Childhood-Onset Psychosis: Evolution and Comorbidity

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Edward was a 12-year-old child with a lifelong history of serious problems in behavior, mood, and reality testing. Elucidating his psychotic disorder was especially difficult because his attention deficits and disruptive behavior were more prominent to his caretakers than his psychotic symptoms, which were initially tenuous and intermittent. Disentangling symptoms required obtaining records from many sources as well as careful and systematic questioning of Edward and his parents. Edward's case was like the blind men describing the elephant; each of the programs and professionals he encountered had to deal with what was in front of them. In fact, the entire longitudinal perspective was necessary to put the picture together. In addition, the psychotic spectrum symptoms that did occur did not meet the full criteria for a particular psychosis, and even when criteria were met, diagnosis was not entirely satisfactory. Finally, Edward was very sensitive to psychosocial stressors, further complicating our understanding of his psychopathology. In the end, Edward's case points out that we are confronted with disorders that are probably evolving and that there are limitations to our current nosology. There is as yet no satisfactory resolution of his diagnosis.

CASE PRESENTATION

Presenting Problems

Edward was brought to the psychiatric emergency room at age 12 by his mother, who complained of a 2-month-long exacerbation of chronic behavioral problems. The behaviors included repeated episodes of threatening, cursing, and assaulting his 9-year-old sister and a mood that had become so volatile—with sudden, rapid escalation to explosive anger "over nothing at all"—that he was unmanageable at home. In addition to these problems, which had occurred to a greater or lesser extent for all of Edward's life, the parents noticed that he was carrying on conversations with himself and complaining of hearing voices telling him to "do bad things" such as hit his sister. While he had complained of intermittent voices for several months, it was only very recently that the parents had become worried that he was actually experiencing these as real, and that this was not simply his usual "dramatic" play and exaggerated way of explaining or doing things. His father had become especially alarmed when he found Edward alone, agitated, and talking "to someone" in the yard. Other bizarre behaviors that had recently occurred included urinating in his room, insisting that objects in his room should be arranged "just so," and prolonged combing and rearranging of his hair in front of the mirror. Finally, Edward had also been saying he wanted to die, though he had never made a suicide attempt. In the weeks before admission to the hospital, his psychiatrist had noted that mood lability and depression had become prominent.

At admission, most of the factor scores on the Child Behavior Checklist (1) and the Teacher's Report Form (2) were above the 98th percentile scores; they are shown in table 1. His score on the Children's Global Assessment Scale (3) for the month before admission was 30.

Past History

According to his mother, Edward's early motor, language, and social development was normal. His activity level was unusually high once he began to walk, at about 1 year of age. However, sleep, appetite, and growth were normal.

By 3 years of age, Edward's attention deficits, impulsiveness, and hyperactivity were evident both at home and at preschool, and these problems intensified when his younger sister was born a few months later. Nearly daily temper tantrums, general noncompliance, bossiness, intrusiveness with peers and family, and bizarre play caused him to be rejected by peers and ultimately expelled from nursery school. Edward's play was unusual not in its content but in its elaboration, intensity, and "realness" to the child. He would spend a great deal of time involved in role playing, most often by himself. He loved fire engines and would play the role of a fireman in his front yard (the family lived across the street from a fire station) so loudly and so long—imitating firemen, the siren, and rescue scenes (playing all the parts himself)—that he would become a spectacle in the neighborhood, and his parents, embarrassed, would usher him back into the house. These interests, which also involved superheroes (e.g., GI Joe, Ghostbusters, Ninja Turtles) would often last for weeks or months and would completely dominate his life. [The reader should pay attention to this recurring theme.]

In spite of his problems, Edward entered regular kindergarten, and he was maintained in regular classroom settings (suggesting some attenuation of his behavior problems) until his behavior again worsened in second grade. A psychoeducational evaluation by the school resulted in a diagnosis of attention deficit hyperactivity disorder (ADHD). With the combination of methylphenidate (40 mg/day, sustained-re-

TABLE 1. Factor Scores on the Child Behavior Checklist (Parent Report) and the Teacher Report Form for Edward, a 12-Year-Old Boy[a]

	Total Score	
Factor	Parent Report	Teacher Report
Withdrawn	68	58
Somatic	78	50
Social problems	70	70
Anxiety/depression	78	72
Thought disorder	72	70
Attention problems	86	75
Delinquent	68	80
Aggressive	84	84

[a]A score higher than 70 exceeds scores of 98% of 12- to 16-year-old boys.

