Failure to Thrive in a Ten-Year-Old Girl

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A 10-year-old girl was followed over an 18-month period for vague gastrointestinal complaints, failure to thrive, and anemia. She was evaluated by several primary care physicians and consultants who failed to diagnose her problem or alleviate her symptoms. The treatment of an acute illness, a consequence of her presenting problem, resulted in the diagnosis of an unusual entity with important psychological and somatic features.
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Every family physician is familiar with the biopsychosocial model of patient care, but the majority of formal medical training emphasizes biology, often with the exclusion of the model's other dimensions. Most of the time we are unable to translate this model easily into clinical practice. Early diagnosis and treatment of the following case would have required skillful use of the biopsychosocial model and an understanding of the relationship among all of its components.

Case Report

A 10-year-old Mexican girl presented to a community health center staffed by family practice residents for follow-up of poor appetite, decreased rate of growth, and mild iron deficiency anemia (hemoglobin 10 mg/dL). She had an 8-month history of intermittent gastrointestinal complaints including nausea, vomiting, and diarrhea, and two to four loose stools without blood or mucus per day. She had no history of abdominal pain, travel, exposure to pets, or food intolerance. A dietary recall by mother and daughter suggested adequate food intake. Even so, between the ages of 9 and 10 years, her height had fallen from the 25th to the 10th percentile and her weight from the 40th to the 10th percentile. Physical examination findings were otherwise normal.

The patient was the oldest child in a family of three girls. She lived with her bilingual mother and father. Although her father was employed, the family had no health insurance. Shortly after my first visit with the patient, her mother presented for prenatal care. She was in the first trimester of her fourth pregnancy, which was unplanned but accepted by both her and her husband. All of the members of the family except the father received their health care from me.

Although attempts were made by the clinic to ensure continuity of care by a single provider, the patient was seen by several providers for her complaints between July 1989 and April 1990. Hemoccult tests, stool culture, and tests of stool for ova and parasites were negative. Results of serum lead level tests, thyroid function tests, a urinalysis, urine culture, and a complete blood count were all within normal limits. Another provider referred the patient to both a psychologist and a pediatrician for evaluation when she continued to have gastrointestinal complaints accompanied by occasional nausea and vomiting, poor appetite, and retarded growth.

The interview with the psychologist clarified the context of the patient's symptoms. First, the patient seemed to vomit more when she was nervous. Although few sources of stress could be identified, she seemed to be concerned about her parents' physical health and safety in their neighborhood. Another possible source of stress was that associated with the anticipated birth of a new member of the family. The psychologist also noted some evidence of separation anxiety in the patient, and planned a behavior modification program with increased oral intake, weight gain, and decreased anxiety as the objectives.

As her primary provider, I saw the patient again 9 months after the initial visit, and interviewed both her

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and her mother about the information obtained by the psychologist and about other possible psychosocial components of her symptoms.

With the patient out of the room, I asked the mother if anything might be bothering the child. Her mother answered that the patient seemed concerned about the family's health and safety in their community, which was troubled by gang violence. Although her mother had had an uneventful prenatal course, the patient had also seemed particularly worried about her mother's welfare during the pregnancy; she wanted to take care of her mother and never wanted to leave her alone. The daughter's symptoms had increased when her mother had gone on a short trip.

When the patient joined us, she was unable to identify any particular worries. In response to a question about her concern for her mother's welfare, however, she burst into tears. She did not articulate her worries, but we reassured her at length that her mother was currently well, was receiving good care, and would be home from the hospital as soon as possible after delivery.

Although the patient was prepubescent, making the diagnosis of an eating disorder rare, because of her symptoms she was asked directly about how she perceived her body and whether she induced vomiting. Neither she nor her mother gave any information that suggested anorexia or bulemia.

At this point organic illness seemed unlikely, but because of the persistence of the symptoms for almost a year, the psychologist's data, and a sense on the part of the mother and me that "something was wrong," a decision was made to continue to pursue the cause of the patient's complaints, in addition to trying to relieve her symptoms. The patient was instructed to continue to follow the behavior modification plan and return in 1 month.

