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Volume 3

1972

BLACKWELL SCIENTIFIC PUBLICATIONS

Oxford London Edinburgh Melbourne

## Functional or Organic Psychosis

(Four cases of typhoid fever initially presenting as various forms of psychiatric disorder)

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(Received 5 January 1972; accepted 28 February 1972)

**Summary.** Four cases are described in which typhoid infections presented with various psychiatric pictures and minimal or absent physical disturbance. In all four there was little or no evidence of confusion or impairment of consciousness, which is the pattern of psychiatric disturbance more usually seen in infections. Instead, the presenting pictures were of catatonic schizophrenia, depression, hypomania and hysteria respectively.

The implications of this for epidemiological studies are considered. It is concluded that clear cut distinctions between organic and functional symptoms cannot always be made, particularly in societies with much background organic disease. The possibility that catatonia is an organic rather than a functional symptom is also discussed.

**Résumé.** Nous avons décrit quatre cas où la typhoïde s'est présentée avec divers symptômes psychiatriques et avec des désordres physiques nuls ou sans importance. Dans les quatre cas on a constaté peu ou pas de signes de confusion mentale ou altération du conscient qui sont les troubles psychiatriques le plus souvent relevés dans les cas de maladies infectieuses. Par contre les signes apparents étaient respectivement ceux de la schizophrénie catatonique, de la dépression, de l'hypomanie et de l'hystérie.

Il en découle qu'il n'est pas toujours possible de faire des distinctions bien délimitées entre les symptômes organiques et fonctionnels, en particulier dans des sociétés où il y a beaucoup de maladies organiques. On se demande si catatonie n'est pas un symptôme organique plutôt que fonctionnel.

### INTRODUCTION

While it is generally an easy matter for workers in advanced countries to separate organic from functional illnesses, this is not always the case in developing countries. Muhangi

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(1972), Muhangi & German (1972) have discussed the problems raised in evaluating symptoms by the frequent lack of conceptual language in which the Ugandan patient can fully and accurately describe what he is experiencing. In the case of schizophrenia, Lambo (1955) has pointed out the possible effect of cultural behaviour patterns in shaping clinical symptoms, and in terms of European norms, distorting them. From a psychoanalytic viewpoint, Wittkower & Histon (1968) have advanced a theory of poor ego development to account for differences in psychiatric presentation in developed and developing countries. The work of Wolff & Curran (1935) lays emphasis on the need to separate organically based psychoses from those that may be functionally based.

It would appear that in developing countries there are several factors that mitigate against an easy cleavage between organic and functional psychoses. The purpose of this paper therefore is firstly to examine how typhoid may present a problem in the diagnosis of mental disorders, and secondly to point out areas where future research may be of benefit to psychiatrists working in developing countries in particular, and to other doctors in general.

### CASES

Although many cases of typhoid have been seen at Butabika Mental Hospital, the cases presented were chosen solely because they posed diagnostic pitfalls, especially in a hospital where so many patients are seen by so few doctors.

Three of the four cases were seen at Butabika Hospital, a 1000-bed mental hospital. One of the patients was seen while the author was on vacation about 400 kilometres away from Kampala.

#### Case 1

C.O. aged 20 years, a Jaluo from the Northern region of Uganda was admitted to Butabika Hospital in February 1970. He was referred from Mulago General Hospital with the information that for 4 days before admission he had been roaming the village aimlessly. He had been talking nonsense and was generally behaving in a threatening manner.

In Mulago it was noted that the patient's answers to questions were generally irrelevant. He continued to roam the wards aimlessly but was noted to be non-violent. Physical examination revealed nothing abnormal. His erythrocyte sedimentation rate was 5 mm in the first hour (Westergreen) and a blood slide did not show any malarial parasites. His temperature was 37.0°C and for the 3 days he remained in hospital no higher temperatures were recorded.

At the end of that time it was decided that the patient was suffering from a purely psychiatric disorder. A diagnosis of acute schizophrenia was made and the patient was sent to Butabika Hospital.

