PROBABLE INFLAMMATORY BOWEL DISEASE IN A CHILD: ASSESSMENT AND CONSERVATIVE MANAGEMENT

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ABSTRACT

Objective: This case presentation describes a method of evaluation and a conservative management plan for a child with probable inflammatory bowel disease (Crohn's Disease). Possible causes for this clinical presentation and a brief review of the literature are offered.

Clinical Features: A 9-year-old female had a history of headaches, stomach ache, foul-smelling soft stools, canker and cold sores, dry skin, stuffy nose with postnasal drip, difficulty concentrating in school, mood swings and growing pains with leg cramps. She also had a trace of fecal blood. A Urine Organix Profile and the Food Antibody Assessment was ordered demonstrating metabolic changes and food sensitivities.

Intervention and Outcome: In this case, following a clinical laboratory assessment, treatment was initiated using nutrients and dietary changes. Fourteen months after consultation, the patient was symptom-free and her final laboratory assessment was essentially negative. She learned to work with her diet and the consequences resulting from breaking it.

Conclusions: There is the need for a conservative approach to evaluation and treatment of inflammatory bowel disease before considering other more aggressive and potentially hazardous approaches. The patient's signs and symptoms responded to a unique method of evaluation and conservative management when other approaches had failed. (*J Chiropr Med* 2003;2:157-162)

KEY INDEXING TERMS: Inflammatory Bowel Disease; Chiropractic; Crohn's Disease; Nutrition

INTRODUCTION

Inflammatory Bowel Diseases, including ulcerative colitis and Crohn's disease, are considered chronic gastroin-

testinal inflammatory diseases of no known etiology. (1) Inflammatory bowel disease occurs at a rate of approximately 5 per 100,000 people (2). In recent years, this disorder has attracted much publicity, and many believe that the incidence has increased substantially (3).

Crohn's disease is a non-specific chronic transmural inflammatory disease that most commonly affects the distal ileum and colon but may occur in any part of the GI tract. (4) Furthermore, Crohn's disease is an inflammatory process with unknown etiology that may be associated with an environmental trigger, altered immune response, an autoimmune disordered response, dietary or food-related responses, genetic predisposition or, bacterial, parasitic, fungal or viral infection. The clinical presentation may include diarrhea and abdominal pain, weight loss, iron deficiency, arthritic-like symptoms, eating disorders, mouth sores and nutritional malabsorption or deficiency. (4-7) The term *Inflammatory Bowel Disease* (IBD), includes both Crohn's disease and ulcerative colitis that are categorized as idiopathic inflammatory bowel disease. (5) Crohn's is currently classified as a macroscopic disease. Some of the old terms that described Crohn's included *Terminal Ileitis*, *Granulomatosis* or *Regional Enteritis*.

Dr. Crohn originally described the disorder in 1932. Since 1950, the incidence of Crohn's disease has dramatically increased. The incidence now is 5 to 15 cases per 100,000 people, with the initial onset between the second and fourth decades. (5,8) The disease can effect areas of the digestive system anywhere from the mouth to the anus, but the primary area is the distal small intestine. When present the disease affects some portions of the intestinal tract, while adjacent areas are unaffected; thus, the name regional enteritis and "skip areas." The areas of disease typically demonstrate a transmural inflammation into the submucosal areas or through the serosa into adjacent structures. Macroscopic changes revealed on endoscopy include a thickening of the mucosal wall, mucosal fissures, fistulas, fibrotic changes, and inflammatory and fibrotic masses that can cause narrowing or blockage of the bowel lumen. The cobblestone appearance is a result of fissures or ulcers transecting areas of normal and edema-

tous tissue. Histological changes associated with Crohn's typically involve and revolve around the ulcerations both microscopic and macroscopic. (4,5)

CASE REPORT

A 9-year-old female first visited our chiropractic clinic for complaints of bilateral headaches in the temporal region. She stated that this had been going on for about 1 1/2 years. There was no particular incident that initiated the headaches. She had a history of bruxism and had clicking in the temporomandibular joints. There was no history of trauma to the head and neck area. There was a history of ear infections as an infant, multiple bouts with dry skin lesion, and genital yeast infections. She also had a history of pinworms in the intestinal tract.

