

THE AUTISTIC CHILD IN ADOLESCENCE¹

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Early infantile autism was first described by Kanner in 1943 on the basis of 11 cases whose features were sufficiently unique to constitute a new and previously unreported clinical syndrome(1). Subsequent publications by the same author have reported extensive experience with a much larger series of cases (2), analyzed the clinical phenomenology(3, 4), discussed its nosological allocation(5), and inquired into its genesis(6). Since the original papers, there have been numerous publications, both in this country(7-15) and abroad(16-22), which attest to the widespread recognition of infantile autism as a clinical syndrome(23). It remains a challenging problem, both because of its position as the earliest psychosis known to occur in childhood and because of its similarities to, and differences from, childhood schizophrenia. It becomes a matter of especial interest, therefore, to study the subsequent careers of children so diagnosed at an early age in order to determine the "natural history" of the syndrome. This may serve to shed light on the question of its specificity and contribute to an understanding of its psychopathology(24).

METHOD

The problems besetting follow-up studies have recently been critically reviewed by Robins(25). In order to facilitate an evaluation of this study, its definitions and its methods will be described in some detail. The cases were selected from the files of the Children's Psychiatric Service of the Harriet Lane Home of The Johns Hopkins Hospital. The original diagnosis was based upon the conjunction of the two cardinal symptoms which are to be regarded as pathognomonic for early infantile autism: extreme *self-isolation*, present in the first years of life, and *obsessive insistence on the preservation of*

sameness(23). All of the children exhibited distortions of language function, ranging from mutism and delayed onset of speech, through echolalia, affirmation by repetition, and pronominal reversal, to highly metaphorical language, employed with little intent to communicate meaning to others(3, 4). Very few of the cases had organic abnormalities of the central nervous system, discernible either to physical examination or laboratory studies; where they did exist, they were inadequate to explain the clinical phenomenology(23).

An attempt was made to follow all of the children, 80 in number, who were known to the clinic for at least 4 years and who had attained an age of 9 or over. Sixty-three of the 80, or 79%, were traced. The 17 cases whose precise outcome is unknown to us were largely patients seen during the war years and for whom only temporary addresses were available. The cases lost comprise only 21% of the total and do not appear to have been selected on any systematic basis; indeed, incomplete (2-3 years) follow-up information on 10 of the 17 exhibits the same pattern as do our over-all results. We feel, therefore, that our data permit the construction of a reliable measure of the course of autism.

Of the 63 cases, 34 are in full-time residential settings and 29 at home with parents or foster parents. We have accurate institutional reports on the first 34, 10 of whom have also been reexamined. Of the remaining 29, 20 were reevaluated at the clinic. In 9 cases living at some distance, our information is limited to letters from the parents, supplemented by school and physician's reports. Follow-up letters from parents, it must be admitted, can be accepted only cautiously, but the usual doubts seem to be less applicable in our cases. We have been repeatedly impressed with the almost uncanny objectiveness and obsessive accuracy of parents of autistic children. In summary, the following analysis is based upon reexamination plus supplementary reports in 30 cases, institutional abstracts in 24 cases, and par-

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ents', physicians', and school reports in 9 cases.

Both the median and the average age of the children is 15 years, the range from 9 to 25.⁸ Both the median and the average length of the follow-up period is 9 years, the range from 4 to 20. The range is admittedly wide, but the cases are clustered about the medians. Our figures may underestimate the number of children who will get into subsequent difficulties and do not, of course, permit extrapolation into the future. The ratio of girls to boys is 13 to 50, or about 1 to 4, which corresponds to the ratio in our total clinical experience, and there was no significant difference in clinical course between boys and girls.