The patient was seen on the day of admission by the author who was on duty. Family, past medical and psychiatric histories revealed nothing significant. There was no suggestion of excessive indulgence in alcohol.

He had been very well until about 4 days before admission to Mulago Hospital. He denied having had headache or fever but claimed that policemen had forced him into hospital because they suspected he was a rich man. He admitted having heard voices which were insulting. He claimed the voices insulted him because of his wealth. He denied experiencing difficulty in thinking but agreed that his sleep was poor because he used to be too

angry to sleep. His anger was due to the insults he had heard during the day. He had no visual hallucinations.

Psychiatric examination showed that the patient was disorientated for place but orientated for time and person. He was shabbily dressed and his hair was unkempt. During the interview he sat rather rigidly on the chair except on one occasion when he stood and appeared as if he wanted to get out. He however resumed his seat without being asked to. His affect was flat. He also showed a marked degree of volitional impairment. Bedside tests showed no impairment of memory. Physical examination showed that the patient was a well nourished young man. He was afebrile and his blood pressure was 100/80 mmHg, pulse was 70/min regular and of good volume. No abnormality was found in other systems.

On the basis of the psychiatric symptoms a provisional diagnosis of schizophrenia was made. As the thinking processes appeared normal, there was some doubt about schizophrenia. It was therefore decided not to start treatment immediately. The patient was seen again on the second day of admission following a request by the ward doctor. On this occasion the patient was mute and was reported by the nurses to have spent the whole morning standing motionless in the passage of the ward. A brief examination showed that the patient could not correct uncomfortable postures. His limbs showed classical catatonia. At this stage a diagnosis of catatonic schizophrenia was made and the patient was treated with electroconvulsive therapy (ECT), chlorpromazine 10 mg twice a day. On the fourth day after the beginning of this treatment the patient appeared generally improved. His catatonia had disappeared. His delusions and hallucinations were less prominent but his memory was generally very poor. This was attributed to the effect of ECT although admittedly very much out of proportion to that commonly associated with ECT.

Eight days after psychiatric treatment was started the patient was seen again by the author. At this stage the patient was toxic. His recent memory was grossly impaired. He was irritable and resisted fundoscopic examination. His skin was dry and his tongue was parched. Armpit temperature was 37.8°C. His pulse was 80 and his blood pressure 100/70 mmHg. Because of this clinical picture electrical treatment was stopped. Trifluoperazine therapy was also stopped and the patient was left on chlorpromazine 100 mg at night only.

A battery of investigations including a Widal test was carried out. Subsequently *Salmonella typhi* was isolated from blood. The Widal test showed 'H' and 'O' titres to be 1/500 and 1/100 respectively. The patient was subsequently treated for typhoid in the conventional way and the rest of the hospitalization was uneventful.

### Case 2

Mrs K. was an African woman, aged about 44 years. She was brought by her husband to see the author after 3 months of illness and after traditional methods of treatment had failed. The author was at home on vacation 400 kilometres from Kampala. Mrs K. was married and had eight children. All the children were alive and well. She was the senior in a marriage of two wives. Since her co-wife had come to the family some 10 years previously her marriage had not gone well. Her husband quarrelled with her several times and on many occasions had also beaten her—even in the presence of their children and co-wife. Several times her husband had accused her of infidelity and even witchcraft but she had strongly denied these. In the previous 3 years her husband had denied her sexual intercourse, and this she gave as the reason for not having had any more children. Both wives and their

children lived in a large mud and wattle house with a corrugated iron roof. The house was partitioned in the middle to separate the two wives and their issues.

Mrs K. was a very hard working woman while in good health and her husband recognized this fact. As soon as she started falling off in her physical performance her husband did not hesitate in accepting she was ill. In fact she claimed that her husband had taken a very keen interest in trying to restore her health. She never consumed any alcohol.