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lease tablets) and a structured teaching environment, Edward seemed to have a relatively successful third-grade year. His problem behavior was exacerbated in fourth grade, especially in the afternoons. Juggling the dose and timing of methylphenidate did nothing but cause increased side effects and possible paranoia. A psychiatric evaluation initiated by the school revealed that Edward could not function at all academically. His worsened behavior included stealing, writing graffiti on a neighbor's house, urinating in a cup and trying to trick his sister into drinking it, saying he was beaten to bleeding by his parents (initiating a child abuse referral, which was dismissed as unfounded), grabbing the public address microphone in school and muttering obscenities, and being so aggressive with peers that numerous school suspensions occurred. References were made to the fact that Edward was having facial tics and possible sniffing and throat-clearing tics. A diagnosis of Tourette's disorder was considered for a while. Imipramine was tried without success. The psychiatric evaluation also made reference to another consultation in which the diagnosis of obsessive-compulsive disorder was made and 50 mg/day of clomipramine was tried unsuccessfully. Edward's score on the Children's Global Assessment Scale (3) in the fourth grade, noted by the child psychiatrist, was 50. This difficult year prompted the first day treatment referral because of Edward's psychiatric, educational, and family problems.

Fifth grade was a comparatively good year. During this time, the psychiatrist in the day treatment program described Edward as "outstandingly positive and gregarious in manner . . . mildly euphoric, self celebratory and proclaims interest in becoming president . . . will break into song without provocation; abundant supplies of energy." Mental status examinations showed no signs of psychosis or depression. Information from the parents at the time was consistent with diagnoses of ADHD and conduct disorder, but with added symptoms of overanxious/generalized anxiety disorder (i.e., unrealistic worries about the future, the past, health, and abilities; extreme self-consciousness; excessive need for reassurance; extreme tension). Some depressive symptoms (low self-esteem, recurrent thoughts of death or suicide) were reported, as well as a few odd symptoms (laughing or crying at inappropriate times, preoccupation with presidents and superhero comic books). For instance, Edward perseverated in his admiration for President Kennedy, researching how he looked so he could dress as Kennedy did and buying books about the assassination. In fact, when he began ruminating about the bullet wound to Kennedy's head, his parents became worried and set limits on this topic. Of the manic symptoms asked about, only "is explosive and irritable" and "believes he has special abilities or can do things that are unrealistic" were endorsed.

At the time of his entry into this day treatment program, Edward completed a Youth Self Report (4), saying he was hearing and seeing things (table 2). Evidently, no one picked up on this. When Edward was transferred to another day treatment program because the family moved, his Children's Global Assessment Scale score was 65, and he was taking methylphenidate, 5 mg at 8:00 a.m. and at noon.

TABLE 2. Edward's Factor Scores on the Youth Self Report at Grade 5 and at Hospital Discharge

Factor	At Grade 5[a]		At Hospital Discharge[b]	
	Total Score	Percentile	Total Score	Percentile
Depressed	68	96	68	96
Unpopular	80	>98	64	90
Self-destructive	66	94	57	72
Thought disorder[c]	75	>98	68	96
Delinquent	75	>98	55	69
Aggressive	76	>98	58	72

[a]Edward's score on the Children's Global Assessment Scale at grade 5 was 65.
[b]Edward's score on the Children's Global Assessment Scale at discharge was 45.

Edward's mother recalled that in the 2 years before his admission (sixth and seventh grades), he became increasingly irritable, more impulsive, and unable to follow directions. He had restless and disturbed sleep and spoke intermittently about his own death or wishes to die. Although his mother described depressive symptoms, they were not present more than 50% of the time, and Edward's mood would switch spontaneously or with minor provocation from anger to giddiness and inappropriate laughter. Outbursts of rage were often accompanied by verbal and occasionally physical aggression and disorganized behavior and speech.