The follow-up evaluation was classified into 3 categories: "poor," "fair," or "good" outcome. By "poor," we mean a patient who has not emerged from autism to any extent and whose present function is markedly maladaptive, characterized by apparent feeble-mindedness and/or grossly disturbed behavior, whether maintained at home or in an institution. By "fair," we mean a patient who is able to attend regular classes in public or private school at a level commensurate with age and who has some meaningful contacts with other people, but who exhibits schizoid peculiarities of personality, sufficient to single him out as a deviant and to cause interference with function. By "good," we mean a patient who is functioning well at an academic, social, and community level and who is accepted by his peers, though he may remain a somewhat odd person. In only 2 cases, both finally classified as poor, was there any question as to which category applied.

RESULTS

Of the total group of 63, 3 can be said to have achieved a good adjustment, 14 a fair one, and 46 a poor one. Thus, a little less than a third are functioning at a fair to good social level, a figure which cor-

⁸ There are 13 children between 9 and 12 years of age in our group of 61; all fall into the "poor" outcome category. Since our case histories reveal that signs of improvement are evident early, if improvement is to occur at all, we feel justified in including these not yet adolescent cases in our totals.

responds to Bender's findings on a larger group of schizophrenic children (26). It is of some historic interest to note that all but Case 4 of the original series of 11 have been followed (1). Of these, all but Case 1 are doing poorly.

It soon became apparent, however, that those children who were so isolated from human contact that they failed to develop, or, once having developed, lost the ability to communicate by speech, did much more poorly than the others. If we choose as the line of demarcation the presence of *useful* speech at the age of 5, the total series can be divided into 32 "speaking" and 31 "nonspeaking" children.⁴ The outcome of the first group of 32 can be classified as good in 3, fair in 13, and poor in 16 instances. Contrariwise, the outcome of the 31 nonspeaking children was fair in one and poor in 30 cases. Thus 16 of 32 children with useful speech at 5 years of age have been able to achieve a fair to good social adjustment, whereas only one of 31 nonspeaking children can be so classified. Chi square for this difference equals 15.19, with 10.83 equivalent to a probability value of 0.001, so that the difference between the 2 groups is highly significant (Table 1).

Our follow-up study fails to reveal any correlation between formal psychiatric treatment and the clinical outcome. Of the 16 cases with fair or good outcome, 2 had brief periods of psychiatric hospitalization and only 2 others were followed intermittently on an outpatient basis. In the cases with poor out-

TABLE 1

Category	Poor outcome	Fair or good outcome	Total
"Speaking"	16	16	32
"Nonspeaking"	30	1	31
Total	46	17	63

$$X^2 = \frac{N([AD-BC]-N/2)^2}{(A+B)(C+D)(A+C)(B+D)}$$

$$= \frac{63 \left((16-480) - 31.5 \right)^2}{32 \times 31 \times 46 \times 17}$$

$$= 15.19$$

$$p < 0.001$$

⁴ The category "nonspeaking" includes mute children, those who exhibit only echolalia, and those who may possess in addition a few words, usually employed in a private sense. Its meaning in this context is "unable to communicate verbally with others."

come, a full range of psychiatric treatment—hospitalization, intensive psychotherapy, electroshock, CO₂, and even, in one case, an orgone box—had been applied with only at most temporary change which failed to interrupt the down-hill course. We have, however, been impressed by the prodigious efforts expended by both schools and parents for those children who have improved. We cannot escape the feeling that the extraordinary consideration extended to these patients was an important factor in the amelioration of their condition.

