Occupational Therapy Intervention With an Adolescent With Brain Injury and Behavioral Disorders

Debora A. Davidson

Key Words: hydrocephalus • social behavior disorders • vision disorders • visual perception

CesE REponr

Occupational therapists working with children and adolescents with mental health problems are challenged to address multiple clinical issues with a holistic treatment approach. When behavioral disorders are compounded by neurological impairments, the occupational therapist's functions on a medical team become increasingly important. The following case report describes a young adolescent with a severe and complex symptom cluster that was addressed by a multifaceted occupational therapy approach. Treatment modalities included techniques based on sensory integration, perceptual-motor and behavior modification theories, and parent education. This case is especially interesting because of the patient's unique symptom patterns and because it offers a dramatic example of how occupational therapy can facilitate other aspects of therapeutic intervention in a multidisciplinary team model. Enough progress was made during this patient's 4-month inpatient stay to allow him to return to home and public school, rather than requiring residential placement in a care facility.

Case Description

Henry, at the time of this study, was an 11-year-old boy who, despite his age and stature (about 5 feet), appeared physically mature. His condition was diagnosed as congenital hydrocephalus, moderate mental retardation, visual impairment due to cortical dysfunction, and seizure disorder, which was controlled with Dilantin. His family was in acute distress when they brought Henry to the child psychiatry unit of the University of Texas Medical Branch at Galveston because in the past 6 months Henry had become sad and irritable and threw severe and unpredictable tantrums that often involved physical aggression. He had also begun to masturbate in public. These acute problems were in addition to chronically bizarre behaviors. Henry typically engaged in a steady stream of verbalizations that consisted of ongoing free associations and snatchings of memorized conversations mixed with intermittent lucid conversations. He demonstrated a variety of stereotypic motor behaviors, including body rocking and head shaking. Throughout the admission interview process, Henry continually rocked to and fro, repeating, "You guessed it. I'm goofy." Henry's parents reported at this interview that physicians from their rural town had recommended medicating Henry with antipsychotic or antidepressant drugs or even seeking a lobotomy or castration.

Medical History

Henry was the youngest of three children and the product of a term pregnancy characterized by mater-
nal toxemia, diabetes mellitus, and peptic ulcers. Labor and delivery were uncomplicated, and Henry's weight was within normal limits. He and his mother went home after a typical postpartum hospitalization. At 4 weeks of age, Henry developed a bulging anterior fontanel, which led to the diagnosis of hydrocephalus. A right-sided ventriculoperitoneal shunt was implanted. Repeated complications necessitated six shunt revisions within the 1st year. Meningitis at 8 months of age resulted in a seizure disorder and visual impairment (acuity was measured at 20/200 and 20/700). Further shunt revisions were made when Henry was 2 years old and again several months prior to the admission discussed in this case report. It was after the last revision that Henry's behavior became severely problematic.

Henry lived at home with his parents, who were in their 50s, and his teenage siblings. He attended a special education program in a public school for half days. His educational program addressed his visual impairment by teaching him compensatory methods, and Henry typically approached the environment as a blind person. He was often resistant and combative when asked to attempt unfamiliar tasks, and school personnel believed that he would soon require residential placement if his behavior remained uncontrollable.

Clinical Program

Henry was admitted to the 12-bed child psychiatry unit of the University of Texas Medical Branch at Galveston. The evaluation and treatment team consisted of a psychiatrist, psychiatric nurses and child care specialists, special educators, a social worker, a speech and language therapist, occupational therapists, and trainees from all of the disciplines listed. Henry remained in the hospital for 4 months.

Evaluation Findings

Early in Henry's stay, the social worker and I (the occupational therapist) interviewed his parents, who were concerned primarily with (a) physical aggression (which Henry usually aimed at his mother, resulting in bruising and bite marks), (b) inappropriate masturbation, (c) appropriate expectations for Henry at home and school, and (d) residential placement (when and where to seek it). Henry's home life was described as relatively unstructured. He did not have to perform any self-care or household tasks, and he spent his leisure time alone in his room listening to repetitive auditory toys or the radio.

While reviewing a sensorimotor history questionnaire with Henry's parents, I noticed that at some point Henry had switched from using his right hand to generally using his left hand, with subtle right-side neglect. This observation led the supervising psychiatrist to seek an immediate pediatric neurology referral, in which increased intracranial pressure was diagnosed and a shunt revision arranged. After recovering from this latest surgery, Henry returned to the psychiatry unit with a reduced incidence of tantrums and crying but with continued severe behavioral problems.

The occupational therapy assessment consisted of clinical observations in a variety of settings and the use of the Psychoeducational Profile (Schopler & Reichler, 1979), a structured tool designed for use with persons with pervasive developmental disorders and mental retardation. The Psychoeducational Profile measures developmental functions along seven parameters: imitation, perception, fine motor skills, gross motor skills, eye–hand integration, cognitive performance, and cognitive verbal abilities. Additionally, the profile allows the measurement of pathological behaviors in the areas of affect, language, sensory modes, play and interest in objects, and social relations. Henry's scores on the developmental parameters ranged from an age equivalency of almost 6 years in imitative skills to an age equivalency of 3 years in eye–hand integration. His pathological behavior scores indicated moderate to severe problems in all areas, with the most deficits in affect and social relations.

I observed Henry's daily living skills and foundational sensorimotor and social abilities. Problems identified included complete dependence or semi-dependence in feeding, dressing, toileting, bathing, and grooming. Henry isolated himself with auditory toys and resisted involvement in unit activities, although he often enjoyed brief social exchanges with peers and staff. When walking to and from school or therapy, Henry would approach familiar and unfamiliar people by exploring their faces and bodies with his hands while looking upward and saying, "Is that you?" With cuing, however, he could identify people visually or auditorily.