The initial evaluation at the second day treatment program (2 years before admission) described Edward as "hyperverbal, fidgety, distractible, anxious and intrusive." He no longer talked about wanting to be president but perseverated about wanting to be a fireman when he grew up. [Recall his fantasy play at 3 years of age.] His Children's Global Assessment Scale score was recorded as 60. As that year progressed, however, his behavior again regressed. Edward was again described as extremely disruptive in class, using inappropriate, vulgar language and being very aggressive with peers, with his "mood fluctuating from grandiosity to tearfulness." The doses and timing of methylphenidate were again juggled to no avail. Home stressors were felt to be instrumental in this deterioration, since the mother was pregnant with a child the family could not afford, the father was ill and not working, and questions of abuse had again been raised. Edward often did not go to school. His IQ showed a dramatic drop since the testing in second grade (table 3); although his behavior was described as "appropriate" he was "offering frequent spontaneous conversation" and "frequently stating he was going to become a policeman or fireman when he gets older."

The parents, feeling accused that they were causing Edward's problems, demanded transfer to another program. At the time of transfer, Edward's Children's Global Assessment Scale score was 35.

At his new school, Edward initially functioned a little better. His score on the Children's Global Assessment Scale 2 weeks after admission to the program was 45. He was fidgety and restless but was described as "eager to engage adults," he enjoyed the interview, and he could not wait to do his Elvis Presley and John Kennedy impersonations. He also spoke of his interest in wrestling. He was neither hyperverbal nor thought-disordered. He denied suicidal feelings and auditory or visual hallucinations. Several months later, however, he again became loud and disruptive in class, was very aggressive with peers, and refused to do schoolwork. This deterioration was initially ascribed to his self-reported lack of compliance with medication (his mother subsequently reported that she had stopped the medication because of fears of side effects) and then attributed to continuing family problems. Treatment with methylphenidate was resumed briefly but stopped after an episode of "blinking frequently," "eyes rolling up," staring, and looking dazed. Results of a neurological examination and repeat EEG were normal.

Edward became obsessed with wrestling, and his preoccupation with superheroes extended to World Wrestling Federation (WWF) wrestlers and spirits or forces that haunt or influence people. He would try out various wrestling holds on his younger sisters (to their dismay). He made up "tall stories" and would indicate that he really was a wrestling figure or that spirits and forces outside himself were real. He began to report "seeing things" (such as gremlins and a vision of a "glowing man" standing by his bed). He complained of hearing voices saying his name at night and would become frightened and refuse to return to his room. He expressed worries that spirits might be influencing the family and their home and would ask reassurance of his parents. The parents attributed his behavior to a local rumor concerning their home being haunted and felt that Edward had merely picked up on this rumor. At school, because he was inconsistent about these "hallucinations" and because his affect was mildly inappropriate, the treatment staff did not believe

TABLE 3. Edward's IQ Over Time

Scale	IQ in Middle of Grade 2[a]	IQ in Fall of Grade 6[b]	IQ in Spring of Grade 7, Shortly After Hospital Admission[c]
Verbal	106	85	88
Performance	105	81	96
Full scale	105	82	91

[a]WISC-R; mental status described as "cooperative."
[b]WISC-III; mental status described as "hyperactive."

Edward either and felt that he was attention seeking. However, he was almost nonfunctional academically.

Ultimately, Edward's behavior was so egregious at home that his parents brought him to the emergency room for hospitalization. His score on the Children's Global Assessment Scale at that time was again 35.

Worth mentioning, too, is the fact that Edward was never able to relate appropriately to peers. His idiosyncratic, intrusive, and unpredictable aggressive behavior and inability to empathize caused other children to avoid him and sometimes to gang up on him. Once, Edward intruded into a dispute between two children that was being handled by an adult (none of whom he knew). He arbitrarily took the side of one child, which made the other child so angry that subsequently he and other friends physically assaulted Edward. He never understood why.

Educational/Cognitive Testing

Edward's cognitive abilities, as measured by the Wechsler Intelligence Scale for Children, revised version and version III, fluctuated widely over time, possibly depending on his mental status, but averaged in the normal range (table 3). There were no documented learning disabilities.

Family Factors

Two years before Edward's hospital admission, his father developed an undiagnosed medical illness that left him unable to work and the family financially strapped. The father suffered periods of severe anxiety and occasional panic attacks, irritability, and depression. He would often become agitated, paranoid, and verbally abusive toward all family members (which included four other children), but especially Edward. Family conflict and tension were considerable, particularly concerning Edward's behavior. The parents' child rearing skills were limited.

The family history also included a paternal uncle who had been hospitalized with symptoms of severe anxiety, depression, and psychosis from which he recovered fully, a maternal cousin with a history of schizophrenia, and a maternal grandmother with alcohol abuse and hallucinations. Bipolar disorder per se was not described in any family member.

