

International Adoption: A 4-Year-Old Child With Unusual Behaviors Adopted at 6 Months of Age*

CASE

Jenny, a 4-year-old child adopted from an orphanage in St Petersburg, Russia, at 6 months of age, is seen for an initial office visit by a new pediatrician. According to the parents, she received poor nutrition and limited stimulation in the orphanage setting. During her first several months after arrival in her new home, Jenny avoided the gaze of her parents and looked away when they attempted to engage her in play or participation in feeding. She did not demonstrate any preference for her parents for several months. She appeared to be quite "aloof and solemn." She was easily frightened by certain visual and auditory stimuli such as ceiling fans. By 1 year of age she spoke several words, followed simple directions, and walked. Jenny had difficulty tolerating many textures of foods. She often mouthed inedible objects during her second year of life and performed repetitive behaviors including dumping and filling containers. She was clumsy for her age. Her parents felt that she was "on the fringe of the family."

Jenny received occupational and speech and language therapy at a functional feeding program that addressed her food intolerance and oral sensitivity. During her third year, defiance, noncompliance, and anger occurred frequently. She often placed herself in dangerous situations. She burned her hand and lower lip on a light bulb after being told to stay away from it. She frequently ate out of the garbage. Jenny was described as "highly verbal" and "superficially charming." Jenny followed women other than her mother in public spaces and wanted to hold their hands and sit on their laps.

She began play therapy at age 3 years, while her mother received individual counseling with another therapist because she was having difficulty "bonding with Jenny" and felt rejected. At age 4 years, Jenny is described as "aloof and often angry." She is extremely jealous of attention directed toward her 6- and 3-year-old brothers. Her mother feels she is "stuck like glue" to her. She will often talk nonstop and ask repetitive questions. Jenny has difficulty drawing a circle. She seems to be obsessed with the color purple, certain toys, and anything to do with the "Lion King." She has been asked to leave every preschool and camp she has attended because of nonstop talking, severe noncompliance, and unacceptable behaviors such as constantly asking her peers, "Do you poop in your pants?" Recently, Jenny has performed more dangerous behaviors such as

running into streets and climbing onto the roof from a window. She said to her mother, "The cars will not kill me." She frequently imitates behaviors of the family cat and eats from the floor.

Challenged by Jenny's background and current behaviors, her pediatrician attempts to understand Jenny's developmental course and develop a plan for effective interventions.

INDEX TERMS. international adoption, attachment, attachment disorder, resiliency.

Dr Martin T. Stein

The current generation of pediatricians have cared for thousands of children adopted from orphanages in Eastern Europe, Russia, and Asia. Medical, developmental, and behavioral conditions occur in these children with a higher frequency and greater severity compared with most children born in the United States. In many internationally adopted children, significant developmental delays in motor, language, and social skills associated with growth failure and malnutrition are seen when they arrive in the home of their adopted family. Remarkably, many of these children reveal a physical and psychologic resiliency as age-appropriate neuromaturational milestones are achieved in a catch-up pattern. In addition, growth parameters are often expressed on growth charts as an accelerated velocity from adequate nutrition and nurturance.

Other children in these circumstances do not catch up so dramatically. Failure to thrive, feeding problems, and behavioral disorders emerge in the first year after the adoption. The cause of some of these conditions is often puzzling; treatment is always challenging. In some larger communities and medical centers, pediatricians, nutritionists, and mental health colleagues have developed special programs to serve these children and their families.

This Challenging Case illustrates many of the behavioral conditions seen in the most severely affected internationally adopted children. **Dr Scott Faber** is Director of Developmental-Behavioral Pediatrics at Mercy Children's Medical Center in Pittsburgh, Pennsylvania. He has significant experience working with children who are adopted from other countries. **Dr Susan Berger** is a developmental psychologist and Program Director for the Developmental-Behavioral Pediatric Resident Training Program at the Children's Memorial Hospital, Northwestern University School of Medicine in Chicago, Illinois. She also teaches attachment theory and its application to pediatric care. **Dr Gilbert Kliman** is a child psychiatrist and psychoanalyst in San Francisco, California. He is the Director of the Children's Psycho-

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logical Health Center associated with the Cornerstone Therapeutic Preschool in San Francisco. He has worked with foster care children who have experienced psychologic traumas associated with multiple caretakers. In addition, **Dr Lisa Albers** and **Dr Paul Wang**, along with others, contributed insightful comments to the Web site discussion.

