

## Psychiatric manifestations of neurosyphilis

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### Abstract

To investigate referral patterns, initial diagnoses and clinical features of patients with neurosyphilis who present with psychiatric manifestations, records were kept of 21 such patients admitted to an acute psychiatric ward. In none of the 12 cases referred from primary care workers was the possibility of neurosyphilis considered. In only 3 cases was this diagnosis considered on admission to the psychiatric ward before serum serological test results were known. Commonest presenting symptoms were personality change (16 patients) and memory impairment (13 patients). Neurological signs or symptoms were also common, particularly absent pupillary reaction to light (5 patients) and buccolingual masticatory movements (5 patients). A positive serological test remains the single most important factor in identifying patients with neurosyphilis.

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Neurosyphilis is notorious for its diversity of clinical manifestations, and patients may present with symptoms of virtually any psychiatric disorder. The most common types include a depressive type, a dementia type in which episodes of delirium or euphoria may occur, and a 'grandiose' type, often with the full manic syndrome.<sup>1</sup> In the early stages psychotic symptoms may resemble those of schizophrenia, and insidious personality changes may be particularly misleading.<sup>2</sup> It is necessary, therefore, to consider the possibility of neurosyphilis in many patients presenting with psychiatric symptoms. This is especially the case in countries like South Africa, where the condition is still frequently encountered.

Early detection of the condition is essential, since expeditious treatment can halt progression and may often produce some clinical improvement.<sup>3-6</sup> In view of the fact that the diagnosis of neurosyphilis is usually not considered at initial assessment,<sup>7</sup> it is important that features be sought that could point towards such a diagnosis. The purpose of this study was to investigate the referral patterns, initial diagnoses and clinical features of 21 psychiatric patients found to have neurosyphilis, and to attempt to identify factors which may be helpful in correctly identifying such cases.

### Patients and methods

The patients comprised 16 males and 5 females aged between 21 and 58 years (median 37 years) who had been admitted to the Psychiatric Unit at Tygerberg Hospital. All were found to have neurosyphilis according to the following criteria:<sup>8</sup> (i) reactive cerebrospinal fluid (CSF) Venereal Diseases Research Laboratories (VDRL) titre; or (ii) positive CSF *Treponema pallidum*

haemagglutination and fluorescent treponemal antibody absorption tests; and (iii) one of the following: (a) CSF cell count more than 5/ml, and (b) CSF protein level over 0,45 g/l and/or IgG index over 0,7.

These patients were prospectively entered into the present study and records were kept of demographic characteristics, referral patterns, presenting symptoms, clinical features and initial diagnoses. When a differential diagnosis was given, the first diagnosis was taken.

### Results

Details of the 21 patients are given in Table I.

#### Referral patterns

Of the 21 patients, 5 were referred to the psychiatry department on two occasions because the diagnosis of neurosyphilis was not made at the initial contact. There were thus a total of 26 referrals in all. Fifteen (58%) patients had at some time been referred by a primary health care worker (general practitioner, day hospital, community services or district surgeon). Three (12%) of the remaining patients were referred by themselves or their relatives, 5 (19%) by other hospitals or departments at Tygerberg Hospital, and 3 (12%) by the police.

#### Age and sex distribution

While the male/female ratio for all psychiatric admissions during the 2-year period was approximately 1:1, it was 2,5:1 for neurosyphilis patients. The neurosyphilis patients were slightly older (median 37 years; range 21 - 58 years) than the other psychiatric admissions (median 30 years; range 18 - 81 years).

#### Presenting symptoms and signs

The most common presenting symptom was personality change (16 patients; 76%). Other symptoms were memory impairment (13; 62%), hostility (11; 52%), confusion (10; 48%), hallucinations (10; 48%), expansiveness (8; 38%), delusions (4; 19%) and dysphoria (4; 19%). Twelve (57%) of the patients had at least one of the following neurological signs or symptoms: absent pupillary reaction to light (5), buccolingual masticatory movements (5), diminished vibration sense (3), mild motor weakness together with brisk reflexes (2), cerebellar ataxia (1) and facial nerve palsy (1). It is of note that 3 patients (2 with motor weakness, 1 with cerebellar signs) presented with symptoms of weakness in the limbs or difficulty with walking as their main complaint.