ILLUSTRATIVE CASE HISTORIES

CASE A.—Classification: "speaking," favorable outcome. Donald T., reported as Case 1 in the original series (1), has been followed by this clinic since 1938. Able at 2 to repeat by rote the 25 questions and answers of the Presbyterian catechism, at 5 he was described by his parents as "oblivious to everything about him . . . to get his attention almost requires one to break down a mental barrier between his inner consciousness and the outside world." On examination, he exhibited the pathognomonic features of autism. Distance from the clinic resulted in infrequent revisits through 1941. Some increase in awareness of others was noted as well as gradual use of the first person pronoun, but his modes of thought and expression remained highly idiosyncratic. His inability to participate in family life, his precarious school adjustment, and his anomalous position in a small town where his family was socially prominent led to the recommendation that he be placed with a warm and unsophisticated farm couple without intellectual pretensions. Donald remained in this rural setting for 3 years; moderate improvement was noted, though while on vacation with his parents during this period, his mother reported that his chief interest on the trip was to record carefully the mileage between towns. The boarding arrangement had to be terminated when Donald, at 14, developed an undiagnosed illness manifested by fever, chills, and joint pains. He became bedridden and developed joint contractures. On the basis of a tentative diagnosis of Still's disease, he was placed empirically on gold therapy with marked improvement. After 18 months he was once again ambulatory. He emerged with little residual deficit from a second episode of arthritis 2 years later. The clinical improvement in his behavior, first observed during his rural placement, was accelerated during and after his illness and convalescence at home. He was able to enter and graduate from high school. At present he is doing well in his studies at a Junior College, where he was elected a class officer. He plans to attend a small local liberal arts college. He remains, however, "matter of fact and tactless," little aware of the response of others. His parents, though delighted with his progress, complain that he exhibits "little

initiative" and "requires to be prodded" into activities.

CASE B.—Classification: "speaking," poor outcome. Charles, Case 9 of the original series (1), was 4½ when his mother brought him to the clinic with the distressed complaint, "I can't reach my baby." The history of precocious intellectual accomplishments, pronominal reversals, obsessive behavior, and marked detachment presented the classical features of autism. Charles "related" to the examiners only in so far as he made demands or became enraged at interference from without. His excellent vocabulary was manifested by the ejaculation of words and phrases that had no function as communication to others. He was referred to the Devereux Schools. During his year of residence there, definite though limited improvement could be noted in his social responsiveness. His parents, however, dissatisfied with the slowness of his progress, removed him against advice in order to hospitalize him at another institution where he was given a course of electroconvulsive therapy. Almost at once, marked regressive trends were noted and it became necessary to place him in a state hospital because of outbursts of aggressive behavior, soiling and smearing, and further withdrawal. At 8 he was transferred to an intensive therapy center in a children's unit. There he displayed "disorganized and regressive behavior . . . incoherent and irrelevant speech . . ." His failure to respond to therapeutic efforts led to his removal to a state hospital at 13. Now 15, he exhibits "schizophrenic deterioration . . . emotional blunting interrupted by periods of excitement . . . [he is] withdrawn, disoriented, unclean, destructive, and frequently depressed . . ."

CASE C.—Classification: "non-speaking," fair outcome. George O. was so withdrawn and inaccessible that, at 3, institutionalization for severe retardation had been recommended. When seen at 4, he stood on his toes rocking and humming, oblivious to his surroundings. Only his detachment and the history of obsessiveness served to distinguish him from a feeble-minded child. His father, a very successful physician, had little to do with his children. Interaction between mother and child was graphically illustrated when she was requested to place him on her lap. The two sat much like an Assyrian statue, rectangular, distant, rigid. The mother herself hardly looked the role of a prominent person in the community; she was bedraggled, vague, and defeated. She showed the first sign of awakening interest when foster placement for her child was suggested. This stirred obvious resentment and resulted in a decision to take over George (and herself) as her own responsibility. Over the ensuing years, with infrequent counselling at the clinic, a remarkable change in both mother and child could be observed as a symbiotic relationship developed. Mother took interest in her appearance, became more animated, and much more alert to her child's needs. George began to speak, was able to attend a small private school and learned to simulate social relations with other children. He became sufficiently accessible to be tested and one year ago achieved a

Binet I.Q. of 91. Now 13, he has just entered 7th grade in a public junior high. Some initial difficulties in the classroom situation were resolved when "other children were taught to treat him right." He illustrated his artistic proficiency, much to his mother's pride, by sketching a lovely landscape while sitting in the waiting room; characteristically, his drawings never include people. He is a wooden, uncomfortable child who exhibits facial grimaces and avoids looking directly at people. He cannot bring himself to shake hands, initiates little conversation, but responds appropriately and intelligently. He can still be recognized as a disturbed child, but the change from the 3-year-old child who was diagnosed as severely retarded is impressive and gratifying.