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Dr Scott Faber

Jenny experienced significant deprivation during her first 6 months in an orphanage in Russia. She did not receive emotionally attuned interaction with loving caregivers until her adoption. She was unable to participate in “gaze transactions” (quick visual and expressive interactions with her parents) appropriate for a 7-month-old child, which provide the basis for communication during feeding and play.¹ Months after arrival in her new home, she did not display a preference for her parents, although she was quickly catching up to her peers in cognitive and language skills. This lack of preferential attention to her parents indicates the presence of a change in the normal functioning of her attachment system—a biologic and psychologic set of processes involving the frontal cortex and limbic system. This process is adversely affected by exposure to early neglect. Significantly limited interaction with prior caregivers can contribute to inhibition of engagement with adoptive parents and set the stage for an imbalance between inhibition and exploration.² Jenny became “aloof and solemn.” By 2 years of age, she appeared “superficially charming” and displayed indiscriminate sociability with women of maternal age. Her behavioral pattern changed from severe inhibition and quietness around loving parents to exuberant interaction with strangers of maternal age, often to the exclusion of the adoptive mother. This transformation further supports the presence of an attachment disorder with a clinical shift from severe inhibition to indiscriminate sociability.

Jenny demonstrated hyperreactivity to auditory and visual stimuli and had difficulty eating foods of certain textures. Changes in the sensory system have been shown to occur in some children deprived in orphanage settings; tactile and perioral sensitivity is frequently seen in this population.³ Occupational and speech and language therapists use systematic desensitization techniques, gradually introducing new stimuli. These stimuli may include food textures or certain visual or auditory sets of sensations to allow children to eat a larger variety of foods and tolerate common situations.

Deprived populations of children are at risk for frontal lobe-mediated executive dysfunction. These children often make more dangerous choices and have trouble learning from the aversive effects of past decisions. In a study of children adopted from Romanian orphanages, performed by Dr Elinor Ames and her associates, overinhibited behavior patterns were exchanged for disinhibited and external-

izing (impulsive/oppositional) behaviors approximately 3 years after adoption.⁴ Attention-deficit/hyperactivity disorder (ADHD) is found more frequently in children adopted from deprived environments;⁵ Jenny’s behaviors are consistent with the hyperactive/impulsive type of ADHD. In addition, her severe oppositional behavior in multiple environments supports the diagnosis of oppositional defiant disorder. Her behaviors have been modulated by the attention her parents give to her 2 adopted brothers, and her extreme jealousy may have been exacerbated at times by the distancing and ambivalence the mother experienced when witnessing Jenny’s indiscriminate sociable behaviors.

Jenny displays a set of obsessive fascinations toward certain toys, videotapes, animals, and colors. Combined with the tangential quality of her speech and lack of ability to discern appropriate social clues and boundaries, a mild “quasi-autistic” pattern is discernible. Michael Rutter et al,⁶ in their study of 111 adoptees from Romanian orphanages, noted a 6% incidence of “quasi-autistic behavior patterns” and another 6% incidence of “milder autistic features.” A major concern is Jenny’s poor understanding of the danger involved in running into the street or out a window onto the roof. Extreme impulsivity, associated with developmentally immature understanding of danger, significant oppositional behavior, and apparent difficulty with processing certain aspects of physical reality, provides a high level of risk.

Jenny continues to see a psychotherapist, and a low morning dose of an atypical antipsychotic medication, risperidone, was initiated. Physically dangerous behaviors were absent after starting the medication, and she appeared calmer and able to understand her environment. A psychostimulant was not prescribed because of the pediatrician’s anecdotal experience with a stimulant often exacerbating quasi-autistic behaviors in children who have experienced severe neglect and deprivation. Jenny was referred to a child psychiatrist for further psychopharmacologic management.

