20 - 31.9b Rumination Disorder

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and emotional nurturance may yield positive results. A study found that pica occurred most frequently in impoverished environments, and in some patients, correcting an iron or zinc deficiency has eliminated pica. Medical complications (e.g., lead poisoning) that develop secondarily to the pica must also be treated. 31.9b Rumination Disorder Rumination is an effortless and painless regurgitation of partially digested food into the mouth soon after a meal, which is either swallowed or spit out. Rumination can be observed in developmentally normal infants who put their thumb or hand in the mouth, suck their tongue rhythmically, and arch their back to initiate regurgitation. This behavior pattern may be observed in infants who receive inadequate emotional interaction and have learned to soothe and may stimulate themselves through rumination. However, rumination syndromes can be found to occur in children and adolescents, and rumination is considered to a functional gastrointestinal disorder. The pathophysiology of rumination is not well understood; however, it often involves a rise in intragastric pressure, generated by either voluntary or unintentional contraction of the abdominal wall muscles causing movement of gastric contents back up into the esophagus. The onset of the disorder can occur in infancy, childhood, or adolescence. In infants, it typically occurs between 3 months and 12 months of age, and once the regurgitation occurs, the food may be swallowed or spit out. Infants who ruminate are characteristically observed to strain with their backs arched and head back to bring the food back into their mouths and appear to find the experience pleasurable. Infants who are “experienced” ruminators are able to bring up the food through tongue movements and may not spit out the food at all, but hold it in their mouths and re-swallow it. The disorder is less common in older children, adolescents, and adults. It varies in severity and is sometimes associated with medical conditions, such as hiatal hernia, that result in esophageal reflux. In its most severe form, the disorder can cause malnutrition and be fatal. The diagnosis of rumination disorder can be made even if an infant has attained a normal weight for his or her age. Failure to thrive, therefore, is not a necessary criterion of this disorder, but it is sometimes a sequela. According to DSM-5, the disorder must be present for at least 1 month after a period of normal functioning, and not better accounted for by gastrointestinal illness, or psychiatric or medical conditions. Rumination has been recognized for hundreds of years. An awareness of the disorder is important so that it is correctly diagnosed and that unnecessary surgical procedures and inappropriate treatment are avoided. Rumination is derived from the Latin word ruminare, which means, “to chew the cud.” The Greek equivalent is merycism, the act of regurgitating food from the stomach into the mouth, re-chewing

the food, and reswallowing it. EPIDEMIOLOGY

Rumination is a rare disorder. It seems to be more common among male infants, and emerges between 3 months and 1 year of age. It persists more frequently among children, adolescents, and adults with intellectual disability. Adults with rumination usually maintain a normal weight. ETIOLOGY Rumination is associated with high intragastric pressure and the ability to contract the abdominal wall to cause retrograde movement of the gastric contents into the esophagus. Several studies have elucidated other gastrointestinal symptoms such as gastroesophageal reflux that may accompany rumination. In a study of 2,163 children in Sri Lanka, between the ages of 10 years and 16 years, it was found that rumination behaviors were present in 5.1 percent of boys and 5.0 percent of girls. In 94.5 percent of youth who ruminated, the regurgitation occurred in the first hour after the meal, and 73.6 percent reported re-swallowing of the regurgitated food, whereas the rest spit it out. Only 8.2 percent of this sample reported daily episodes of regurgitation, whereas 62.7 percent experienced weekly symptoms. Associated gastrointestinal symptoms reported in this sample included abdominal pain, bloating, and weight loss. Approximately 20 percent of youth with rumination in this sample also experienced other gastrointestinal symptoms. Another survey of 147 patients from 5 years to 20 years of age found that in their sample, the mean age of onset of rumination was 15 years, and these patients were symptomatic after each meal; 16 percent of this sample met criteria for a psychiatric disorder, 3.4 percent had anorexia or bulimia nervosa, and 11 percent had been treated with a surgical procedure for evaluation of management of their symptoms. Additional gastrointestinal symptoms in this sample included abdominal pain in 38 percent, constipation in 21 percent, nausea in 17 percent, and diarrhea in 8 percent. In some cases, vomiting secondary to gastroesophageal reflux or an acute illness precedes a pattern of rumination that lasts for several months. In many cases, children classified as ruminators are shown to have gastroesophageal reflux or hiatal hernia. It appears, for some infants, that the rumination behavior is self-soothing or produces a sense of relief, leading to a continuation of behaviors to bring it about. In youth with autism spectrum disorder or intellectual disability, rumination may serve as a selfstimulatory behavior. Overstimulation and tension have also been suggested as contributing factor in rumination. Behaviorists attribute persistent rumination to the positive reinforcement of pleasurable self-stimulation and to the attention a baby receives from others as a consequence of the disorder. DIAGNOSIS AND CLINICAL FEATURES The DSM-5 notes that the essential feature of the disorder is repeated regurgitation and re-chewing of food for a period of at least 1 month after a period of normal functioning. Partially digested food is brought up into the mouth without nausea, retching, or disgust; on the contrary it may appear to be pleasurable. This activity may be distinguished from vomiting by painless and purposeful movements observable in some infants who induce it. The food is then ejected from the mouth or swallowed. A characteristic position of straining and arching of the back, with the head held back, is observed. The infant