She was a well-proportioned 9-year-old female with sharp mental status. Evaluation of her posture revealed a decrease in the thoracic kyphosis, her left shoulder was elevated and there was a right rotation of the upper trunk. The lumbar range of motion was within normal limits, but the cervical range motion was decreased in right lateral flexion, with pulling into the left trapezius muscle. The neurological evaluation was normal, and provocative orthopedic tests were performed without pain. The chiropractic examination revealed restrictions between T6-T8 and between C4-C5 with bilateral hypertonic paraspinal muscles in the cervical and thoracic regions. X-rays confirmed the postural changes and revealed hyperplastic transverse processes of C7. The diagnosis made by the chiropractor was cervicogenic-type headaches as a result of a possible rotator cuff syndrome associated with cervical and thoracic intersegmental dysfunction with myofascitis.

Treatment for the first month consisted of high-velocity, low-amplitude chiropractic adjustments based on motion and static palpation to the following segments or areas: occiput, C1, C6, C7, T1, T4, T6-9 and L5 to manage the posture alterations that had been noted. Soft tissue massage and trigger point therapy was applied to the involved cervical muscles and upper thoracic musculature. The short-term goals were to reduce the duration and severity of the headaches and long-term goals to correct postural imbalances and to stabilize the upper thoracic and cervical area.

After 1 month of treatment, she was showing overall postural improvement but there was no significant change in the frequency or intensity of her headaches. Additional information was obtained from her mother including that she suffered with regular stomach aches,

cold sores, canker sores and foul smelling stools. She was referred to a chiropractic internist for a more in-depth systemic and functional assessment.

During the history and assessment, by the internist, she was found to have a history of stomach aches; her stomach was easily upset and would have crampy-like pains predominantly in the lower right quadrant. Her bowel movements tended to have a foul odor and be loose or very soft regularly. It was also reported she had consistent problems with multiple canker sores and cold sores, dry skin, headaches, stuffy nose with postnasal drip, difficulty concentrating in school, mood swings and growing pains with leg cramps. Previous treatment included medical prescriptions for yeast infections and pinworms.

Vital signs were: height 55", weight 75 pounds, blood pressure 110/65, temperature 98.4, pulse rate 80 BPM, respiration 16 BPM. Auscultation of heart and lungs revealed no abnormalities. Dry, scaly skin was present in the ear canal. The nasal mucosa was red and inflamed with copious amounts of mucus. The thyroid was normal to palpation with no nodules or bumps. Evaluation of the mouth revealed 3 canker sores and a cold sore on the outer lower left lip. Her skin was slightly pale, and there were white spots on the fingernails. There were patches of dry skin on the back of her arms, lower legs and her abdomen. Auscultation of the abdominal cavity revealed normal bowel sounds. Palpation of the abdominal cavity revealed mild tenderness over the small intestine and in the right lower quadrant. Palpation also revealed an enlargement of the small intestine proximal to the ileocecal valve. There was no lymphadenopathy present in the cervical, axillary or inguinal areas. Pulses were normal and symmetric in the upper and lower extremity. Reflexes were normal and symmetric in the extremities. Hemocult evaluation was obtained and revealed a trace of blood in her feces.

A Urine OrganiX Profile was ordered from Meta Matrix and the Food Antibody Assessment was ordered from Great Smokies Lab. The OrganiX Profile measures organic acids derived from the metabolic pathways of the breakdown of fats, carbohydrates and proteins that generate energy and provide building blocks for the cells.

