CHAPTER 21

~~*Autistic Disorder*~~ Autism Spectrum Disorder

Sam Williams was the second child of John and Carol Williams. The couple had been married for 5 years when Sam was born; John was a lawyer and Carol a homemaker. Sam weighed 7 pounds, 11 ounces at birth, which had followed an uncomplicated, full-term pregnancy. Delivered by caesarean section, he came home after 6 days in the hospital.

His parents reported that Sam's early development seemed quite normal. He was not colicky, and he slept and ate well. During his first 2 years, there were no childhood illnesses except some mild colds. By Sam's second birthday, however, his parents began to have concerns. He had been somewhat slower than his older sister in achieving some developmental milestones (such as sitting up alone and crawling). Furthermore, his motor development seemed uneven. He would crawl normally for a few days and then not crawl at all for a while. Although he made babbling sounds, he had not developed any speech and did not even seem to understand anything his parents said to him. Simple requests, such as "Come" or "Do you want a cookie?" elicited no response.

Initially, his parents thought that Sam might be deaf. Later they vacillated between this belief and the idea that Sam was being stubborn. They reported many frustrating experiences in which they tried to force him to obey a command or say "Mama" or "Dada." Sometimes Sam would go into a tantrum during one of these situations, yelling, screaming, and throwing himself to the floor. That same year, their pediatrician told them that Sam might be mentally retarded.

As he neared his third birthday, Sam's parents noticed him engaging in more and more strange and puzzling behavior. Most obvious were his repetitive hand movements. Many times each day, he would suddenly flap his hands rapidly for several minutes (activities like this are called self-stimulatory behaviors). Other times he rolled his eyes around in their sockets. He still did not speak, but he made smacking sounds, and sometimes he would burst out laughing for no apparent reason. He was walking now and often walked on his toes. Sam had not been toilet trained, although his parents had tried.

Sam's social development was also worrying his parents. Although he would let them hug and touch him, he would not look at them and generally seemed indifferent to their attention. He also did not play at all with his older sister, seeming to prefer being left alone. Even his solitary play was strange. He did not engage in make-believe play with his toys—for example, pretending to drive a toy car into a gas station. Instead, he was more likely just to manipulate a toy, such as a car, holding it and repetitively spinning its wheels. The only thing that really seemed to interest him was a ceiling fan in the den. He was content to sit there for as long as permitted, watching intently as the fan spun around and around. He would often have temper tantrums when the fan was turned off.

At the age of 3, the family's pediatrician recommended a complete physical and neurological examination. Sam was found to be in good physical health, and the neurological examination revealed nothing remarkable. A psychiatric evaluation was performed several months later. Sam was brought to a treatment facility specializing in behavior disturbances of childhood and was observed for a day. During that time, the psychiatrist was able to see firsthand most of the behaviors that Sam's parents had described—hand flapping, toe walking, smacking sounds, and preference for being left alone. When the psychiatrist evaluated Sam, she observed that a loud slapping noise did not elicit a startle response as it does in most children. The only vocalization she could elicit that approximated speech was a repetitive "nah, nah." Sam did, however, obey some simple commands such as "Come" and "Go get a potato chip." She diagnosed Sam as having autistic disorder and recommended placement in a day-treatment setting.

Conceptualization and Treatment

Sam was 4 years old by the time there was an opening for him at the treatment center. He attended the special school 5 days a week, spending the remainder of his time at home with his parents and sister. The school provided a comprehensive educational program conducted by specially trained teachers. The program was organized mainly along operant conditioning principles. In addition, Sam's parents attended classes once a week to learn operant conditioning so they could continue the school program at home. The school's personnel conducted another evaluation of Sam, observing him in the school and later at home. Interviews with the parents established that they were both well adjusted and that their marriage was stable. Both parents were, however, experiencing considerable stress from having to cope with Sam on a day-to-day basis and from their fears that his condition might have been caused by something they had done.

