

Ani's Story: A Case Study in Late Improvement in Neurologic Function After Hyperbaric Oxygenation Therapy

Carol L. Henricks, M.D.

This is intended as an anecdotal case study. Much of Ani's medical therapy was outside the realm of traditional medicine, and was driven by her mother's desire to support her development.

Birth History

Ani (not her real name) was born in 1991. At 3 weeks after her due date, her mother noticed the baby had stopped moving. As she lived in a remote, rural area, she had a long trip to the hospital. When she arrived, an emergent Caesarian section was done. There was no amniotic fluid, and Ani was meconium-stained. Her APGAR scores were reportedly less than 5, and she required resuscitation.

While Ani's facial features appeared normal, she had a tiny cranial vault with overlapping sutures. It is likely that her microcephaly was the result of an undetected infection that occurred during the third trimester, resulting in an arrest of cortical development.

In the newborn nursery, her endotracheal tube was discovered to be in her esophagus. She had a prolonged seizure and was then started on phenobarbital. Her mother was told that Ani would remain in a persistent vegetative state.

Developmental Course

Soon after Ani was discharged from the hospital, her mother aggressively pursued "Touch for Health" massage and manipulation therapy. Subsequently Ani received intensive physical therapy, speech therapy, and adjunctive treatments.

At age 19 months, Ani was babbling and spoke a few words. Spanish was her first language. She took her first steps unassisted, but on that same day she had a high fever and was diagnosed with strep throat. After this, she regressed and began to have intermittent partial and generalized seizures, for which she was treated with anticonvulsants. She didn't babble, talk, or walk again until age 3.

At age 5, Ani spoke her first sentence. Her mother took her to a kindergarten class with "normal" children, and she has had regular interaction with her age mates throughout her development. At age 7, computed tomography reportedly showed diffuse cortical atrophy. She began to learn English at age 8, was toilet-trained at age 9, and slept alone in bed at age 10. When she was 12 years old, she helped out in a supervised nursery with toddlers. Between the ages of 13 and 14, she began to understand cause-and-effect relationships.

Ani received many adjunctive therapies. Her mother, who is an art therapist for children with developmental disabilities, worked with her daily and continued to advocate for her to receive the best level of care.



Figure 1. Sample of Ani's Coloring Book before HBOT



Figure 2. Ani's Coloring after 1 Week of HBOT



Figure 3. Ani's Coloring at 3 Weeks of HBOT

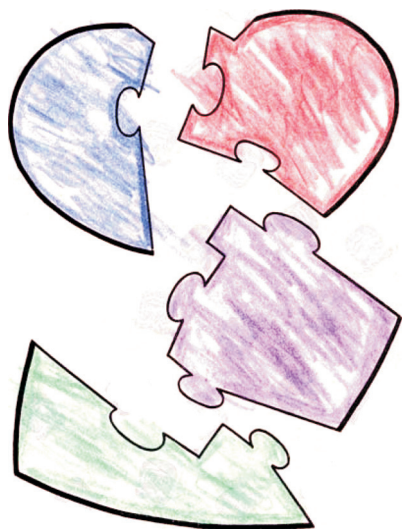


Figure 4. Ani's Coloring at 5 Weeks of HBOT



Figure 5. Ani's Coloring after 6 Months of HBOT

Hyperbaric Oxygenation Therapy (HBOT)

Ani's mother sought hyperbaric oxygenation therapy (HBOT) for her at age 17, in the hope of improving Ani's dysarthria. She was treated in a multi-place chamber pressurized with air to a pressure of 1.5 atmospheres absolute (ATA), while breathing 100 percent oxygen by mask. She received one treatment daily five days per week at 1.5 atmospheres. She received an initial 20 treatments, took a 1-week break, and then had another 20 treatments. After that she was treated two to three times per week for a total of 83 treatments over the next 4 months.

Ani loved her coloring books, and took them and crayons with her everywhere. She has stacks of them, all colored in the same way: apparently random scribbles in various colors all over the page (Figure 1). After 1 week of HBOT, the streaks of color became parallel and concentrated in areas mostly within the boundaries of a picture (Figure 2). After 3 weeks of HBOT, she colored a picture for the very first time (Figure 3). She colored both Eeyore's body and his separated tail in blue. Winnie the Pooh's head and arms were colored yellow, his shirt red, a tree trunk purple, and the rest of the vegetation green. After 5 weeks of HBOT, she recognized borders and tried to outline the borders and color within the lines (Figure 4).

After 6 months, her coloring abilities were stable, and she has not regressed (Figure 5). She is able to color mostly within the lines in small areas. This series of coloring book pictures is a powerful visual demonstration of progressive healing. Color images are available online at www.jpands.org.

Many other improvements were observed. She speaks more clearly and can be understood by outsiders. She can "dance" now; before she was too rigid and mechanical. She sees more detail at a distance.

She has made great strides in self-help. She now attempts all self-care instead of waiting for her mother to take care of her. She just started brushing her own hair. She manages her own period, and she takes care of her clothing.

Academically, she is progressing through "reading readiness," and there is hope that she will learn to read. She is able to identify letters and numbers, and can "connect the dots." Her computer skills are continuing to improve.

In general, Ani takes initiative to explore her environment and learn to do things. She "thinks ahead" and plans things.

The Recoverable Brain

During her early life, Ani experienced multiple mechanisms of brain injury. She suffered intrauterine arrest of brain development; pre-birth trauma with loss of amniotic fluid, which may lead to infection; fetal distress evidenced by meconium staining; at least two distinct episodes of hypoxia at birth and in the nursery; and a streptococcal infection leading to regression at age 18 months. Despite the long delay before receiving HBOT at age 17, Ani has made remarkable improvements.

Carol L. Henricks, M.D., practices neurology in Tucson, Ariz. Contact: clhmaxwell@aol.com.