Comments

Dr. Carlson: Edward's lifelong behavioral problems raise interesting diagnostic issues. First, it was not evident to the staff at any of the facilities treating him that he probably had had exacerbations and remissions of similar problems. Each time Edward's behavior deteriorated, there seemed to be obvious environmental reasons to explain these lapses. During these periods, he was grandiose, irritable, and agitated and more hyperactive, intrusive, and unable to concentrate than usual; he became excessively and obsessively involved in the activities that, in his less driven state, appeared to be only preoccupations, albeit unusual ones. During these periods of time, he was particularly explosive and aggressive, easily overstimulated, and hypersensitive to what he perceived to be slights. During these times, he could be dysphoric and tearful, talk about wanting to die, and complain about fatigue (though he never looked tired). He never exhibited a decreased need for sleep. During these periods, he met the criteria for conduct disorder because of his unprovoked aggression, bullying, scatological language, lying, and stealing. Not surprisingly, during these periods, his school performance deteriorated completely because he was so disorganized. Edward meets criteria for, and probably has had, several episodes of mania, although he has never been observed to be depressed or even dysthymic independent of his periods of mania.

Do manic episodes completely explain Edward's pathology? Actually, the more vexing question is what Edward's diagnoses are when he is not manic, how his psychotic symptoms fit into his diagnostic picture, and whether, over time, his functioning is deteriorating.

Dr. Weintraub: According to parent and teacher reports, the most salient aspect of Edward's premorbid history was his hyperactive, oppositional, and aggressive behavior. Intensive questioning of the informants, however, revealed a longstanding pattern of peer conflicts and rejection and bizarre, perhaps schizotypal, behaviors. To explore the presence of schizotypy and vulnerability to psychosis, measures developed as part of the Stony Brook High Risk Project (5) that tap into vulnerability to schizophrenia were administered after Edward was admitted to the inpatient unit. These special assessments were designed to detect subsyndromal symptoms, proneness to psychosis, and precursors of psychosis. Examples of these include superstitious beliefs, beliefs in extrasensory perception (ESP), ritualistic behaviors, impairments in socialization skills, subtle impairments in the structure of speech and language, and "cognitive slippage" (deficits in information processing, but not meeting criteria for formal thought disorder). Although some of these characteristics occur in normal children, Edward exhibited patterns indicating vulnerability to psychosis.

Mental Status at Admission

Edward was neatly dressed and greeted the examiners by immediately jumping out of his chair and offering his hand in a manner that appeared both dramatically formal and peculiar (raising his arm wooden-soldier-like from the shoulder when offering his hand) but with a broad and intense smile. His psychomotor behavior was notable for restlessness and other "stiff" and "robot-like" gestures. His speech was intermittently normal and pressured; prosody was normal. He appeared distracted and would "bombard" the interviewer with questions about items in the room (e.g., why the numbers on the cabinets were not in order). He demonstrated both flight of ideas and loose associations. His affect was highly animated but inappropriate, with smiling through much of the interview. He was giddy when talking about the fact that he had often felt like dying and had thought of "taking drugs" or "getting blown up like the kids in Oklahoma City." He was annoyed when his inappropriate affect was pointed out to him. He appeared angry and on edge when describing school and felt that others were unjustly picking on him. He said that he had always believed in ESP and was thinking of becoming a parapsychologist. He noted that for a long time he had been seeing spirits, mostly at night, but that recently these spirits were seen during the day. The spirits would give him simple commands such as "turn right" or "hit that kid," and sometimes they told him to "kill yourself." While he thought these voices were real, he said that only he could hear them. He said that he stopped telling other kids about them because they "thought I was making it up." He complained of being frightened when he saw or heard the voices at night but was much less afraid during the day. He thought that he saw the spirits because of his interest in wrestling and because the spirits wanted him to do bad things with his wrestling talent. He denied any conversation between the spirits and said that they appeared "blurry" and had "demon cat eyes." He said that he would never try to touch one because it might hurt him. He was fully ori-

ented and alert throughout the interview, and his memory was intact.

Comments

Dr. Weintraub: Edward's mental status as well as his history substantiate his vulnerability to psychosis. For many years, he had a ritualized manner of grooming, claimed that he had ESP, and talked about spirits and visions. His responses were occasionally idiosyncratic and odd. He continued to have a stereotyped manner of relating and a robot-like posture and gait. Thus, Edward's "premorbid" adjustment and current presentation are similar to those of children with a psychotic parent.