The Urine Organix Profile indicated:

1. Of the Fatty Acid Metabolism indicators an elevated level of Adipate indicates suboptimal fatty acid oxidation (9);
2. The Carbohydrate Metabolism indicators were within normal limits;

3. Of the 8 indicators tested of the Citric Acid Cycle Elevated Citrate and Isocitrate can indicate mitochondrial inefficiencies leading to fatigue and weakness (9);
4. Of the 5 B- Complex Vitamin Markers 2 were elevated, a-Ketoisocaproate and methylmalonate which indicate suboptimal levels of B1, B2, B3, B5, Lipoic Acid and B12 (9);
5. Of the 3 Neurotransmitter Metabolism Markers, Vanilmandelate was below normal levels indicating decreased catabolism of the catecholamines and a need for tyrosine (9);
6. The Detoxication Indicators were within normal limits;
7. Of the 12 Intestinal Dysbiosis Markers Benzoate was elevated indicating an imbalance of intestinal flora and may indicate deficiencies of glycine and pantothenic acid in the liver (9).

A Food Antibody Assessment tests 96 foods for IgE and IgG antibody reactions identifying immediate and delayed immune reactions. The Food Antibody Assessment indicated the following:

1. There were no IgE reactive foods
2. In the Fruit category: blueberry, cranberry, grapefruit, lemon, orange, and peach were reactive.
3. In the Fish/Shellfish category, red snapper, sole and trout were reactive.
4. In the Poultry/Meats category, egg white, egg yolk and turkey were reactive.
5. In the Vegetables category, alfalfa, beet, cabbage, green pepper, olive, pea, sweet potato, spinach, string bean, tomato and zucchini were reactive.
6. In the Nuts and Grains category, almond, gluten, kidney bean, lentil, oat, peanut, rye, sesame, soy, walnut and wheat were reactive.
7. In the Miscellaneous category, cane sugar, chocolate and coffee were reactive.

Treatment was initiated using nutrients and dietary changes. Due to the lifestyle and activities of the family, they elected to start with a modified diet that included the removal of wheat and gluten containing products, eggs, soy, peanuts and all dairy products. All other reactive fruits and vegetables were to be rotated on a 4-day cycle. To aid the nutritional deficiencies noted on the Urinary Organix Profile and to support the digestive system, the following nutrients were prescribed:

- Lactoacidophilus and Lactobacillus - 3 capsules morning and evening
- digestive enzymes - 3 capsules per meal
- B-complex - 1 capsules per meal

- EPA and DHA - 1 pearl per meal
- Medical food protein powder to act as a multivitamin and mineral for breakfast.

The patient was followed over the next 5 months until a follow-up Organix Profile was performed. The subjective and physical responses seen were as follows:

1. All canker sores and cold sores were healed and she reported only 1 additional canker sore.
2. Her grades in school improved and her ability to concentrate improved also.
3. Her mood swings stabilized and she was much happier.
4. She no longer complained of headaches.
5. The palpable mass in the lower right quadrant was no longer palpable and the hemeoccult tests were negative.
6. Her skin was no longer dry.

During this time, the patient and her family learned how to use rotation diets and found that certain foods needed to be eliminated for a longer term. The primarily offending agents were dairy and gluten containing grains. They did find, however, that if she abstained from dairy and wheat for 2 to 3 weeks she could handle a party with her friends when they had pizza, juice and cake. She would have mild stomach upset and cramps, diarrhea, increased mood swings, and fuzzy thinking with fatigue. However, these symptoms would resolve after 3 or 4 days. She felt the discomfort was worth being able to have a party with her friends periodically.