The patient returned to the clinic for an unscheduled visit about 3 weeks later. She had stopped eating and had begun vomiting more frequently, shortly after eating at a sidewalk kiosk. She had no diarrhea, no symptoms of upper respiratory tract infection and no headache, but she had had a low grade fever (37.8°C [100.0°F]). She did not appear dehydrated on examination, and her abdomen was normal without tenderness, organomegaly, or masses. Either a viral syndrome or food poisoning seemed to be the appropriate diagnosis. Symptomatic treatment for nausea and oral fluids were recommended.

After 4 days and several telephone calls to the clinic to report no improvement, the patient presented to the emergency department. In the emergency department, the parents gave a history of bile-stained vomitus for 1 day and no passage of stool for 2 to 3 days, in spite of using an enema on two occasions. The patient was afebrile; she had a markedly distended, nontender abdomen, hypoactive but high-pitched, tinkling bowel sounds, and no abdominal masses or organomegaly. Her rectal vault was empty, and she had no orthostasis. Plain abdominal films showed multiple air-fluid levels and a distal small bowel obstruction (Figure 1). The patient also had leukocytosis (white blood cell count, 26×10^9/L [26,000/mm^3]) without a left shift and marked hyponatremia (Na, 113 mmol/L), hypokalemia (K, 2.4 mmol/L), and hypochloremia (Cl, 63 mmol/L).

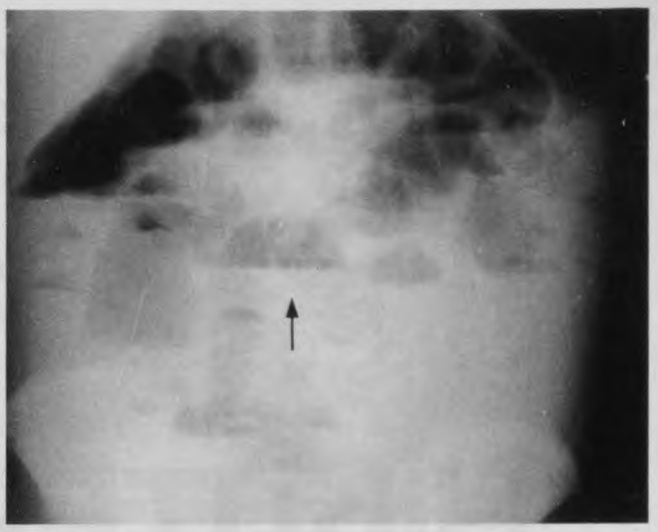

Figure 1. Abdominal radiograph showing dilated loops of bowel consistent with a small bowel obstruction. Arrow indicates air-fluid level.

The patient was admitted to the hospital with the diagnosis of a small bowel obstruction. A laparotomy was performed after correction of her fluid and electrolyte status. A trichobezoar was found 12 cm proximal to the ileocecal valve. The bezoar was evacuated through the rectum.

During her postoperative course, the patient and her parents were asked if the patient had ever played with or eaten her hair. She replied that she had done both, but had stopped many years earlier. Her parents said that they had not seen her eat her hair in many years, but they had recently seen her pulling out long strands of her hair, which she wound around her fingers while she watched television. During the patient's hospital course, her mother noticed a hair in the patient's mouth; the patient, however, denied putting hair in her mouth on purpose. This behavior won her a haircut on the recommendation of the surgeons and psycholgist after an uneventful postoperative course.

When the patient returned to the clinic for her postoperative appointment, she had a new baby sister, born 3 weeks after the surgery. She had gained weight,

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Table 1. Causes of Failure to Thrive in School-aged Children*

Organic	Nonorganic
Malabsorption	Family transition
Enzyme deficiency	Life cycle event
Inflammatory bowel disease	Moving
Endocrine disorders	Family dysfunction
Diabetes mellitus	Divorce
Thyroid disease	Spouse abuse
Chronic infection	Parental dysfunction
Tuberculosis	Psychiatric illness
Chronic inflammation	Substance abuse
Juvenile rheumatoid arthritis	Poverty
Lead poisoning	Poor parenting skills
Neoplasm	Depression
Chronic renal disease	Eating disorder
Chronic heart failure	Autism
Central nervous system	Mental retardation
abnormalities	Institutionalization
Bezoar	
Familial short stature	

**Information adapted from Nelson et al[3] and Homer and Ludwig.[4]*

and the anemia and electrolyte disturbance had resolved. Both she and her mother reported that she had neither eaten nor played with her hair. The patient received no further medical or psychological treatment for trichophagia and has had no recurrence of symptoms more than 1 year later.