The differential diagnosis between bipolar disorder and schizophrenia is unclear. The family history was not helpful in distinguishing the likelihood of the two disorders. The father had had a psychiatric hospitalization but was not psychotic; a paternal uncle had had a "nervous breakdown," but it was impossible to determine the nature of the psychosis. The parents' MMPI profiles were not psychotic but did indicate substantial personality disorder.

The patient's phenomenology was to be the sole basis for resolving the differential diagnosis.

Dr. Gartner: Edward's mental status was consistent with reports of his behavior since preschool. If one of the ways we distinguish bipolar disorder from schizophrenia is by the patient's deterioration, the concept of a baseline state from which to judge deterioration in functioning is confounded in children because, by the very nature of development, they have a "moving baseline." Edward's long-term baseline included multiple symptoms of disruptive behavior disorders with motor symptoms and fantasy-reality boundary problems. During his episodes, these problem areas would intensify, producing a picture of severe aggression, motoric hyperactivity, and psychosis. I think his baseline appears to be very slowly deteriorating, with acute episodes becoming more pronounced. The question will be whether this deterioration is documented when this episode resolves.

Confounding this symptom history is the question of what role family stress plays in his episodes. A number of substantial family and community problems could be identified before each exacerbation and in the 2-year period before hospitalization. It is tempting for the clinician to hypothesize a single factor leading to episodes, such as the biological onset of a manic episode, or alternatively to identify a primary external stress-driven diathesis for his episodes. In the controlled hospital environment, it should be possible to document Edward's sensitivity to his environment.

Hospital Course

The results of physical and neurological examinations and blood chemistries were normal. Discontinuation of Edward's most recent medications (methylphenidate and sertraline) had no effect on his behavior. Throughout the observation period, his mental status fluctuated, with periods of inappropriate and labile affect, irritability, and rage necessitating "timeouts" and, on multiple occasions, seclusion. A typical episode would consist of his beginning to laugh at some idea he expressed and to perseverate on the topic while laughing. Attempts at redirection would have no effect, and the behavior would continue. This would then lead to a timeout period, further escalation, and gales of laughter interspersed with angry tirades of verbal aggression (threats to hit, kill, or sexually assault others), all of which would then lead to his being placed in seclusion. Besides his pervasive hyperactivity, intrusiveness, and distractibility, Edward continued to give excited, disorganized monologues about world wrestling figures and encounters with spirits he saw and heard (saying his name). His affect was usually intense, excited, euphoric, inappropriate, and irritable. He asserted that he would become a WWF wrestler (he had no prior experience with athletics or wrestling). He believed he had ESP and could pick up thoughts of others but appeared unafraid, saying that the content of the ESP transmissions was benign (e.g., the doctors were thinking that "you will be here for some time to find out what's wrong"). At night he sometimes saw a "glowing man" and was visibly afraid and agitated, asking to sleep outside his room with the staff closer to him. In one episode he was found closing and checking the curtains in his bedroom "because someone could look in." When it was pointed out that the unit was on the twelfth floor of the hospital, he responded with a concerned affect, "Yes, but the men with the suction cups could see in." During the later evening hours, dysphoria was more prominent, as were his worries about seeing or hearing the spirits.

Edward was treated with perphenazine, which was increased to a dose of 12 mg/day. Lithium carbonate was titrated concurrently to a level of 1.0 meq/liter over the next 10 days. Limit setting, redirection, and reinforcement of appropriate behavior became more effective in attenuating severe episodes of agitation, aggression, and inappropriate behavior. These symptoms gradually began to abate over the next 4 weeks with the combined treatment.

After 10 weeks of treatment, Edward required no timeouts for noncompliance or aggression. He continued to talk about the WWF and the various wrestling figures to "anybody who would listen" but could be redirected with firm limits. However, when talking about wrestling figures, he would still inflate his own experience with wrestling. He did not spontaneously talk about spirits, voices, ESP, or his previously stated desire to become a parapsychologist. Inquiries into his beliefs about prior hallucinatory and delusional experiences revealed that he had gained partial insight. He now said that although he still was interested in the topics of ESP and parapsychology, he no longer saw or heard voices and spirits and thought they "probably" were not real. He said that he had given up the idea of becoming a parapsychologist. Finally, his peer relations had improved so that, at least, disagreements could be resolved amicably.