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Dr Susan P. Berger

Approximately 100 000 international adoptions occurred in the United States during the last decade.¹ Evidence indicates that many of these children demonstrate initial deficits in growth, general health, and/or development but adapt well over time in their new families. Others, like Jenny, continue to have developmental and relational difficulties even after long periods of stabilization within their adoptive families.

Jenny's complicated and challenging behaviors have become more pronounced with age. With the exception of being described as "superficially charming," her history includes the expression of a range of negative emotions (fear, anger, defiance, and jealousy) without the balance of pleasure and joy. She lacks social or physical boundaries and does not seek support from trusted adults in the context of dangerous or stressful circumstances. The seemingly contradictory behaviors of indiscriminate friendliness toward strangers coupled with extreme clinginess to her mother must make it difficult to predict how Jenny will behave in new situations or to plan for family events. She uses many words, although it is unclear whether there is true conversational intent to her verbal overtures.

Jenny's behavioral profile coupled with an early history of orphanage care indicates an attachment disorder. According to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, reactive attachment disorder (RAD) is a condition characterized by markedly inappropriate social connectedness exhibited by either severe inhibited behavior or indiscriminate sociability.² Symptoms may partially mirror those in other disorders (eg, Asperger disorder and ADHD).

Further historical information might clarify underlying determinants of Jenny's current problems. Were there personal or situational vulnerabilities preadoption that placed Jenny at risk for some other form of developmental disorder? What is known of her prenatal and birth history? Is there any evidence of dysmorphic features that might reflect fetal alcohol syndrome or a genetic condition? Is any information available about the physical or mental health of her biological parents? Is it known why she was placed in adoption? Was she orphaned at birth or after a period with her family of origin? Was she nutritionally compromised at the time of her adoption, and how quickly did her growth rebound? Is it possible that her inappropriate oral activity and impulsive behavior as a toddler led to high lead levels without recognition and treatment?

Equally important are Jenny's caregiving experiences and their influence on her current behaviors. Attachment theory asserts that human infants form attachment relationships to those who care for them, affording a sense of "felt security" as the child explores the world encountering new and difficult situations.³ Reciprocally, adults provide the "secure

base" from which to explore and an "island of safety" to which to return under stressful circumstances.^{4,5} All but the most seriously isolated infants become attached, but the quality of those attachments varies depending on the quality of care children received. Children who are cared for by sensitive, responsive, and predictable adults feel secure in those relationships, whereas children whose care is less attuned to their specific needs develop insecure patterns of attachment. The quality of these early attachment relationships are believed to be important because they mediate the regulation of emotion and the child's sense of the world as a loving place and of the child as lovable by others.³

It is tempting to accept at face value that Jenny's early institutional upbringing and significant deprivation predisposed her to a disorder of attachment. However, because attachments develop through repeated interactions with significant others and solidify during the second half of the first year of life, it would be unusual for a child without other vulnerabilities to be adopted by 6 months of age and not show significant recovery in an appropriately sensitive caregiving environment. Evidence from 2 independent studies of children from Romanian orphanages demonstrates that the timing of adoption is a significant factor. Children adopted after 6 to 9 months were found to be more at risk for psychological disturbances than those adopted earlier.^{6,7} Among later-adopted children, 70% did not meet criteria for a developmental or psychiatric diagnosis at 4 and 6 years old. Further findings from studies on attachment relationships in foster families indicate that when infants are placed in foster homes before 1 year of age, they rapidly stabilize a relationship with their foster caregiver, and that the quality of the relationship matches the internal model (secure or insecure) of the foster caregiver. If, however, they are placed after 1 year, the relationship itself takes longer to develop and is more apt to be insecure even when a foster parent's perception about relationship is secure.⁸