Discussion

Family physician, pediatrician, psychologist, and surgeon were all unable to determine the cause of the patient's symptoms preoperatively. Certainly the lack of continuity of providers during the first months after presentation contributed to the delay in diagnosis. Probably the most important reason we did not make the diagnosis before surgery is that bezoars in humans are rare; so rare, in fact, that they have been prized and used as amulets.[1,2] They are certainly not at the top of the differential diagnosis list (Table 1). Phytobezoars, bezoars composed of undigested vegetable matter rich in cellulose,[5,6] are currently the most commonly reported type and are secondary to prior gastric surgery, but trichobezoars, which are bezoars composed of hair, are most common in children.[1] The majority of trichobezoars occur in girls and women under 30 years of age.[1,2,6,7]

This patient did not present with the classic signs of a trichobezoar, which are partial baldness and an abdominal mass.[8] Nevertheless, she did have many nonspecific symptoms consistent with that diagnosis: nausea and vomiting, anorexia, intermittent abdominal discomfort, and iron deficiency anemia. Unfortunately, one key symptom, trichophagia, remained unelicited preoperatively.

There are a few additional clues, both medical and psychosocial, that could have led us to the correct diagnosis. Our patient had iron deficiency anemia, which may be a cause or an effect of trichophagia and trichotillomania.[9] If, during a more thorough dietary history, she and her mother had been questioned carefully about pica, admittedly an unusual problem in a 10-year-old girl of normal intelligence, they might have described the trichophagia. With that information, an upper gastrointestinal series, the recommended study, or, alternatively, an analysis of stool and gastric contents[10] could have been performed and the diagnosis of a trichobezoar could have been made. Neither of these studies seemed appropriate, however, as the patient's history was not suggestive of peptic ulcer disease or malabsorption. Also, when the patient presented with a bowel obstruction, the providers should have asked specifically about ingestion of foreign substances, appropriate for any child with a bowel obstruction,[10] even though unexpected in a child of 10 years of age. Even if we had had all of these data, a preoperative diagnosis would not have changed our management because the only definitive treatment for trichobezoar is surgical removal.[8] It could have prevented an emergency laparotomy, however, and allayed the fears of parents and providers.

Controversy exists about whether there is a relationship between emotional disturbance and trichobezoar. Certainly our patient had neither a psychiatric disorder nor mental retardation; but eating and playing with hair is both self-soothing and self-stimulating behavior that, one could postulate, would increase in frequency with the stress that occurs during a normal family transition such as the birth of a baby. Breunlin hypothesizes that behavior oscillates during transition periods between "less than competent" and "greater than competent."[11] Our patient was acting younger than her age by putting things other than food in her mouth, but she was acting older than her age by worrying about her family's safety and trying to take care of her pregnant mother. Another interesting theory is that a child may represent another family member or the family as a whole by having symbolic symptoms.[12] Is it possible that the patient was also "pregnant" with months of "morning sickness" and a hospitalization for a distended belly with something growing in it 3 weeks before her mother's delivery?

There have been few reported cases of recurrence of trichobezoar. Some authors have postulated that the trauma of surgery is aversive enough to prevent further hair eating.[10] Others recommend psychological evaluation after diagnosis[1,13] because even if trichophagia stops, perhaps another equally or more self-destructive

behavior may replace it if associated circumstances and feelings are not explored. There is currently no comparison in the literature between the rate of recurrence of trichobezoar or the emergence of new symptoms in patients who have had only surgery vs those who have had surgery with psychotherapy follow-up.

Conclusions

The most successful approach to this case would have included a single primary provider, obtaining a detailed dietary history that included specific questions about pica, an understanding of the external context of the patient's symptoms, real attention to the "hunch" that something was wrong,[14] and repeated complete histories and physical examinations supplemented by appropriate diagnostic tests if symptoms persisted. The bezoar is obviously a biopsychosocial entity, with interrelated functional, environmental, and organic features of equal importance. It challenges physicians to assess the *whole* patient and integrate *all* of the data in order to arrive at an appropriate diagnosis and treatment plan, and it reminds us that all illnesses are multifaceted.

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