Edward's mood was generally mildly euphoric, and he remained very talkative and mildly intrusive. His irritability was gone. He complained of only minor periods of sadness when his mother left the unit. He sometimes fretted that his behavior at home might get out of control and that he might be hospitalized again. He denied any suicidal ideas and was looking forward to going home and attending a day treatment center.

Edward continued to be distractible, impulsive, and sometimes tangential in his conversation but no longer exhibited flight of ideas, and his speech was only mildly pressured when he was excited about a topic. He remained insensitive to his effect on peers, however, and related only superficially to his primary caretaking staff.

He was slightly restless and fidgety. He no longer engaged in repetitive motor behaviors (looking at his hair in the mirror and combing it) or robot-like or stereotyped motor behavior, although his posture was somewhat stilted and stiff. Perseveration on topics of lifelong interest continued, though less intensely.

The family participated fully in a parent training program, and the father became more involved with the treatment and child management.

DISCUSSION

Dr. Carlson: Everyone obtaining information on this youngster has recognized that he has never functioned normally. He has been hyperactive since age 1 and intermittently very dysfunctional. It is not yet clear how stable he can be without considerable structure. Even when he functioned best (at a Children's Global Assessment Scale score of 65), Edward himself described many difficulties (table 2). By the end of his hospitalization, his parents were pleased with his improvement and felt that he had returned to his "premorbid" level of functioning (no better, no worse). Ironically, as measured by our

TABLE 4. Edward's Scores on the Children's Global Assessment Scale Over Time

Time	Score	
	Beginning of Program or Year	End of Program or Year
Psychiatric evaluation, grade 4	50	
Grade 5	55	65
Grade 6	60	35
Grade 7	45	35
Admission to hospital	30	45

weekly rating scales, his symptoms were at the level typical of children admitted to an inpatient unit.

Because he had been conceptualized as a child with ADHD and conduct disorder until this hospitalization, it was never recognized that among the problems that never go away are Edward's "weird" behavior, his giddy affect, and his inability to maintain peer relationships. He had been identified as either theatrical or manipulative, depending on one's attitude, since his preschool years. However, he perseverated on topics or in his play in ways that exceeded what is tolerated for imaginative children. Even in his least volatile and combative state, he appeared unable to really share these activities with others (i.e., he could perform for someone but not play reciprocally with that person). The activities included the fireman play that started during his preschool years; becoming so identified with President Kennedy that he dressed to look like him and spent hours combing his hair as he did; and collecting comic books, becoming so preoccupied with them that he sometimes thought he hallucinated the characters. He perseverated about wrestling and tried wrestling holds on his frightened and unwilling sisters. He claimed that he had ESP. When he is at his best, these interests appear to be overdetermined. When the rest of his behavior becomes more exaggerated, his beliefs and actions surrounding them become more exaggerated and appear psychotic. His language in the past was so scatological and perseverative that he was thought to have coprolalia. At the time he was hospitalized, Edward was finally felt to be psychotic. However, the point at which a child's behavior is truly psychotic continues to elude operational delineation.

Several diagnostic possibilities might explain Edward's chronic behavior. The first is that he is chronically hypomanic, escalating into stage 3 mania (6) under stress. The hyperactivity and inattention ascribed to ADHD could be symptoms of mild mania. In a careful examination of his history, it is not clear whether he ever really responded to methylphenidate, although lack of response to one stimulant certainly does not rule out the diagnosis of ADHD. His overinvestment in presidents, WWF wrestling, and superheroes could be evidence of mild grandiosity. The interest in spirits and the like may be a subclinical psychotic symptom. His inability to get along with other children could be part of the poor social judgment that frequently accompanies mania. Such children have been increasingly defined as manic (7).