#### Initial diagnosis of referring doctor

Twelve of the referring doctors ventured a diagnosis. Seven (58%) of these correctly diagnosed dementia or an organic origin for the symptoms in their differential diagnosis. One ascribed the dementia to alcoholism and another considered the possibility of early senile dementia. In no case where the results of serological investigations of the serum were unknown was neurosyphilis considered. The five incorrect diagnoses were depressive disorder, anxiety neurosis, psychological stress, toxic psychosis and schizophrenia.

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TABLE I.  
Details of the 21 psychiatric patients with neurosyphilis

No.	Age (yrs)	Sex	First contact	Referral diagnosis	Initial diagnosis in psychiatry department	DSM III-R diagnosis	Neurosyphilis considered by Psych. Dept.
1	40	M	PHCW	Organic brain syndrome	Schizophrenia	Dementia	No
2	?	M	Police		Postictal delirium	Dementia	Yes (VDRL known)
3	35	M	a. PHCW b. Relatives		Mania	Dementia, delirium	No
4	33	M	PHCW	Dementia	Dementia	Dementia	No
5	39	M	PHCW	Schizophrenia	Hysterical dissociation	Delirium	No
6	37	M	Police		Alcohol withdrawal delirium	Dementia, delirium	No
7	35	M	Police		Postictal delirium	Delirium	No
8	38	M	a. PHCW b. PHCW	Cognitive impairment	Adjustment disorder	Dementia	No
9	51	M	PHCW	Dementia	Major depression with psychosis	Dementia	No
10	36	M	PHCW	Psychological stress	Dementia	Dementia	No
11	51	M	PHCW	Depression	Major depression	Dementia, delirium	No
12	48	M	PHCW	Alcohol dementia	Schizophrenia	Dementia, delirium	No
13	21	F	PHCW	Toxic psychosis	Organic delusional syndrome	Delirium	Yes (VDRL known)
14	30	M	a. Other dept b. PHCW		OBS? neurosyphilis	Dementia	Yes
15	33	M	Relatives		Dementia? neurosyphilis	Dementia	Yes
16	37	F	Self		Major depression	MDD	No
17	30	M	a. Other dept	Anxiety neurosis	a. Mental retardation with anxiety disorder and behavioural problems	Dementia	No
18	21	F	b. PHCW PHCW		b. OBS? neurosyphilis Adjustment disorder with depression (overdose)	Depressive disorder	Yes (2nd time) No
19	58	F	a. PHCW b. Other dept	Early senile dementia	Adjustment disorder	Dementia	No
20	50	F	Other dept		Major depression, melancholia	MDD	No
21	33	M	Other dept	Organic pathology	Delirium: organic workup + CT	Dementia	Yes (VDRL known)

PHCW = primary health care worker; MDD = major depressive disorder; OBS = organic brain syndrome; other dept = other departments at Tygerberg Hospital or other hospitals; CT = computed tomography.

### Initial diagnosis by the psychiatry department

Three patients, who all presented primarily with symptoms of depression, had no signs of an organic disorder according to DSM III-R criteria.<sup>9</sup> Of the remaining 18, 9 (50%) were correctly diagnosed as having an organic brain syndrome. However, 1 case of delirium was ascribed to alcohol withdrawal. Incorrect diagnoses included major depression with or without psychosis (2), schizophrenia (2), adjustment disorder (2), and 1 diagnosis each of mania, hysterical dissociation and anxiety disorder. Of 18 cases where the serum VDRL result was not known beforehand, neurosyphilis was considered only twice. In a third patient, who was referred for the second time after the diagnosis was initially missed, neurosyphilis was also considered before the serum VDRL result was known.

### Patients with delayed diagnoses

In 5 patients the diagnosis of neurosyphilis was not made at the time of the initial evaluation. The following cases illustrate some of the practical problems encountered.