CASE D.—Classification: "nonspeaking," poor outcome. Virginia, case 6 of the original series (1), at 11 exhibited almost total indifference to her surroundings, uttering not a sound and responding to no verbal requests. So detached had she been as a child that deafness had been suspected by a number of physicians but careful audiometric examination revealed normal threshold to sound. At 5 she had been placed in a state training school for the feeble-minded. There she stood out from the group because of her self-imposed isolation and her single-minded pursuit of her own interests (such as puzzle solving) for hours. Yet at 7 she achieved an I.Q. of 94 on Merrill-Palmer performance tests, which, in the opinion of the examiner, "underestimated her capacities." He stated: "Her performance reflected discrimination, care and precision . . ." At 8 on the Pitner-Patterson "her performance was never inferior to her own chronological age . . . with some scores in the superior range." Repeated efforts by staff members to reach this child over the years have been unavailing. She exhibits no concern about her personal appearance and makes no effort to communicate or socialize with her cottage mates or institutional personnel. She remains on the periphery, hardly bothering to watch when group activities occur. Testing her has become increasingly difficult. Nevertheless, at 21, she scored in the upper 10% of the population on the Kohs Blocks, completing 17 designs correctly, receiving time bonuses on the first 12. On the other hand, she treated the manikin with disregard for content, reversing arms and legs, and could not be induced to attend to it further.

DISCUSSION

Clinically, the degree of disturbance in language function emerges clearly as an important guide to prognosis. In effect, we have an index of the extent of autistic isolation, for the development of language obviously bespeaks a meaningful interchange with other people. The intrinsic severity of the autistic process thus appears to be the significant determinant of the outcome. In the absence of speech, the probability of emergence is

vanishingly small, apparently without regard to which of the currently available treatment methods is employed. There is, however, no justification for the converse assumption that psychiatric supervision is superfluous and that recovery will necessarily occur when verbal communication is present. The child's subsequent experience will have no less profound an influence on the course of his development in this syndrome than in any other. All of the customary indications for psychiatric guidance will still apply here: therapy for the child, help for the parents, proper choice of school, and so on.

The separation of early infantile autism from other cases of childhood schizophrenia continues to be justified clinically. The early age of onset and the classical early history has already been reported in the literature (3, 4); the low incidence of psychotic progenitors (6) contrasts sharply with the rate reported for childhood schizophrenics (26). To these factors, we can now add the observation that clinically detectable hallucinations or delusions are extremely rare or nonexistent in these patients. The striking disability in interpersonal relations and the severe obsessive-compulsive mechanisms remain the pathognomonic features of autism. The peculiarities of language and thought, while somewhat different, share the general features of schizophrenia, so that the syndrome can be logically classified as one of the schizophrenias (but cf. 15, 22, 27). Its relative specificity, however, does not necessarily imply a common etiology. What we are dealing with is a behavior pattern that is shared by a number of patients but which may represent a response to any one of several underlying inciting factors. In view of the heterogeneity of the schizophrenias, it would seem wise to isolate clinically distinct groups for purposes of study.

Most of the adolescent autistic children who have not emerged from their illness are now functioning at what to all intents and purposes is a severely retarded level, though they remain distinguishable from cases of "simple" retardation by their affective isolation, a point that has already been developed by Mahler (8). It can, of course, be argued that their cognitive potentialities were, from the first, limited. But it would seem inevi-

table that a child whose contact with the human environment is so severely restricted must undergo irreversible intellectual deterioration when opportunities for growth are barred by the exclusion of normal experience, a concept that is supported by animal studies (28-33). Intellectual development can occur only in the most limited sense in the absence of language. The evolution of thought runs *pari passu* with the incorporation of the viewpoints of others, as the child assimilates his cultural heritage and substitutes consensual logic for the egocentric logic of his private world (34). The tenuous nature of the relationship of the autistic child to those about him constricts and distorts this process.