Deprived of a unique personal relationship with a caregiver very early probably did influence Jenny's initial behavior in her adoptive home. However, attachment is a 2-way process, so her adoptive parents' capacity to provide contingent care that was responsive to Jenny's signals and needs also requires examination. In the context of parenting an older son, what expectations did Jenny's adoptive parents have before they brought her home? As an aloof and solemn infant who did not demonstrate a preference for either of her parents, Jenny was not the well-organized and social 6-month-old that her parents may have expected. In an effort to be sensitive, they may have understood her behavior as intentional withdrawal causing them to respond less interactively instead of trying to engage her more. Whereas Jenny initially may have needed time and repeated experiences to learn to trust the physical and emotional availability of her new family, her parents may have been anticipating a smoother reciprocity with her.

Consideration should be given to Jenny's potential response to a new baby in the family. How might

Jenny react to the experience of loss that inevitably occurs with the entrance of a new sibling? Was her defiance, noncompliance, and anger in her third year an outgrowth of this loss? Did she get herself in dangerous situations because that behavior demanded parental attention?

What are the implications for the pediatrician who has cared for this family? All families who undertake late-onset adoptions should be educated about the risks and vulnerabilities of the children they are bringing into their homes. A full multidisciplinary developmental assessment is recommended for all internationally adopted children after a period of settling in to their new home environment; subsequent evaluations may be useful during the first few years after adoption. Early intervention for social and emotional concerns is important to ensure therapeutic services for motor, language, and cognitive challenges.

The child's pediatrician can encourage and monitor the referrals for assessment and support and assist the family in accessing that evaluation and recommendations. As the primary health care provider for all of the children in this family, the pediatrician can serve as the advocate for the siblings as well as Jenny. Jenny's brothers might be helped by individual counseling sessions, and the family as a unit could surely profit from family therapy. I hope the pediatrician also would encourage continuing the psychotherapy already begun by both Jenny and her mother. In addition, the pediatrician might explore alternative preschool settings such as a therapeutic preschool if one is available in the community. Finally, pediatricians who care for families with internationally adopted children need to be aware of the increasing number of therapeutic strategies described in the popular press as specific treatments for attachment disorders. There is limited evidence from controlled studies to support anecdotal claims of therapeutic success. The most promising therapeutic approach derived from models of attachment relationships is the "Circle of Security" project.⁹

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Dr Gilbert Kliman

The preschool child described probably has an RAD caused by combinations of stimulus deprivation, lack of early human object relations constancy, and repeated neglect of basic needs. Brain malnutrition is a complicating factor. These children have been seen not only in Eastern European orphanages but also in US foster homes connected with agencies in which there is a policy of transfers among homes when the placement is in trouble rather than a policy of trying to repair the human object attachments of family and child.

What can be done? First, the prevention of a failure of the current family placement is absolutely vital. Studies of children's behavioral careers in foster care show that deterioration occurs with each change.¹ Much of that deterioration can be understood as reactions to detachments of relationships, each detachment becoming a trauma and each trauma being behaviorally repeated in the next relationship.

The best results I have seen in cases of RAD children (in foster care children who experienced the "bouncing phenomena") are in therapeutic preschools providing intensive psychotherapy. The attachments that develop to the staff and peers are clarified to discover insights about the child's resistance to love. The goal of treatment is to then work with the child to establish behaviors that encourage love of his own family caregivers with more stability and less defensiveness.^{2,3}

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Web Site Discussion

The case summary for the Challenging Case was posted on the Developmental and Behavioral Pedi-

atrics Web site‡ (www.dbpeds.org.list) and the *Journal's* Web site (www.lww.com/DBP). Comments were solicited.

Mats Reimer, MD

I disagree with the belief that this child's behavior is a result of an RAD after long-standing interpersonal neglect complicated by early malnutrition. The case describes yet another child with autism adopted from Eastern Europe. Neuropsychiatric handicaps are common in children adopted from poor countries, and our impression is that we see this even more in the children from Eastern Europe. There are several obvious reasons for the high rate of handicap in these children: malnutrition or drug abuse during pregnancy, no antenatal care or monitoring during labor, and the risk of malnutrition and lack of emotional attachment in an orphanage. I believe there might also be some selection bias. If the mother has a hereditary neuropsychiatric handicap or if the infant has autism, this will interfere with bonding and increase the risk of the child abandonment. Also, a father with a hereditary neuropsychiatric handicap would be more likely to abandon the mother and lessen her chances to raise the child.