When seen, Mrs K. claimed she had been in perfect health until 3 months previously. At that time she began feeling generally weak and was no longer able to work in her plantation as she did in the past. Later she began to have headaches in the centre of the head and at the same time experienced intermittent pains in the joints. Gradually her appetite became poor. She could only sleep for a few hours and would remain wakeful most of the night. During the wakeful hours her pains increased and she admitted, on occasions that she broke into tears because of these pains. When sleep came this was commonly riddled with dreams of the dead and dreams of 'white bones'— the latter in this culture signifying the death of the dreamer.

Some 2 weeks before Mrs K. was seen, she had intermittently experienced 'draughts' in her head. She also described feelings of emptiness in her head. She denied thoughts of wishing to die. She had not experienced visual or any other hallucinations. Her appetite had deteriorated to the extent that she was 'not eating anything.' During the previous month she reckoned she had opened her bowels once.

Family, past medical, and psychiatric histories were non-contributory. Physical examination showed that Mrs K. was a strongly built woman who appeared to have lost some weight in the immediate past. She was afebrile, was mildly anaemic (clinically) her pulse was 90/min, regular and of good volume. Her blood pressure was 110/95 mmHg. No other abnormality was found.

Psychiatric examination showed that she had gross psychomotor retardation. Her affect was that of intense depression and in the course of history-taking she gave the impression of being tearful. Her concentration was poor. Her recent memory was moderately impaired. Her remote memory, verified by her husband, was normal. No delusions were noted. Her thinking showed poverty of ideation. There was no typical schizophrenic thought disorder. On the basis of a rather unhappy family situation and present mental state, a diagnosis of severe depression was made. She was put on amitriptyline 50 mg nocte and imipramine 25 mg twice a day.

The patient was seen a week later and at that time reported general improvement: she slept better and her appetite had improved. She was able to be up and around during the day.

Two weeks after the start of treatment she complained of pain in the hips. Physical examination showed that she had severe pain on abduction and rotation of the right hip. X-ray showed erosion of the head of the femur and she was investigated for possible tuberculosis. The patient's condition deteriorated rapidly after admission and she died a week later. Post-mortem showed gross intestinal pathology consistent with typhoid and involvement of both hip joints.

### Case 3

M.K. was a 20-year-old single woman. She was admitted to Butabika Hospital in the middle of 1969. She had been picked up on the outskirts of Kampala by the police who

claimed that she had been walking in the compound of the police station aimlessly. Questioned by the police she answered irrelevantly and incoherently.

On admission she was mute, but appeared to understand what was happening—for instance she would look in the direction of noises, etc. Physical examination showed that she was a plump woman, was afebrile, and not anaemic. Her pulse was 80/min, regular and of good volume. Her blood pressure was 115/90 mmHg and heart sounds were normal. Extensive neurological examination revealed nothing, and so did examination of the rest of the systems. She was kept under observation.

On the second day it was decided that some history must be obtained and since no one knew the patient and how her illness started, intravenous sodium amytal was used to help the patient talk. It was discovered that the patient had been well some 2 weeks before admission. During the days that followed the patient had experienced fever and had vomited on two occasions. She had felt generally weak and had gone off food. She had bought aspirins from a chemist but she had not improved. A diagnosis of acute brain syndrome due to 'pyrexia of unknown origin' was made. The conventional diagnostic investigation of this illness was started. Eventually a Widal test was performed and results showed 'H' and 'O' titres to be 1/200 and 1/150 respectively. Treatment for typhoid was started and 10 days later the patient was well and fit for discharge.

#### Case 4

A.K. was a young boy aged 16, and was referred to Butabika Hospital at the beginning of 1971 by the police on an Urgency Order.

A.K. lived with his grandmother in Katwe township on the outskirts of Kampala. His father who was reported to be severely alcoholic lived alone after having separated from the mother of the patient some 10 years previously. His mother rented a single room nearby where the patient claimed she carried on a business in prostitution.