Severely autistic children exhibit a preoccupation with the sensory impressions stemming from the world about them, but seem unable to organize perceptions into functional patterns. A small change in the positioning of what to another observer would appear to be a randomly arranged group of toys may be at once apparent to them, but the use of a doll or toy car and its homology to people or automobiles may escape them entirely. At one level this is reminiscent of the behavior of brain-damaged children (35) but certain important qualitative differences exist. The disability of the brain-damaged child resides at a perceptual level, but once the "gestalt is closed," classification is made on the basis of function. Indeed, one of the difficulties apparent in sorting tests is the very tendency of such a child to see things as similar if they are functionally associated (36). The autistic child, on the other hand, may solve relatively difficult abstract tasks but the use of objects is not grasped (37). The jig-saw puzzle is assembled by the shape of its parts, but without respect to its content. At a higher level of function, a similar disability may be observed. The child may acquire a large vocabulary, but with little or no intent to communicate meaning (38, 39). He may memorize astronomical charts or maps of street car systems, but with no interest in principles or practice of astronomy or transportation. The guiding principle of purpose is lacking, recalling Bleuler's concept of the disorders of association in schizophrenia: "Only the goal-directed concept can

wield the links of the associative chain into logical thought" (40).

In those patients with a relatively favorable outcome, behavior is still characterized by a failure to subordinate individual concerns to social necessity. There appears to be little ability to empathize with the feelings of others. The successful patients seem to have acquired, painfully, the ability to simulate the behavior spontaneously exhibited by their peers. One recalls Donald T., who, called upon to speak as a student leader at a football rally, stated that the team was going to lose. The ensuing round of boos led him finally to modify his initially correct prediction, but the experience bewildered him. In a similar vein, Jay S. commented "I've never been able to get along with people. I don't like 'diplomacy.' I come out and say what I think." The painful nature of their contact with others leads them to prefer a solitary existence. David G.'s first wish was "to be a forest ranger and live in a cabin alone, far off in the woods"; David W.'s was that "they stop building new houses in our neighborhood for people to move into."

In a sense, the primary psychopathologic mechanism in infantile autism might be described as a disturbance in social perception, analogous to, but more complex than, perceptual difficulties at a sensorimotor level. Affective contact assures in other children the precedence of things human over things inanimate. Thought and behavior are integrated by the driving force of human purpose, both individually and socially determined. It is this force that assigns the affective value to incoming sensory impressions and organizes the perceptual field into a socially meaningful whole. Its dysfunction in autism results in perceptions that are diffuse and stimulus-bound, thinking that is tangential to human goals, and behavior that is maladaptive. There can be no anatomical "locus" for such a disability; it can only be a reflection of the failure of cortical integration of the affective and cognitive components of behavior. One wonders if there may not be, parallel to intellectual inadequacy, a syndrome of affective inadequacy. Just as intellectual inadequacy may be the outcome of structural limitations or of cultural deprivation, so may affective inadequacy reflect or-

ganic dysfunction, affective deprivation, or a combination thereof.

SUMMARY

Sixty-three autistic children have been re-evaluated at a mean age of 15 years after a mean follow-up period of 9 years. Almost one third have achieved at least a moderate social adjustment. The prognosis has been shown to vary significantly with the presence of useful speech at the age of 5, taken as an index of the severity of autistic isolation. Half of those who possessed meaningful language by the age of 5 improved, whereas only 1 of 31 without the ability to communicate verbally by that age has shown significant improvement. The clinical course of these children justifies the segregation of early infantile autism as a clinical entity, probably to be included within the group of schizophrenias. The psychopathology of autism has been reviewed and the suggestion offered that the fundamental feature is a disturbance in social perception.

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