One of the first targets of the training program was Sam's eye contact. When working with Sam, his teacher provided small food rewards when Sam spontaneously looked at him. The teacher also began requesting eye contact and again rewarded Sam when he complied. Along with this training, the teacher worked on having Sam obey other simple commands. The teacher would wait for a time

when Sam seemed attentive and would then, establishing eye contact, say the command and model the desired behavior by demonstrating it. For example, the teacher would say, "Sam, stretch your arms up like this," lifting Sam's arms up and rewarding him with praise and a small amount of food, such as a grape. This procedure was repeated several times. When Sam began to become more skilled at following the command, the teacher stopped raising Sam's arms for him and had him do it himself. These training trials were conducted daily. As Sam's response to a particular command became well established, the teacher would expand his learning to following commands in other situations and by other people. Sam's progress was slow. It often took weeks of training to establish his response to a simple command. After his first year in the school, he responded reliably to several simple requests such as "Come," "Give it to me," and "Put on your coat." At the same time that Sam was learning to respond to commands, other aspects of the training program were also being implemented. While Sam was in the classroom, his teacher worked with him on trying to develop skills that would be important in learning, for example, sitting in his seat, maintaining eye contact, and listening and working for longer periods of time. His teacher used the same reward strategy to teach Sam each activity.

As these skills became better established, the teacher also began working on expanding Sam's vocabulary by teaching him the words for pictures of common objects. A picture of one object, such as an orange, was placed on a table in front of Sam. After Sam had looked at the object, the teacher said, "This is an orange. Point to the orange." When Sam pointed to the orange, he was rewarded. If necessary, the teacher would move his hand for him at first. Next another picture, such as a cat, was selected and the same procedure followed. Then the two pictures were placed in front of Sam and the teacher asked him to point to one of them: "Point to the orange." If Sam pointed correctly, he was rewarded. If he did not, the teacher moved his hand to the correct object. After Sam had correctly pointed to the orange several times in a row, the teacher asked him to point to the cat. With that response established, the teacher switched the position of the pictures and repeated the process. When Sam had begun to point correctly to the orange and the cat, a third picture was introduced and the training procedure was started anew. During 1 year of training, Sam learned the names of 38 common objects with this procedure.

Sam's speech therapist, whom he saw daily, was also working with him on language skills. Initially, they worked on getting Sam to imitate simple sounds. Sitting across a table from Sam and waiting until Sam was looking (or prompting him to look by holding a piece of food near his mouth), the teacher would say, "Say this, ah," taking care to accentuate the movements required for this sound. At first, Sam was rewarded for making any sound. Subsequently, rewards were given when Sam approximated more and more closely the required sound. As sounds were mastered, Sam was trained to say simple words in a similar fashion. Over the course of a year, Sam learned a few words—"bye-bye," "no more," and "mine," but overall, his verbal imitation remained poor.

Teaching Sam to dress and undress himself was another target during the first year. Initially, his teacher helped him through the entire sequence, describing each step as they did it. Next, they would go through the sequence again, but now Sam had to do the last step himself (taking off his shoes, putting on his shoes). More difficult steps (tying shoes) were worked on individually to give Sam more practice on them. When some progress was being made, this aspect of the treatment was carried out by the parents. They first observed the teacher working with Sam and then discussed the procedure and were shown how to make a chart to record Sam's progress. Over a period of weeks, the number of steps that Sam had to complete by himself was gradually increased, moving from the last toward the first. Sam was rewarded each time he dressed or undressed, usually with a special treat, such as a favorite breakfast food. In this case, the training was successful. By midyear, Sam had mastered dressing and undressing.

Toilet training was another area that Sam's parents and teachers tackled. At home and at school, Sam was rewarded for using the toilet. He was checked every hour to see if his pants were dry. If they were, he was praised and reminded that when he went to the toilet he would get a reward. Shortly thereafter, Sam would be taken to the toilet, where he would remove his pants and sit. If he urinated or defecated, he was given a large reward. If not, he was given a small reward just for sitting. As this training was progressing, Sam was also taught to associate the word "potty" with going to the toilet. Progress was slow at first, and there were many "accidents," which both teachers and parents were instructed to ignore. But Sam soon caught on and began urinating or defecating more and more often when he was taken to the bathroom. Then the parents and teachers began working on having him tell them when he had to go. When they checked to see if his pants were dry, they would tell him to say "potty" when he had to go to the toilet. Although there were many ups and downs in Sam's progress, by the end of the year, he was having an average of fewer than two accidents per week.

