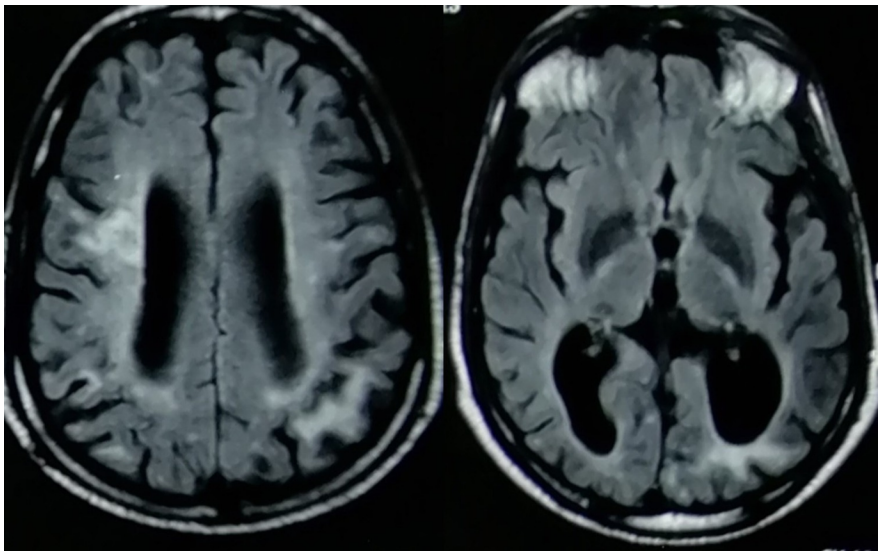

Figure MRI shows lesions with high signal intensity on T2WI in the cortical -subcortical region of left occipital lobe and left and right parietal lobes with retracted atrium and diffuse atrophy.

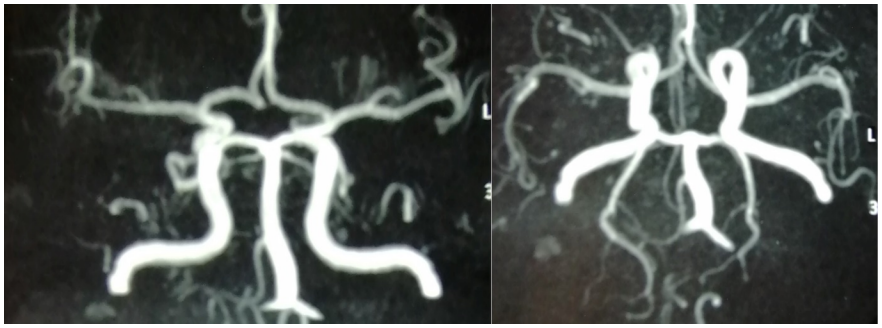

Figure 3D TOF MR Angiography shows rarefaction of the distal branches of the middle cerebral artery

References

1. Lewandowska E, Wierzba-Bobrowicz T, Wagner T, Bogusławska R, Rudnicka A, Leszczyńska A, et al. ORGINAL ARTICLE
 Sneddon's syndrome as a disorder of small arteries with endothelial cells proliferation: ultrastructural and neuroimaging study. Folia Neuropathol. 2006;43(4):345–54.
2. Wu S, Xu Z, Liang H. Sneddon's syndrome: a comprehensive review of the literature. Orphanet J Rare Dis. 2014 Dec 31;9:215.

3. Fabiani G, Martins R, Koppe GL, Demartini Z, Gatto LAM. Cognitive and psychiatric changes as first clinical presentation in Sneddon syndrome. Dement Neuropsychol. 2018 Jun;12(2):216–9.
4. Schellong SM, Weissenborn K, Niedermeyer J, Wollenhaupt J, Sosada M, Ehrenheim C, et al. Classification of Sneddon's syndrome. VASA Z Gefasskrankheiten. 1997 Aug;26(3):215–21.
5. Tourbah A, Piette JC, Iba-Zizen MT, Lyon-Caen O, Godeau P, Francès C. The natural course of cerebral lesions in Sneddon syndrome. Arch Neurol. 1997 Jan;54(1):53-60. doi: 10.1001/archneur.1997.00550130037013. PMID: 9006414.
6. Lalanne L, Elowe J, Danion J-M, Vidailhet P, Foucher J. A suicide attempt in a context of bipolar symptoms leading to a diagnosis of Sneddon syndrome. J Neuropsychiatry Clin Neurosci. 2013;25(3):E11-12.
7. Hsu F-F, Chung K-H. Psychosis with suicide attempt in Sneddon syndrome. Psychiatry Clin Neurosci. 2017 Feb;71(2):147–8.
8. Samanta D, Cobb S, Arya K. Sneddon Syndrome: A Comprehensive Overview. J Stroke Cerebrovasc Dis Off J Natl Stroke Assoc. 2019 Aug;28(8):2098–108.
9. Samanta D, Cobb S, Arya K. Sneddon Syndrome: A Comprehensive Overview. J Stroke Cerebrovasc Dis. 2019 Aug;28(8):2098-2108
10. Bottin L, Frances C, de Zuttere D, et al. Strokes in Sneddon syndrome without antiphospholipid antibodies. Ann Neurol 2015;77:817-829 $
11. Karagülle, T.A., Karadağ, D., Erden, A. et al. Sneddon's syndrome: MR imaging findings. Eur Radiol 12, 144–146 (2002).
12. Maamar M, Rahmani M, Aidi S, Benabdeljlil M, El Hassani My R, Jiddane M, Hicham Ch, El Alaoui-Faris M. Le syndrome de Sneddon: étude de 15 cas avec artériographie cérébrale [Sneddon's syndrome: 15 cases with cerebral angiography]. Rev Neurol (Paris). 2007 Sep;163(8-9):809-16. French. doi: 10.1016/s0035-3787(07)91463-0. PMID: 17878807.
13. Zelger B, Sepp N, Schmid KW, Hintner H, Klein G, Fritsch PO. Life history of cutaneousvascular lesions in Sneddon's syndrome.Hum Pathol1992; 23: 668-75
14. Legierse CM, Canninga-Van Dijk MR, Bruijnzeel-Koomen CA, Kuck-Koot VC. Sneddon syndrome and the diagnostic value of skin biopsies - three young patients with intracerebral lesions and livedo racemosa. Eur J Dermatol. 2008 May-Jun;18(3):322-8. doi: 10.1684/ejd.2008.0397. Epub 2008 May 13. PMID: 18474464.
15. Wohlrab J, Fischer M, Wolter M, Marsch WC. Diagnostic impact andsensitivity of skin biopsies in Sneddon's syndrome.A report of 15cases.Br J Dermatol 2001; 145: 285-8