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Although Jenny's presentation is not typical of children adopted internationally from orphanages, she is also not a rare case. She represents a group of children seen by many pediatricians who present with complex neurobehavioral profiles after adoption. They seem to be a result of a variety of causes including genetics, toxic exposures, a deficit in interpersonal interactions (emotional neglect), malnutrition, and various physical illnesses.

Studies of children adopted even early in life from Romania¹⁻⁵ and Russia⁶ demonstrate that a substantial number of children have significant sensory, feeding, behavioral, learning, attentional, and attachment concerns. There is significant evidence that supports a neurologic basis for these abnormalities. Brain imaging of international adoptees using functional magnetic resonance imaging demonstrates several structural abnormalities.⁶ Children with a history of significant abuse and neglect have also been found to have a number of abnormalities on imaging, electroencephalography, and autopsy studies,⁷ which indicates a neurobiologic basis for the behaviors we see in abused, neglected institutionalized children.

Mental illness in parents, severe poverty, and alcoholism have a significant role in the outcome of children adopted from orphanages in Eastern Eu-

rope and the former Soviet Union. Details about Jenny's birth family and preadoptive foster family may never be known. However, any child's temperament and biologically endowed capabilities, if stressed with prenatal alcohol exposure, postnatal malnutrition, neglect, or trauma, can be impacted adversely. Regardless of the causes, a comprehensive medical, psychologic, and developmental evaluation is warranted at this time to identify appropriate targets for intervention strategies and to assist Jenny's family.

Does she have evidence of prenatal alcohol exposure (either fetal alcohol syndrome or alcohol-related neurodevelopmental effects), a history of toxic exposure (eg, lead, mercury) or a genetic syndrome that may contribute to her profile? Early identification of children with prenatal alcohol exposure may be a positive prognostic factor.

Has she had a cognitive and speech and language evaluation performed either through her local school system or independently? Although she is described as highly verbal by her parents, this may be related to her number of words and frequent or repetitive use of words rather than solid receptive and expressive language skills. I would also wonder about her family's perceptions of how Jenny and other family members reacted when her 3-year-old brother joined the family.

Her reported increased anger, noncompliance, and placing herself in dangerous situations seem to reflect difficulty regulating mood, impulses, and overall behavior. These behaviors may benefit from medical and behavioral interventions. Her preoccupations with certain colors, toys, and videos may reflect an anxiety disorder or obsessive compulsive disorder, the pervasive developmental delay spectrum, or a hyperfocusing and inability to shift attention. Her indiscriminate sociability, coupled with clinging to her mother, suggests an attachment difficulty, but this may reflect much more than attachment.⁸⁻¹⁰ Depending on results of further assessment, medication may be useful in addressing symptoms of impulsivity, mood, or anxiety.

I am not aware of studies that document the efficacy of interventions in a situation similar to Jenny's, but I would aim for a preschool program that provides significant structure and behavioral interventions coupled with a family component aimed at assisting her family in understanding why she does what she does and what to do about it. Family support groups such as Adoptive Families Together, Families of Russian and Ukrainian Adoptees, and Parent Network for the Post-Institutionalized Child provide significant support for families and let them know that they are not alone.

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‡ A bimonthly discussion of an upcoming Challenging Case takes place at the Developmental and Behavioral Pediatrics Web site. This Web site is sponsored by the Maternal and Child Health Bureau and the American Academy of Pediatrics section on Developmental and Behavioral Pediatrics. Henry L. Shapiro, MD, is the editor of the Web site. Martin Stein, MD, the Challenging Case editor, incorporates comments from the Web discussion into the published Challenging Case. To become part of the discussion at the Developmental and Behavioral Pediatrics home page, go to www.dbpeds.org.