Sam's temper tantrums slowed his progress during his first year in the special school. They occurred sometimes when he was given a command or when a teacher interrupted something he was doing. Not getting a reward during a training session also led to tantrums. Sam would scream loudly, throw himself to the ground, and flail away with his arms and legs. Several interventions were tried. Sam's tantrums usually led to getting his own way, particularly at home. For example, a tantrum had often resulted in getting his parents to keep the ceiling fan on, even when they wanted to turn it off. Ignoring the tantrum was the first approach. Sam's teachers and parents simply let the tantrum play itself out, acting as if it had not happened. This did not reduce the number of tantrums, so "time-out" was tried. Every time a tantrum started, Sam was picked up, carried to a special room, and left there for 10 minutes or until the screaming stopped. This procedure also failed to have much of an effect on the tantrums and screaming, even with several modifications such as lengthening the time-out period.

During Sam's second year of treatment, many of the first year's programs were continued. Sam, now 6 years old, was responding to more commands, and his ability to recognize and point to simple objects increased. In speech therapy, he learned to imitate more sounds and some new words ("hello," "cookie," and "book"), but his progress was slow and uneven. He would seem to master some sound or word and then somehow lose it. He was still dressing and undressing himself and using the toilet reliably.

Feeding skills were one of the first targets for the second-year program. Although his parents had tried to get him to use a knife, fork, and spoon, Sam resisted and ate with his fingers or by licking the food from his plate. Drinking from a cup was also a problem. He still used a baby cup with only a small opening at the top. The feeding skills program was implemented by both Sam's teachers and parents and involved a combination of modeling and operant conditioning. Training sessions conducted at mealtime first involved getting Sam to use a spoon. Sam was shown how to hold the spoon; then the teacher picked up the spoon, saying, "Watch me. You push the spoon in like this and then lift it up to your mouth." Sam did not initially imitate, so the teacher had to guide him through the necessary steps: moving his hand and spoon to pick up food, raising his arm until the spoon was at his mouth, telling him to open his mouth, and guiding the spoon in. Praise was provided as each step in the chain was completed. After many repetitions, he was required to do the last step by himself. Gradually, more and more of the steps were done by Sam himself. Successes were followed by praise and failures by saying "no" or removing his meal for a short time. When eating with a spoon was well established, the training was expanded to using a fork and drinking from a cup. In several months, Sam was eating and drinking well.

Sam's failure to play with other children was also a major focus during the second year. The first step was to get him to play near other children. Most of his playtime was spent alone, even when other children were in the playroom with him. His teacher watched Sam carefully and rewarded him with small bits of food whenever he was near another child with autistic disorder. A procedure was also used to force Sam to interact with another child. Sam and another child would be seated next to each other and given the task of stacking some blocks. Each child was, in turn, given a block and prompted to place it on the stack. In addition to praising them individually as they stacked each block, both children were rewarded with praise and food when they had completed their block tower. After repeating this process several times, the program was expanded to include the cooperative completion of simple puzzles. "Sam, put the dog in here. Okay now, Hannah, put the cat here." Gradually the prompts were faded out, and the children were simply rewarded for their cooperative play. Although this aspect of therapy progressed well, transferring these skills to the natural play environment proved difficult. Attempts were made to have Sam and another child play together with toys such as a farm set or a small train. The teacher encouraged them to move the objects around, talking to them about what they were doing

and rewarding them for following simple commands. Although Sam would usually follow these commands, his play remained solitary, with little eye contact or cooperation with the other child.

Sam's self-stimulatory behavior was a final target of the second year. Sam's hand flapping and eye rolling had already decreased somewhat over the past year, perhaps because more of his day was being filled with constructive activities. Now a specific intervention, to be used by Sam's teachers and his parents, was planned. Whenever Sam began hand flapping, he was stopped and told to hold his hands still, except when told to move them, for 5 minutes. During the 5-minute period, he was told to hold his hands in several different positions for periods of 30 seconds. If he did not follow the command, the teacher or parent moved his hands into the desired position; if he did not maintain the position for 30 seconds, the teacher or parent held his hands still. Food rewards were provided for successful completion of each 30-second period. Gradually, the teachers and parents were able to get Sam to comply without moving his hands for him or holding him. Then they turned to the eye rolling and implemented a similar program, having Sam fix his gaze on certain objects around his environment whenever he began to roll his eyes. Over a period of several months of training, Sam's self-stimulatory behavior decreased by about 50%.