A sensorimotor assessment revealed that Henry demonstrated severe gravitational insecurity, walked with a wide-based gait, had rigid posture, was extremely fearful when required to shift his weight, and clutched at people and walls when in open environments. He was unable to jump and had low muscle tone. Due to his anxiety and combative ness, Henry's postural reflexes could not be assessed. Although he had developed mature grasp patterns, Henry's fine motor performance was impeded by poor finger differentiation and lack of established hand dominance. Severe tactile defensiveness on the palmar surfaces of his hand and impaired tactile localization contributed
to Henry's underdeveloped fine motor skills as well as to his reduced environmental exploration.

Although Henry's visual acuity was assessed as decreased, he was able to see well enough to match geometric shapes and colors, recognize people at close range, follow moving objects, and maneuver around obstacles. He typically neglected to use vision unless cued to do so. However, when he was highly emotionally aroused, such as during a conflict, he would rapidly ambulate around obstacles to strike the person at whom he was angry.

Henry's cognitive level, as measured by the hospital psychologist, was moderately to severely retarded. Much of his learning involved rote memorization, which was an area of strength, but he lacked the ability to apply and generalize information. Functionally, Henry demonstrated a 10-min attention span when working in a low-stimulus environment, but he could not concentrate with auditory distractions. He had poor spatial memory and, each day for many sessions, he needed to be oriented to the locations of various workstations. He frequently demonstrated difficulty with transitions from one activity, room, or staff person to another. He had a limited vocabulary with which to describe his feelings and typically engaged in aggressive tantrums when anxious. His psychiatric condition was diagnosed as atypical organic brain syndrome (American Psychiatric Association, 1981).

**Intervention**

Throughout his hospitalization, Henry received intensive intervention from special educators, psychiatric nurses, and the speech therapist as well as from the occupational therapists. His parents were involved in weekly therapy and family education sessions with the social worker and other team members. These intensive and well-integrated efforts allowed Henry to make significant gains in all of the areas addressed. The following description focuses primarily on the occupational therapy portions of his treatment.

Soon after readmission following the shunt revision, I treated Henry (sometimes aided by a co-therapist) using sensory integration techniques for 30 to 40 min, 5 days per week. Before the start of this part of the treatment, I consulted Henry's neurologist regarding precautions. The neurologist recommended the avoidance of inverted positions, which would increase intracranial pressure, but otherwise permitted unlimited activity.

A primary goal of treatment was to decrease gravitational insecurity and promote healthier vestibular processing, because this would improve skill and confidence in ambulating, enhance spatial/environmental awareness, and decrease anxiety. At first, Henry was terrified of the therapy room and all of its contents and would require coaxing even to approach the platform swing or rocking board. Such responses gave him many opportunities to identify and label the emotion of fear, and Henry quickly learned to say, "I'm scared," with subsequent social reward (e.g., expressions of comfort, offers to go more slowly). His aggression decreased as his meaningful verbalizations increased. After 6 weeks, Henry began to initiate play on the swings, scooter boards, and rocking platform. He would sometimes rapidly spin himself while prone, using smoothly coordinated hand-over-hand movements and laughing delightedly, or would bounce vigorously while straddling a tire swing. He was able to engage in goal-directed games and contests while on moving equipment as well. Along with changes in the clinic, Henry was able to tolerate stepping up on a scale to be weighed (previously a weekly battle), walk outdoors and on stairs with little or no fear, and handle minor falls functionally and with a sense of humor. Spontaneous ambulation around the unit and classroom likewise increased, resulting in more opportunities to engage in social and work activities.

The goals of improvements in fine motor skills and environmental exploration were addressed by a focus on increased tactile tolerance and localization. Henry was provided with opportunities and encouragement to handle vibrators, shaving cream, finger paints, rice, and other highly stimulating materials. His interest in these activities was variable, but his tolerance of them had improved notably. This improvement combined with opportunities to practice object manipulation in school and during self-care and unit chores resulted in functional fine motor skills for most tasks.

Henry was provided with visual processing practice through frequent cues to look at his work and surroundings and through the use of games involving moving or stationary targets. During daily activities, Henry was given errands that involved locating and retrieving or putting away objects. By discharge, Henry was able to visually recognize people from a distance of 15 ft and could consistently locate objects on the floor or table with minimal cuing.

Henry's lack of self-care skills was addressed through work with nurses and school personnel to develop behavior management programs to teach the skills of eating with utensils, dressing, and toileting. A repertoire of leisure activities was also taught in this manner. The behavior programs primarily involved the removal of potential distractions, the use of verbal cues and intermittent praise, and the provision of consistent routines throughout the day. By discharge,
Henry required minimal supervision for dressing and eating. He could use the toilet independently with occasional verbal reminders to flush and wash his hands. He began to occasionally request materials for leisure activities during unstructured time.

Henry's parents were able to make changes in their parenting style that were as dramatic and positive as Henry's improvements. They incorporated increased structuring and behavior management techniques and raised their expectations for self-care and communication to a more appropriate level. The result was Henry's discharge back to his home and to special education classes in public school. Today, 4½ years later, Henry remains an active member of his family and his community. ▲

References


Editor's Note. To continue the Case Report department, we need and welcome reports that document the practice of occupational therapy for specific clinical situations. Guidelines for writing case reports are available from the Editor.