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Paul P. Wang, MD

Children who are adopted internationally are known to have an elevated rate of developmental and behavioral concerns. The reason for this observation is multifactorial. Historically, the child care practices that were used in many international orphanages (especially in Romania while it was still under Communist rule) were severely neglectful. Even today, many orphanages in Romania and elsewhere remain primitive, understaffed, underfunded, otherwise underresourced, and hugely overburdened by the number of children left in their care. As a result, the children raised at these orphanages may suffer from a severe and pervasive neglect that extends across medical, social, and emotional realms.

Fortunately, recent years have seen quantum improvements in the care that some international orphanages are able to provide, and the children adopted from these orphanages often show fewer developmental-behavioral problems than their peers from years past. In some parts of the world such as Korea, the quality of orphanage care is relatively high, and children from these orphanages are typically well-nourished, fully immunized, and generally in good physical and psychologic health. Even when children are adopted from well-regarded orphanages, however, they have a higher prevalence of other risk factors for development and behavior than children who are not adopted. Unknown prenatal factors (eg, maternal nutrition, maternal illness, and toxic prenatal exposures) and unknown genetic family histories may be present and related to developmental-behavioral concerns that arise in childhood.

In this context, it is remarkable how well these children do. Although the media highlight the psychologic disabilities seen in this population, the systematic research shows that the large majority have developmental skills in the normal range by the time they reach preschool and that their behavior is within the “normal” range. Michael Rutter¹ and his colleagues have published the most comprehensive studies of children adopted from Romania, with longitudinal follow-up to 6 years of age. Their subjects, who were adopted to the United Kingdom from

Romania during the early 1990s, have shown impressive developmental resilience. At 4 and 6 years of age, the children who were adopted before 6 months of age showed developmental skills that were equal to those of a comparison group of children who were adopted domestically at birth (mean McCarthy general cognitive index [GCI] = 106 at age 4 years; 114 ± 18 at age 6 years, $n = 56$; vs 117 ± 18 in comparison group). They also did not show any elevation of behavioral pathology. Children who were adopted from Romania at age 6 to 24 months ($n = 59$) also showed good developmental skills: $GCI = 99 \pm 19$ at age 6 years, although the group mean was statistically lower than that for the comparison group. Among children adopted after age 2 years, the mean GCI was 90 ± 24 . Weight at time of adoption and Denver score at time of adoption were weaker predictors of outcome than age at time of adoption.¹

The rate of autistic symptomatology was approximately 16% in Rutter et al's cohort. Approximately 10% had a possible diagnosis of autism, and this was strongly associated with lower GCI scores and later age at adoption. The remainder had a quasi-autistic pattern, with circumscribed interests and indiscriminate friendliness (as opposed to lack of social interest). Again, the presence of symptoms was associated with age at adoption. In contrast with a comparison group of nonadopted children with autism, the children from Romania showed greater improvement of their autistic symptoms over time.

Rutter et al's investigations do not extend into the school years and are not fully comprehensive in their assessment of behavioral pathology. There have been innumerable anecdotal reports of cognitive and learning problems in the school years for children adopted internationally and of subtle but significant behavioral pathology. Nonetheless, it should be expected that children adopted from other countries will have even better outcomes than Rutter et al's subjects, given that his subjects were adopted from Romania at the nadir of that country's socioeconomic history. Thus, it is difficult to ascribe Jenny's developmental and behavioral problems solely to her adoption history. The mere fact of a child's adoption should not lead to a reflexive attribution of all developmental-behavioral concerns to the adoption history. Genetically based conditions, such as pervasive developmental delay, learning disabilities, and temperamental differences, will be found just as frequently, if not more so, in children who are adopted as in those who are not adopted.

