

## JUVENILE SCHIZOPHRENIA

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This brief review is preceded by the report of a case of schizophrenia in an African juvenile, a condition which I have not found described in the literature. One of the objects of the paper is to demonstrate that psychiatry is not divorced from general medicine, and to draw attention to the fact that fascinating clinical and research material exists in our mental hospitals.

### CASE REPORT

This Zulu lad (K.M.), aged 13 years, was admitted to the Fort Napier Hospital on 6 May 1955. The only abnormal finding on physical examination was a bilateral enlargement of the breasts. On special investigation there was evidence of abnormal liver function tests:

	26 Jul. 56	28 Sep. 56	4 Jan. 57
Serum bilirubin, mg./100 c.c. . .	0.4	0.2	4.6
Serum protein, g./100 c.c. . .	6.2	6.2	5.84
Serum albumin, g./100 c.c. . .	3.0	1.48	—
Serum globulin, g./100 c.c. . .	3.2	—	—
Albumin/globulin ratio . . .	0.9/1	0.3/1	—
Alkaline phosphatase, K-A units	20.1	41	53.6
Zinc-sulphate turbidity, units . .	2.0	4.8	4.6
Cephalin-cholesterol flocculation	+	±	—
Thymol turbidity, units . . .	—	1.2	—
Serum alpha-1 globulin, g./100 c.c. —	—	1.02	—
Serum alpha-2 globulin, g./100 c.c. —	—	1.21	—
Serum beta globulin, g./100 c.c. . .	—	1.19	—
Sera gamma globulin, g./100 c.c. . .	—	1.30	—

Mentally he was fatuous, fidgety and manneristic; he appeared confused and replied to questions either by grinning or by repeating the question put. His intimate habits were faulty, but some days he would manage to keep his trousers dry and clean. He would bite himself impulsively and throw stones repeatedly, but aimlessly.

The mother of the patient gives the following account: She had 7 children before the birth of K.M. They were all of normal intelligence and free from psychotic signs. Two were drowned, one died as a result of burns, and one died after an illness of 3 days' duration at the age of 1 year. She says that as she had 7 other children she was able to judge the intelligence and behaviour of K.M. to be 'normal' up to the age of 5 years, when he would do the family errands to neighbouring kraals without errors. At the age of 6 years she noticed that K.M. was no longer behaving normally. It was not possible to converse rationally with him. He would eat the tapeworm segments which he had passed. For 2-3 years before his admission to Fort Napier Hospital she tried various witch-doctors.

The patient was breast-fed until he was 2 years old. She says that the feeding of each of her children was accompanied by swollen breasts, which used to discharge and were painful. She also has a large colloid goitre, which she states she has had 'since birth'.

Her husband was a migrant labourer and used to send her £6 a month, but he died at the time of K.M.'s birth and then she had to depend on charity, which was never generous.

**Treatment.** He received a course of Ectonus electroplexy (16 treatments) during the period 23 May—24 June 1955, and after the electrical treatment he was given a course of vitamin B<sub>12</sub> injections.

Although his response to treatment was on the whole not satisfactory, there was evidence of a degree of improvement. Eighteen months after the course of electrical treatment he was still manneristic, fatuous and withdrawn, but his replies to questions were relevant, his habits were consistently correct, and he worked well under supervision.

### DISCUSSION

Sackler *et al.*<sup>1</sup> report on the high incidence of thyroid dysfunction in the mothers of 19 juvenile schizophrenic patients. It is well known that liver disease may cause mental symptoms, that the liver may suffer damage from malnutrition at an early age, and that such damage can even be congenitally acquired. These findings are described by Jelfie,<sup>2</sup> who refers to liver biopsies on apparently healthy Yoruba babies in the first week of life. The biopsies showed marked fatty change. Laurie,<sup>3</sup> in a personal communication, informed me that autopsies on newborn Africans not infrequently reveal fatty change in the livers of these infants, often of marked degree. Gillman and Gillman<sup>4</sup> and Williams<sup>5</sup> stress the fact that diet plays an important part in the metabolism and the consequent development of the individual. Gillman and Gillman also suggest that psychological factors can influence metabolism: 'In man too, in whom so much in life has emotional content, the repercussions on metabolism of many actions can be enormous.' When our African patient showed no response to electroplexy, I was encouraged to try vitamin B<sub>12</sub> on the strength of (a) a description of its apparent ability to cause regression in neuroblastomata,<sup>6</sup> and (b) a hypothesis that where neural structures are damaged it causes 'an occasional direct stimulation of functions of the elements not destroyed'.<sup>7</sup> Sargent and Slater<sup>8</sup> comment on the rapid growth of our knowledge on diet and vitamins in relation to mental disease and consider that we are not yet in a position to be dogmatic on the subject.

I did not use largactil on our African patient for fear of adding another burden to what might be a damaged liver. Mayer,<sup>9</sup> however, claims that 'patients with hepatic disease showed an increased responsiveness to the drug and were particularly prone to exhibit sedation, probably as a result of the decreased rate of destruction of the drug by the liver.'