**Case 3.** A 35-year-old man was diagnosed as having a manic disorder, and was discharged after initially having been prescribed neuroleptic medication. He was brought in by his family 4 weeks later, having relapsed within 1 week of discharge. By this time the serum serological results were known and lumbar puncture confirmed the diagnosis of neurosyphilis.

**Case 8.** A 38-year-old man was diagnosed as having an adjustment disorder after losing his job. The patient complained of poor memory, anxiety and that his dentures were continually clattering. He underwent psychotherapy and a routine serum VDRL test was performed. At his next follow-up appointment it was found to be positive. He was lost to follow-up before a lumbar puncture could be performed and returned 6 months later with florid dementia.

**Case 14.** A 30-year-old man complaining of weakness in his legs was initially seen by the internal medicine department. No specific neurological lesion was detected and he was referred to the psychiatry department for assessment because of halting speech and poor concentration and comprehension. A diagnosis of possible neurosyphilis was made, and he was referred for neurological assessment. He did not keep his appointment and was referred to the psychiatry

department 4 months later by his general practitioner because of disorganised thinking, poor concentration and disorientation. A lumbar puncture confirmed the diagnosis of neurosyphilis.

**Case 17.** A 30-year-old man was brought for assessment by his sister because of anxiety, restlessness, incoherent speech and aggressive behaviour. He was diagnosed as having subnormal intelligence with an anxiety disorder and behaviour problems. He was treated with neuroleptic medication and referred for psychometry which revealed borderline mental retardation. He was referred back 11 months later by the district surgeon for evaluation for a disability grant. According to his family his condition had deteriorated, he could not walk properly and his right hand was weak. He spoke incessantly and incoherently. Neurological examination revealed brisk bilateral reflexes and absent ankle jerks. A provisional diagnosis of neurosyphilis was made, which was confirmed by serological tests.

**Case 19.** A 58-year-old woman was seen at the psychiatric outpatients department and diagnosed as having an adjustment disorder after she had been dismissed from her work because of frequent falls. She complained of weakness in her legs, double vision and memory impairment. No neurological examination or serological tests were performed. Eleven months later she was referred back to the Department of Psychiatry by the Sexually Transmitted Diseases Clinic at Tygerberg Hospital for investigations for neurosyphilis, because of a broad-based gait and positive serum VDRL test. Lumbar puncture confirmed the diagnosis.

## Discussion

The results of our study indicate that heightened awareness on the part of the physician is required in the diagnosis of neurosyphilis. In view of the fact that the majority of these patients were initially seen in a primary care setting, these workers particularly should be on the lookout for patients suffering from this disorder. Our findings suggest that important clues as to the diagnosis of neurosyphilis include the following:

1. Personality changes such as altered standards of hygiene, diminished drive, impaired judgement or deteriorating occupational functioning.

2. Memory impairment. This is usually reported by relatives of the patient and may be evident on clinical examination.

3. Although symptoms such as hostility, confusion, hallucinations, delusions and mood changes are non-

specific, the presence of these symptoms in conjunction with impaired cognitive functioning should alert the physician to the possibility of neurosyphilis.

4. The presence of neurological signs or symptoms. Hooshmand *et al.*<sup>10</sup> found pupillary changes to be the commonest sign after nonspecific reflex changes. We found an absence of pupil reactions to light in 24% of cases. The value of this sign lies in its simplicity to elicit, and it is also more specific than other clinical findings. Buccolingual masticatory movements were also common, and are readily detected if looked for. In 3 of our patients subjective complaints of weakness in the limbs or difficulty in walking were prominent.

5. Without doubt the single most important factor in identifying patients with neurosyphilis is the presence of a positive serum serological test. The importance of this test is underlined by the fact that before the results were known, the diagnosis of neurosyphilis was not considered by any of the referring physicians, and was considered only twice in the psychiatry department.

Although this study is essentially descriptive in nature, it serves to emphasise some important points. A heightened awareness of the possibility of neurosyphilis in patients with psychiatric disorders is therefore required in both primary and tertiary care settings. Routine blood tests for syphilis *must* be performed on all psychiatric patients. In order to achieve maximum yield, lumbar puncture should then be performed on all patients with a positive result.<sup>7</sup>

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