Up to the time of the illness, A.K. had attended a private senior secondary school about 3 miles away. The patient attended the afternoon classes. On many occasions he had to walk to school without any lunch because his grandmother was too busy to prepare it. She ran a public house, selling locally brewed beer.

At the beginning of the illness the boy and his grandmother were at home. Suddenly the boy picked up a hoe and started digging the compound and was about to start digging up the floor of the hut when his grandmother and neighbours overpowered him. The grandmother, who gave the history, denied suggestions that the boy had any fever or had felt unwell before the digging incident. However, she claimed that for many years the boy used to get headaches from time to time and complained of abdominal pain. Whenever this was the case the boy had been taken to the health centre and after treatment his symptoms disappeared.

On psychiatric examination the child was accelerated. He was talking in a loud, almost hoarse, voice. He was grossly uninhibited both in manner and language—using foul language freely. He claimed that soliders and the headmaster were chasing him. He moved about the ward with dashing speed and unnecessarily interfered with nurses and fellow patients. His mood was generally elated although he showed some irritability. Higher mental functions could not be tested as the patient's condition could not allow this.

Physically he looked well nourished and was not anaemic. It was not possible to take his temperature at that time.

In view of his family situation a *psychogenic* psychosis was suspected. The patient was started on chlorpromazine and the ward staff were requested to observe him carefully.

For the next 3 days the patient seemed to settle down very well. On the fourth day however the patient developed a fever (temperature 38.2°C). A blood slide for malaria was taken but proved negative. No treatment was given for the fever but temperature however returned to normal and remained so until the tenth day after admission. On the eleventh day the patient who was then mentally normal developed another spike of fever. A blood slide and a Widal test were done. The result showed that 'H' and 'O' antigens were 1/200 and 1/200 respectively. Anti-typhoid treatment was started and 1 month later the patient was maintaining good health. He has not returned to hospital since then.

## DISCUSSION

These four cases illustrate some of the complexities of assessing psychiatric illness in developing countries. Some of these will now be discussed.

The first difficulty is that of the problematic relationship between organic and functional psychiatric disorder. Wintrob (1971) reviewing malaria, has suggested that psychosocial stresses may facilitate the development of clinical symptoms of malaria. On the other hand, one might argue that sub-clinical organic disease might facilitate the manifestations of stress within the individual. In this study four entirely different psychiatric symptom patterns have been reported occurring in response to one organic illness—namely, typhoid. Harris (1970) has suggested that the clinical presentation of a disorder can be understood in terms of the interaction between genetic predisposition and environmental factors.

Thus, one could argue that in these four cases a nonspecific physiological stress, such as typhoid, has precipitated a clinical pattern of psychiatric disorder to which the patient concerned was genetically predisposed. However, genetic predisposition may not be the only conditioning factor. The previous life experience, the unique psychosocial stresses may all play a part in conditioning the subject in a certain direction. Thus, in the case of the woman with a severely disturbed marital history, the reaction to typhoid was mainly one of depressive symptomatology. Similarly, in the case of a young boy with a disturbed family background an hysterical element appeared in the form of attention seeking behaviour.

Typhoid frequently manifests itself in psychiatric practice as an acute confusional state with classical signs of clouding of consciousness and disturbances of grasp. Such cases do not usually present diagnostic problems, and these four cases have been selected specifically because they do present diagnostic problems. The majority of patients with typhoid therefore may well present with the classical signs and symptoms of an organic or toxic psychosis, but as the present cases illustrate, typhoid appears capable of precipitating early typical symptoms of conditions such as catatonic schizophrenia, depression, hypomania, and neurotic behaviour. In none of the four cases were confusional symptoms particularly striking.