Edward's intermorbid state could be a manifestation of Asperger's disorder, a newly delineated form of pervasive developmental disorder with an early age at onset, defined by 1) a "qualitative impairment in social interaction" (in Edward's case, typified by "failure to develop peer relationships appropriate to developmental level" and "lack of social or emotional reciprocity") and 2) "restricted repetitive and stereotyped patterns of behavior, interests, and activities" (in Edward's case, this would be "encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal in either intensity or focus") (DSM-IV). The persistence of the same themes over the years is striking. When Edward was 3, he was overinvolved with being a fireman. During his psychological testing at age 11, he did not just offer the fact that he wanted to become a fireman; he "frequently stated" it during the 2-hour evaluation. His first school was named for the president whom he later imitated. The superheroes that consumed Edward as a younger child are not a far cry from the WWF wrestlers. Purposely urinating in his room during his most recent episode of deterioration is reminiscent of his giving his sister a cup of his urine to drink several years earlier, during what was likely a similar episode. While children with conduct disorder trample on the rights of others, they usually do so with abandon and because they do not care about the rights of others. Edward has seemed puzzled by his inability to make friends and insensitive to how weird he appears. Although in many ways Edward seems too engaging to be considered "typical" of Asperger's syndrome, the self-absorbed nature of his preoccupations and his inability to grasp the nature of his effect on others are part of this spectrum.

Finally, it is possible to conceptualize Edward's behavior as due to a schizotypal personality disorder, although personality disorder diagnoses are not usually given to children. He has odd beliefs and magical thinking, unusual perceptual experiences, inappropriate affect, and behavior that is odd and eccentric, and he has never been able to maintain a relationship with peers. He has had many anxiety symptoms. Some authors (8, 9) have suggested a diagnostic blur between Asperger's syndrome and schizotypal personality disorder. Schizotypal personality disorder has been considered part of the schizophrenic spectrum in adults. This has reflected either a stable personality pattern that seems to occur more frequently in families where there is a history of schizophrenia (10) or a vulnerability to developing schizophrenia (5). It is unclear whether Edward's functioning has actually declined (see the Children's Global Assessment Scale scores in table 4) or whether he is not progressing developmentally and the decline is relative to the maturity of his peers.

Dr. Weintraub: What additional information is it crucial to obtain to make the differential diagnosis in this case? Response to treatment was mixed and shed little light on diagnosis. Edward partially responded to antipsychotic and mood-stabilizing drugs, but his course has been too episodic to conclude very much. Indeed, for a number of years his improvements were attributed to his taking methylphenidate.

Does anything further regarding Edward's thoughts, feelings, and behavior need to be explored to help with diagnosis? In fact, nothing in this child's symptoms may help differentiate between bipolar disorder and schizophrenia because his psychosis is still crystallizing. Only the child's future functioning will determine his specific disorder.

Dr. Gartner: Edward's vulnerability to family stress, reminiscent of the literature on "expressed emotion" (11), is important. His reactivity to others and to stress was noted by his parents as far back as they could remember. In the hospital, once his manic episode was under control, a stable and consistent environment managed the excesses in both behavior and thinking. It is thus likely that his own intrinsic reactivity, combined with stress in a less structured environment, may trigger or maintain his episodes. It is his vulnerability to stress, along with his symptomatic and deteriorating cognitive and possibly behavioral baseline, that

presents the difficult task of assigning a diagnosis.

Dr. Carlson: I feel that this diagnostic conundrum will be best resolved by what happens to Edward's ability to relate to his peers and to his eccentric behavior and mood, and whether he is able to withstand environmental stressors without becoming more psychotic. If his eccentricities persist, they are trait- rather than state-related. If he is also unable to develop empathy and social-emotional reciprocity, his course will be more consistent with a developmental disorder, which in adults may merge with schizotypal disorder. If he develops negative symptoms or develops a chronic psychotic picture, we will have witnessed the gradual unfolding of schizophrenia.

AFTERWORD

At age 14 (1½ years after discharge), Edward remains in day treatment, still taking 8 mg/day of perphenazine, 1200 mg/day of lithium, and additional carbamazepine, 100 mg b.i.d. He has had two brief exacerbations/"episodes." One occurred when his parents discontinued his neuroleptic and resolved when it was reinstituted. The second occurred at the birth of a fifth child and responded to the addition of carbamazepine. Family stressors continued, with the father trying to obtain a disability settlement and the mother managing five children. Edward's baseline state remains animated, immature, and silly. His psychiatrist describes him as "grandiose, swaggering, and full of himself." He still dwells on WWF wrestlers and, in spite of his age, plays with GI Joe figures. His peer group is either much younger children or mild/borderline mentally retarded children. He has not "deteriorated" but remains "fixated" at a much younger age psychosocially. His baseline state remains stable, with exacerbations under stress or when his parents tinker with his medication. While his diagnosis is still unclear, bipolar disorder and schizotypal personality disorder best describe Edward at this time.

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