A follow-up Urine Organix Profile ordered 5 months later indicated that there was a significant improvement in her metabolism. The results were as follows:

1. Fatty Acid Metabolism indicators were within normal limits.
2. Carbohydrate Metabolism indicators were within normal limits.
3. Citric Acid Cycle indicators were within normal limits.
4. B-Complex Vitamin Markers – a-Keto-B-Methylvalerate was still elevated indicating a continued need for B- Complex vitamins and Lipoic Acid. (9)
5. Neurotransmitter Metabolism Markers were within normal limits.
6. Detoxification Indicators showed p-Hydroxyphenyl-lacetate elevated which indicates a suboptimal level of Vitamin C. In addition, the Sulfate/Creatinine Ratio was below normal levels indicating a low reserves of sulfur containing compounds particularly glutathione. (9)

7. Intestinal Dysbiosis Markers – Benzoate was within normal limits now but Dihydroxyphenylpropionate was elevated, which is associated with Clostridial overgrowth and Citrimale was elevated, which is associated with yeast over growth. (9)

The treatment plan remained the same with the addition of *Sacromysis Bordellie* to eradicate the yeast overgrowth, Berberine to eradicate the *Clostridium*, Alpha Lipoic Acid to support the detox system of the liver and increase Vitamin C levels. Nicki's mother elected to start rotating in food challenges to determine Nicki's reactive foods. She was instructed to do a challenge with 1 food at a time every 4 days. The Coca Pulse test (10) was described to her as a means of identifying food sensitivities. Immunologist Dr. Arthur Coca discovered that when people eat foods they are allergic to or sensitive to, there can be a dramatic increase in the heartbeat of 20 or more beats above normal. (10) The resting pulse rate is taken at rest before eating (normal pulse is 50 to 70 beats per minute). The pulse is then taken after eating a suspect food and again 15 minutes later. If the pulse rate increased more than 10 beats per minute, there is a probable allergy or sensitivity to the food.

Nicki was seen infrequently over the next 9 months. During that time, they were able to identify the particular foods that Nicki had to stay away from permanently. These included the gluten containing grains and dairy products. All the other foods that had been positive were challenged and proved to be nonirritating to Nicki's intestinal tract. During this time, she remained symptom free except for mild responses after indulging in wheat and dairy.

After 9 months, a final Organic Acid Profile from The Great Plains Laboratory was ordered. This test revealed the eradication of the yeast and bacteria and all indicators were within normal limits with the exception of an elevated Ascorbic Acid, which also caused a mild elevation of Citric acid, all other Citric Acid cycle indicators were well within normal limits.

At the last appointment, 14 months after consultation, the final Organic Acid Profile was discussed and the patient was symptom-free. In the previous 2 months, she had 1 cold sore and a mild rash around her nose, no headaches or stomach pain. She has learned to work with her diet and consequences resulting from breaking it. She will continue taking 4 supplements: a multivitamin and mineral, an antioxidant that contains the Alpha Lipoic acid, digestive enzymes, and fish oil pearls.

DISCUSSION

The diagnosis of this disease is based on the cumulative information acquired from a history, laboratory assessment, radiographic studies, and by ruling out other differential diagnosis. The typical history of Crohn's Disease includes abdominal pain and diarrhea, anemia, fatigue and fever. Laboratory findings may include an elevated ESR, C-reactive protein, alkaline phosphatase and GGT, anemia, leukocytosis, hypoalbuminemia and fecal blood. X-ray studies may reveal irregularities of the intestinal tract, inflamed areas and the "skip areas." Barium studies may reveal areas of narrowing, reflux into the small intestine through the ileocecal valve or irregularities of the intestinal tract. However, there is no single laboratory test, endoscopic finding, radiographic finding or historical information that are pathognomonic for Crohn's disease. The diagnosis many times is made by ruling out ulcerative colitis, ulcers, bacterial, fungal or parasitic infections, pelvic inflammatory disease, ectopic pregnancies, ovarian cysts or tumors. (4,5)