At the beginning of his third year in school, Sam, now 7 years old, was given an intelligence test and achieved an IQ of 30, a score reflecting severe mental retardation. The language and speech training continued, as did the attempts to reduce the frequency of his self-stimulatory behavior. His tantrums, which had not responded to previous interventions, were becoming worse. In addition to screaming and throwing himself on the floor, he now became violent at times. On several occasions, he had either punched, bitten, or kicked his sister. His parents reported that during these tantrums he became so out of control that they feared he might seriously injure someone. Similar episodes occurred in school, usually when an ongoing activity was interrupted or he failed at some task.

Trouble had also emerged on the school bus. All children were required to wear seat belts, but Sam would not do so and was often out of his seat. Twice in one week, the bus driver stopped the bus and tried to get Sam buckled back into his seat. He bit the bus driver once the first time and twice the second. The bus company acted quickly and suspended service for Sam. In an initial attempt to resolve the problem, Sam was put on haloperidol (Haldol), a drug widely used in the treatment of schizophrenia in adults. But after a month of the drug and no apparent effect, it was stopped. In the meantime, Sam's mother had to drive him to and from school. He was beginning to miss days or be late when his mother had schedule conflicts.

The seriousness of the tantrum problem and the fact that other treatments had not worked led to the implementation of a punishment system. Because Sam's tantrums and violent outbursts were almost always preceded by loud screaming, it was decided to try to break up the usual behavior sequence and punish the screaming. Whenever Sam began to scream, a mixture of water

and Tabasco sauce was squirted into his mouth. The effect of this procedure, which was used by both his teachers and parents, was dramatic. The first day of the treatment, Sam began screaming and was squirted six times. His response to the Tabasco mixture was one of shock and some crying, which stopped quickly after he was allowed to rinse out his mouth. The next day, he was squirted with the Tabasco twice. The third and fourth days, he did not scream at all. The fifth day, he had one screaming episode; thereafter, he neither screamed nor had a severe temper tantrum again for the rest of the year.

Sam's progress in other areas was not so dramatic. His vocabulary slowly expanded, as he learned to say more words and recognize more and more objects. But his performance was highly variable from day to day. His self-stimulatory behavior continued, although at a level below that which had been present earlier. He remained isolated, preferring to be alone rather than with other children.

Discussion

Autistic disorder was first described in 1943 by a Harvard psychiatrist, Leo Kanner, who noticed a group of disturbed children that behaved differently than children with mental retardation or with schizophrenia. He named the syndrome early infantile autism because they had an extreme autistic aloneness that shut out anything from the outside. Kanner considered autistic aloneness the most fundamental symptom, but he also found that these children had been unable from the beginning of life to relate to other people, were severely limited in language, and had an obsessive desire that everything about them remain exactly the same. Despite its early description by Kanner and others, the disorder was not accepted into official diagnostic nomenclature until the publication of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III*) in 1980 (APA). In *DSM-IV-TR* (APA, 2000) *autistic disorder* is classified as one of the pervasive developmental disorders.

A major feature of autistic disorder is abnormality in social development (Volkmar, Chawarska, & Klin, 2005). Children with autistic disorder have a lack of interest in or difficulty relating to people, which is found from the very beginning of life. Infants with autistic disorder are often reported to be "good babies" because they do not place any demands on their parents. They do not fret or demand attention, but nor do they reach out or smile or look at their mothers when being fed. When they are picked up or cuddled, they often arch their bodies away from their caretakers instead of molding themselves against the adult as many other babies do. They are content to sit quietly in their playpens for hours, never paying attention to other people. After infancy, they do not form typical attachments with people but may become extremely attached to mechanical objects such as refrigerators or vacuum cleaners. Normally, developing infants show an ability to pay attention to movements by people as early as the second