### Electroplexy

Some authors believe that electroplexy has a definite place in the treatment of schizophrenia, but others consider it to be a mere auxiliary of insulin coma therapy, or else a maintenance treatment for the chronic patient. Clardy and Rumpf<sup>10</sup> treated 9 schizophrenic patients under the age of 12 with electroplexy. The effect was only temporary in all these cases. Considerable work has been done at

Bellevue Hospital, New York, with electroplexy in children but I do not have their results. Bender<sup>12</sup> describes this form of treatment in a boy aged 34 months, with an increased rate of improvement, and in other patients<sup>12</sup> who received electroplexy in their 2nd, 3rd and 4th years, with gradual improvement afterwards—in some cases 2-3 years later—but she makes no dogmatic claim that this procedure (nor the intensive psychotherapy which some of these children had as well) was the critical factor 'in the child's improved maturation and toleration of his primary schizophrenic disorder'.

#### Differential Diagnosis

Diagnostic recognition will be especially difficult when the schizophrenic reaction occurs in a child with an introverted and solitary disposition. Among the conditions to be excluded from the diagnosis are:

(1) The normal child,<sup>13</sup> (2) severe hysterical reactions, (3) low-grade mental defect, which in turn must be differentiated from (a) schizophrenic amentia, in which condition the amentia is secondary to the dementia praecox<sup>14</sup> and (b) pifropschizophrenia, where schizophrenia develops in a defective,<sup>14</sup> (4) juvenile general paresis, (5) trauma, (6) encephalitis, (7) disseminated sclerosis, (8) infestation of the brain with (a) larval forms of *Taenia solium*,<sup>15</sup> (b) *Coenurus cerebralis*,<sup>16</sup> (c) bilharzia<sup>17</sup> (d) ascaris,<sup>17</sup> and (e) malaria, (9) hypothyroidism and hyperthyroidism.<sup>18</sup>

#### Incidence

Because of the heterogeneity of schizophrenia, various figures are quoted for juvenile schizophrenia:

1. Mayer-Gross *et al.*<sup>13</sup> make the following comments. 'Schizophrenia is probably no more frequent than manic-depressive psychosis in children, but the diagnosis is more often made. Recently almost all psychotic conditions seen before puberty have been called schizophrenic . . . The real incidence of schizophrenia in childhood is very low indeed. Many experienced psychiatrists have never seen a schizophrenic patient younger than 11 or so.'

2. Bradley, quoted by Bellak,<sup>19</sup> considers the frequency of dementia praecox in children to be about 1% of dementia praecox of all ages.

3. Bender<sup>20</sup> says that of 6,500 children up to 13 years of age seen by psychiatrists of Bellevue Hospital, New York, from 1934 to 1951, 626 were diagnosed as schizophrenic. Of these, 5% were not more than 5 years old. This figure is apparently based on a selected population and, therefore, does not indicate the occurrence of the illness in the general population.

4. Tredgold<sup>14</sup> considers the proportion of schizophrenic aments to be probably about 1% of all defectives.

5. In an annotation<sup>21</sup> in the *British Medical Journal* it is suggested that psychoses in children are not as rare as has been thought. Puzzling nomenclature is considered to be an important factor contributing toward this state of affairs.

6. A point worthy of mention is that schizophrenia in the African would appear to be of an amorphous form. This view is supported by Carothers<sup>17</sup> and Smartt.<sup>22</sup>

7. Kallman<sup>23</sup> states that 'in the main groups of childhood behaviour disorders (including childhood schizophrenia)

and adult psychoses, the male sex is grossly over-represented before adulthood and under-represented throughout adulthood.' He gives the proportions for schizophrenic males over 14 and under 14 as 46.1% and 74.6% respectively. He quotes Bradley, Dispert, Richards, and others who attributed the preponderance of males to females in childhood schizophrenia to the relatively protected position of the female in the American culture, but he (Kallman) points out weaknesses in the theory and can offer no biological explanation for this sex variation.

#### Prognosis

The prognosis in schizophrenia is variable and depends on a multiplicity of factors, such as duration of illness, age, mode of onset (whether sudden or gradual), type of schizophrenia, psychotic symptoms, heredity, bodily build, and (perhaps) sex. The prepsychotic personality and precipitating factors are also important. The prognosis of childhood schizophrenia is generally considered poor. Bellak,<sup>19</sup> quoting Loy, states that a review from the literature of different countries revealed that of 50 cases 66% showed no improvement, 19% improved but relapsed later and only 14.4% showed lasting improvement. Mayer-Gross *et al.*<sup>13</sup> give a figure of 1 out of 14 prepubertal schizophrenics making a good adjustment. Bender<sup>12</sup> says that follow-up studies have confirmed that childhood schizophrenia forecasts adolescent and adult schizophrenia, but she goes on to say that the prognosis is much better than formerly held.

#### SUMMARY

This is the case report of an African child with gynaecomastia and abnormal liver-function tests, who presented with a schizophrenic reaction that commenced at 6 years of age. The mother has a large colloid goitre. The treatment, differential diagnosis, incidence, and prognosis of juvenile schizophrenia are discussed.

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