Whether Jenny's symptoms constitute an autistic disorder or an attachment disorder is difficult to determine with certainty. Her early social detachment is actually opposite to the indiscriminate friendliness that Rutter et al describe most often in children adopted from neglectful orphanage situations. Thus, if it truly represents an autistic process, its cause is probably not solely related to her early orphanage experiences. RAD remains a poorly understood condition, the full range of symptoms of which are nonspecific and often difficult to assess. The role of innate vulnerability to both autism and RAD, in children generally and in Jenny specifically,

needs to be investigated, because 2 children who are faced with the same level of emotional neglect are likely to manifest different behavioral responses.

For Jenny, a comprehensive evaluation needs to be performed by a professional generally familiar with developmental-behavioral problems as well as with international adoption and its attendant issues. It is hoped that she already has undergone a comprehensive medical evaluation for children adopted internationally.² There is an unfortunate dearth of research on the best therapeutic interventions for children like Jenny.

For the vast majority of children who are adopted today, the prognosis is excellent. In cases in which the developmental-behavioral outcome is problematic, diagnostic consideration should be given to factors that are not related to the adoption history. Therapeutic choices can then be guided by the fullest possible understanding of the issues at hand.

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Dr Martin T. Stein

This case is a "teaching moment" for pediatric clinicians! It exemplifies how we can learn from each other as different perspectives converge and diverge. The participants in the discussion reveal how both the diagnosis and clinical management can be formulated in different ways.

RAD, pervasive developmental delay, oppositional defiant disorder, and ADHD each represent a cluster of specific and less-specific behaviors occurring over time and associated with impairments in social and interpersonal functions or educational achievement. The benefit of a behavior-based system of diagnosis such as the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, is that it guides clinicians in deciding on management strategies. Evidence-based medicine in developmental-behavioral pediatrics is based on selecting therapies that have been tested with children for a defined cluster of symptoms. An alternative approach is to list target behaviors in order of priority (ie, severity, parental concern, or available treatments) and then look for a treatment strategy that best fits each behavior. To an extent, each commentator used both systems of diagnosis in discovering a specific set of behaviors consistent with a diagnostic category to evaluate how Jenny's history is supported by the diagnosis and to select a therapy plan tailored to her diagnosis and to particular targeted behaviors.

Jenny developed regressive behaviors as she faced more complex developmental tasks. The behaviors

may have derived from either inadequate early attachments or a manifestation of an encephalopathic process unfolding in the form of pervasive developmental delay. Drs Berger and Albers raised important questions about prenatal influences (alcohol, other drugs, and toxins) or an underlying genetic disorder. Each of these potential biological causes may have impacted her individual response to early environmental deprivation to create Jenny's severe behavioral symptoms.

A contemporary understanding of Jenny's behaviors, and one that reflects the principles of the discipline of developmental-behavioral pediatrics, is to conceptualize a process of severe postnatal environmental deprivation (psychosocial and nutritional) early in life as it impacts a vulnerable brain. The source of a neurologic vulnerability may be from prenatal chemical exposures, maternal illness, severe stress, and depression during pregnancy¹ or perinatal hypoxic-ischemic encephalopathy. A genetic disorder may present in the same manner. This is the only way, it seems to me, to understand the variability of outcomes among children who experienced profound psychosocial deprivation during infancy. Dr Wang commented on and referenced recent studies demonstrating that "the systematic research shows that the large majority [of internationally adopted children] have developmental skills in the normal range by the time they reach preschool and that their behavior is within the 'normal' range." A recent publication in the *Journal of Developmental and Behavioral Pediatrics*² studied the persistence of atypical behavior patterns among children adopted from institutions in Romania. Rocking, self-injury, unusual sensory interests, and eating problems were less likely to occur if the child was adopted before 6 months of age. These behaviors were more likely to persist after 6 years of age when the adoption occurred after 6 months of age. Resilience was more likely when the amount of time in the institution was limited to less than 6 months.

Finally, this Challenging Case and the discussion support the value and necessity of input from a variety of disciplines including primary care pediatrics, an early intervention program, genetics, psychology, neurology, psychiatry, and occupational therapy. A child like Jenny needs the services of more than a single clinician. "It takes a village to raise a child" is an appropriate sounding board for a child like Jenny.

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