The chief priority for the management of both Crohn's disease and ulcerative colitis in children at the present time is to induce and to maintain a remission of disease activity, in order to ensure that normal growth and development occur. (11) Walker-Smith (11) delineates a sequence of therapy that starts with enteral nutrition, which is an elemental nutrient-based diet (solutions that contain sugars, amino acids and medium chain fats). The second step is the use of medications beginning with salicylate compounds for their anti-inflammatory effects. In more severe cases, steroid therapy is used to reduce the inflammatory response. However, the physician must be concerned with the growth suppressing effect of the steroids in children. Immunosuppressive drugs are used for their steroid sparing effect. These medications act by reducing the immune system's response and are used primarily in severe cases. The last option is surgery for removal of sections of the small intestine that have been blocked or obstructed. Surgery should also be considered when enteral nutrition fails and there is evidence of impaired growth and development. (5,11)

The treatment of Crohn's disease in children is still being debated in medical circles. There has been a significant amount of information regarding dietary therapies for Crohn's disease. Heuschkel et al (12) concluded that dietary therapy is as effective as corticosteroid therapy. In fact they emphasized that, "In view of the benefits of dietary therapy on growth, development, and probably the gut mucosa, an enteral diet should be recommended as a first line therapy in all children with

active Crohn's disease." (12) The effects of elemental diets have been discussed and reviewed in a number of different articles and have been shown to be an effective early treatment for Crohn's disease in children, thus avoiding the known side effects and adverse effects of corticosteroids. (13,14) Malnutrition contributes substantially to the severity and morbidity of inflammatory bowel disease in children. (15,16) Many patients with the inflammatory bowel diseases, Crohn's disease, or ulcerative colitis have significant protein-calorie malnutrition and micronutrient deficiencies. Factors that contribute to these nutritional deficits include inadequate nutrient intake, malabsorption, excessive nutrient secretion across the diseased gastrointestinal tract, drug-nutrient interactions, and increased nutrient requirements. (17)

When a diagnosis of Crohn's disease is made, the physician is bound to rule out abnormal intestinal bacteria and parasites including amebiasis, enterococcus, *Salmonella*, *Shigella*, *Campylobacter*, *Clostridium* and others through stool cultures or antibody testing. (5,8) These and other bacteria can and do have a disrupting effect upon the intestinal mucosa causing an increase in intestinal permeability and put a stress on the IgA immune response of the intestinal tract. *Lactobacillus* has shown to be very beneficial supporting the intestinal tract, rebuilding the IgA response, and decreasing the intestinal permeability (a condition in which the person's immune system is weakened and the absorption of substances normally blocked or prevented from entering the blood or lymphatic system are absorbed at higher than normal rates. This has been designated a Leaky Gut Syndrome (18). *Lactobacillus* has shown to be beneficial. (19) Bacteria are not the only causes of increased intestinal permeability; other causes have been associated with dietary changes that include gluten enteropathies, increased refined sugar intake, and a decrease in fruit and vegetable intake. Fruits and vegetables are the primary source of fibers that clean the intestinal tract as well as break down forming short chain fatty acids that act as nutrients for the large intestine. (8,14,19)

CONCLUSION

This case demonstrates that nutritional treatment for a presumed diagnosis of an inflammatory bowel condition can be appropriate and beneficial to a patient. It also demonstrates that a visceral inflammatory condition could present with a musculoskeletal condition, and the treating chiropractor must continue the assessment process if the patient does not respond as expected or new information is gleaned.

When a patient decides to follow an alternative course of treatment, close observation is essential. If the patient does not respond to care, early reassessment and further diagnostic testing should be performed so therapies that are more aggressive can be initiated. However, a good functional assessment and compliance on the part of the patient and family may be an effective alternative to treating visceral inflammatory conditions without the need for aggressive medications or invasive procedures. There is the need for a conservative approach to treatment of inflammatory bowel disease before considering the more aggressive and potentially hazardous approach of surgery. Unfortunately, there have been few studies of the therapeutic outcomes and expected duration of treatment using conservative management for inflammatory bowel disease. Published case presentations will offer questions and possible interventions that must be more thoroughly evaluated through larger, controlled research projects. Case presentations truly form the initial seeds on which larger studies will be based. The patient's signs and symptoms in this case responded to a unique method of evaluation and nutritional therapy when other approaches had failed.

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