The first conclusion to be drawn therefore, is that typhoid (and probably other organic diseases) can precipitate clinical pictures of functional psychoses and of neurotic states in the absence of clear evidence of confusion and other symptoms typical of organic psychoses. If this is the case, it has important implications for epidemiological studies—e.g. studies of schizophrenia, where it is conceivable that supposedly typical schizophrenic clinical states

occurring in clear consciousness could have been produced by underlying physical disease. This hypothesis is particularly relevant to the suggestion that the prognosis of schizophrenia in developing countries is very much better than in developed societies. If schizophrenia is being diagnosed on the basis of the normally accepted symptom patterns, and if these patterns can be precipitated by underlying physical disorders, and if in these circumstances, as seems likely, the resolution of the underlying physical disorder leads to complete psychiatric recovery, then many cases diagnosed as schizophrenia will recover rapidly and have a subsequently excellent prognosis. Therefore, in any population group where there is a large reservoir of underlying organic disease, one might expect to find numerous cases of brief lived psychiatric disorders, showing typical clinical pictures, but resolving rapidly with improvement in physical health.

Quite apart from psychiatric symptoms in clear consciousness, confusional symptoms are very common amongst the populations of developing countries. The frequent occurrence of such symptoms should in itself point to the probability that underlying organic disorder is contributing to the total confusional morbidity seen. German & Arya (1969) have noted that such brief lived confusional symptoms are absent in a population of University students, where the usual background of complex organic deprivations and disease is not present. Taking this a little further, Muhangi (1970) found that the average erythrocyte sedimentation rate in Makerere students reporting for psychiatric treatment was 7 mm in the first hour, whilst the average sedimentation rate in a matched group of young people with various psychiatric disorders at Butabika Mental Hospital was 46 mm in the first hour. Thus, in countries where organic disease of one form or another is widespread: it is to be expected that whenever psychiatric illnesses occur, the symptoms presented will usually have an organic flavour. In addition, the four cases presented here suggest that brief lived psychoses without an organic flavour may also be precipitated by physical disease.

A frequent diagnosis at Butabika Hospital is one of catatonic schizophrenia. This condition appears to be common, and the schizophrenic disturbance in this type of case appears to respond rapidly to treatment with a subsequently favourable prognosis. Gjessing (1932, 1935, 1939, 1953) has demonstrated that at least one form of catatonic schizophrenia was associated with abnormalities of nitrogen metabolism. In the case of typhoid, Huckstep (1962) based his diazo test on the theory that the causative bacteria were responsible for an increase in phenolic substances which could be detected in the urine. The first case in this series suggests that catatonic schizophrenia can occur in association with typhoid. It would appear in the light of both Gjessing's and Huckstep's work that catatonic symptomatology may result from metabolic disturbance—i.e. catatonic symptoms in schizophrenia represent an organic contamination. It is generally agreed that catatonic schizophrenia is increasingly rare in European and American countries where organic illnesses have also become rarer in the last few decades. On the other hand, catatonic schizophrenia is common in developing countries, and this may be yet another reflection of the association between organicity and psychiatric disorder.

In conclusion, it appears likely that background organic factors widespread in developing populations frequently masquerade as various psychiatric disorders. Many of these psychiatric disorders have the characteristics of an organic confusional state, but there is some evidence that in some cases, the psychiatric picture is more typical of a functional psychosis. Current psychiatric nosology has been developed during the past 50 years in Europe and North America, during a period when physical health has been rapidly improving. These



nosologies seem to fit well enough when one is considering a literate and healthy population, such as a population of University students. But when the same nosology is applied to the ordinary African population, it appears to be inadequate to encompass the large number of cases in which organic illness presents with the clinical pictures of a wide variety of psychiatric disturbances.

The psychiatrist in the developing society cannot rely on confusional symptoms as the only guide to the presence of organic pathology. He must be constantly on guard even in the presence of symptom patterns in clear consciousness which appear to be typical of a functional psychosis. To further complicate matters, the underlying organic state may not be as clear cut as typhoid or malaria. It is conceivable that organic factors such as chronic avitaminosis, sub-clinical brain damage, and chronic parasitic infestation may play an important role.

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