makes sucking movements with the tongue and gives the impression of gaining considerable satisfaction from the activity. Usually, the infant is irritable and hungry between episodes of rumination. Initially, rumination may be difficult to distinguish from the regurgitation that frequently occurs in normal infants. In infants with persistent and frequent rumination behaviors, however, the differences are obvious. Although spontaneous remissions are common, secondary complications can develop, such as progressive malnutrition, dehydration, and lowered resistance to disease. Failure to thrive, with absence of growth and developmental delays in all areas, can

occur in the most severe cases. Additional complications may occur if the mother of a given infant with rumination becomes discouraged by the persistent symptoms, viewing it as her feeding failure, as this may lead to more tension and more rumination after feedings. Luca was 9-months-old when he was referred by his pediatrician to a gastroenterologist, and by his gastroenterologist for a psychiatric evaluation due to persistent and frequent rumination. Luca was born full-term and had developed typically until 6 weeks of age, when he began to regurgitate large amounts of milk just after feedings. He was evaluated and diagnosed with gastroesophageal reflux, for which it was recommended to thicken his feedings. Luca responded well to the treatment; his regurgitation was markedly diminished, and he gained weight adequately. Luca continued to do well, and his mother decided to go back to work when Lucas was 8-months-old. Luca's mother transitioned his care to a young nanny who cared for Luca while she worked. Luca and the nanny seemed to have a warm relationship; however, he started again to regurgitate his meals soon after his mother left the house. The regurgitation seemed to increase in frequency and intensity within 2 weeks of the mother's return to work. At this point, Luca regurgitated after almost every meal, and he was losing weight. Luca was evaluated by a gastroenterologist, and during the barium swallow, his doctor noted that Luca put his hand in his mouth, which seemed to induce the regurgitation. Luca was administered some medication for gastroesophageal reflux; however, he continued to induce regurgitation after meals with increasing frequency, prompting the psychiatric consultation. Observation of mother and infant during feeding at home revealed that as soon as Luca finished feeding, he purposefully placed his hand in his mouth and induced the regurgitation. When his mother restricted his hand, Luca moved his tongue back and forth in a rhythmic manner until he regurgitated again. Luca engaged in this rhythmic tongue movement repeatedly, even when he could not bring up any more milk, and appeared to be enjoying this behavior. Due to Luca's poor nutritional state and moderate dehydration, he was admitted to the hospital, and a nasojejunal tube was inserted for feedings. When Luca was awake during feedings, a special duty nurse or his parents played with him and distracted him during attempts to put his hand in his mouth or thrust his tongue rhythmically. Luca became increasingly engaged in this playful activity, and his ruminatory activity

decreased accordingly. After 1 week in the hospital, small feedings were started; however, Luca again successfully was able to bring up his food by his rumination activity, and the oral feedings had to be temporarily stopped. At this point, Luca's mother decided to stop working and take Luca home to continue an intensive behavioral "distracting" intervention in order to interrupt his rumination during meals. Luca's mother started small feedings while playing with him during and after feedings, and was able to interest him in other activities, so that he would not ruminate. After 4 weeks of slow increments in his feedings, Luca was able to take all his feedings by mouth without ruminating, and the nasojejunal tube could be removed. Luca and his mother continued to use simulating and distracting activities during and just after meals, which over time became more interesting to Luca than his previous ruminating behavior. PATHOLOGY AND LABORATORY EXAMINATION No specific laboratory examination is pathognomonic of rumination disorder; however, rumination disorder is not uncommonly associated with gastrointestinal abnormalities. Clinicians are recommended to evaluate other physical causes of vomiting, such as pyloric stenosis and hiatal hernia, before making the diagnosis of rumination disorder. Rumination disorder can lead to states of malnutrition and dehydration. In very severe cases, laboratory measures of endocrinological function, serum electrolytes, and a hematological workup may determine the need for medical intervention. DIFFERENTIAL DIAGNOSIS To make the diagnosis of rumination disorder, clinicians must rule out primary gastrointestinal congenital anomalies, infections, and

other medical illnesses that could account for frequent regurgitation. Pyloric stenosis is usually associated with projectile vomiting and is generally evident before 3 months of age, when rumination has its onset. Rumination has been associated with both autism spectrum disorder and intellectual disability in which stereotypic behaviors and eating disturbances are not uncommon. Rumination behavior may occur comorbidly in youth with severe anxiety disorders as well. Rumination disorder may also occur in patients with other eating disorders, such as anorexia nervosa and bulimia nervosa. COURSE AND PROGNOSIS Rumination disorder is believed to have a high rate of spontaneous remission. Indeed, many cases of rumination disorder may develop and remit without ever being diagnosed. Limited data are available about the prognosis of rumination disorder in adolescents and adults. Behavioral interventions using habit-reversal techniques may significantly lead to improved prognosis.

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