Rumination in adults – a rare cause of gastro-oesophageal regurgitation in two patients

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Rumination is the effortless regurgitation of previously ingested food from stomach to mouth, usually followed by chewing and re-swallowing. It is usually not accompanied by nausea or abdominal discomfort and ceases when the gastric contents become acid to taste. The onset of symptoms may occur at any time during life and are frequently associated with emotional disturbance or psychiatric disorder. In most cases, the rumination is involuntary leading to embarrassing results for patient and close contacts. This case report details the clinical features of two patients who presented at a gastroenterology clinic with this condition in 12 months.

CASE 1

A 33-year-old housewife first attended in October 1985 complaining of the frequent, effortless regurgitation of partly-digested food over a period of 15 years. The problem had started during her teenage years and had become more frequent over the past five years, with rumination episodes occurring up to 30 times daily. The peak period during the day seemed to be after her evening meal. She denied heartburn, abdominal pain or vomiting and admitted that the involuntary regurgitation was often pleasurable. Dietary factors appeared to have no influence on the condition. She worked part-time as a shop assistant and there was no history of recent psychological stress or past psychiatric illness. In the family history, one sister aged 24 years also ruminated and the patient’s nephew aged 14 years had recently developed the habit. While the patient herself had not previously sought medical advice, her husband had precipitated the consultation when he complained about her halitosis.

On examination she was overweight at 81kg but otherwise physically normal. Regurgitation could not be exhibited at will. Further investigations of oesophageal function were performed. Oesophagoscopy and barium swallow were normal. Oesophageal scintigraphy showed no evidence of gastro-oesophageal reflux and oesophageal motility studies were normal. Prolonged ambulatory pH monitoring was performed using a ‘Digitrapper’ probe sited 5cm above the lower

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oesophageal sphincter, which had previously been located using a 'pull-through' technique. Only one episode of reflux with pH < 4.0 was noted in the supine position during the 20-hour study. In the prone position there were six episodes of pH < 4.0, and lasting less than two minutes during sleep. Rumination episodes, as noted on the system's event marker had occurred 37 times between 0800 hrs and 2330 hrs but were not accompanied by pH fall at any time.

CASE 2

A 24-year-old postgraduate male university student first presented in May 1985 complaining of recurrent regurgitation of partially-digested food for 18 months. He could not recall previous episodes in childhood. The episodes had started prior to the patient's final degree examinations. They were most frequent in the evening 30–60 minutes after the evening meal, but no dietary provoking factors could be recalled. He had no heartburn, nausea or vomiting and denied psychological stress. There was no relevant past or family history. On examination he was of normal weight at 69.5 kg and physically normal. Oesophagoscopy, barium swallow and oesophageal manometric studies showed no abnormality. Prolonged ambulatory oesophageal pH monitoring was again performed for 21.5 hrs using a 'Digitrapper' probe. Although eight supine episodes of acid reflux with pH < 4.0 were recorded, none was associated with rumination episodes which had been noted 14 times from 0900–1135 hrs on the event marker.

Both cases had no response to a trial of metoclopramide therapy. In the first case, neither increasing the starch content nor increasing the size of her evening meal reduced rumination episodes. Both patients refused to undergo formal psychiatric examination, and their condition remains unchanged to date.

DISCUSSION

Rumination, derived from the Latin verb *ruminare*, meaning 'to chew the cud', was first described in adults by the Italian anatomist Fabricius ab Aquapendente in the early 17th century. Several accounts of the condition have appeared during the early 20th century, but due to its rarity in adults, few cases have been documented in the literature in the past 20 years.

The two cases described here are typical of the disorder described in the previous accounts. The regurgitation appears to be effortless, often involuntary and completely unassociated with heartburn, nausea or vomiting.

The condition may be first noticed at any time during life or present as a clear result of a life stress event. It appears to be especially prevalent in mentally retarded individuals who reside in institutions, with an incidence of 8.0% quoted in one hospital in the United States. In these individuals, chronic rumination may result in severe weight loss, dehydration and a significant morbidity. In normal adults there are no serious sequelae to health but the act of rumination often causes acute embarrassment to the patient and may disturb the family.

Although rumination has been closely studied in animals, the sequence of physiological events is poorly understood in man. In most ruminators, as in these two cases, radiological studies have been reported as normal. Fluoroscopic regurgitation of barium has been observed very infrequently, during screening, probably because of involuntary suppression of rumination by the patient, and retrograde oesophageal peristalsis has not been observed in man. The first manometric study in ruminators was reported by Brown in two adults. As in our
two cases, he could not exhibit an abnormality in either the resting pressure of the lower oesophageal sphincter or peristaltic pressures. It would appear that lower oesophageal sphincter incompetence is not a prerequisite for rumination.

There are no detailed previous reports of prolonged ambulatory pH monitoring on these patients. Interestingly, both patients in this report had no evidence of acid reflux during their numerous episodes of rumination, indicating that the regurgitated food is of neutral to alkaline pH. This finding explains their lack of oesophageal symptoms, and supports the theory that regurgitation of low pH gastric contents deters rumination. With the classical history described in these two cases we conclude that prolonged pH monitoring has no role to play in their investigation, unless there is other clinical evidence of reflux disease.

Most authors have concluded that psychological factors are important in the pathogenesis of this disorder. Dambassis has stated that 'the tendency to rumination is a universal phenomenon in infants, and its persistence into adult life indicates the somatic projection of psychic conflicts as well as emotional immaturity or regression'. In neither of our two cases was there obvious psychological abnormality, although in Case 2 the disorder may have been triggered by pre-examination stress. This contrasts with Case 1 who had a long history of rumination and had developed it as a pleasurable habit. Both patients were reluctant to undergo further psychiatric evaluation.

Unfortunately, medical management of rumination has been unsatisfactory. Antiemetic drugs have been found to be unhelpful, but recent studies on dietary manipulation have shown some benefit in mentally subnormal individuals, particularly with reference to the starch content of the ingested foodstuff. By adding 15 - 20 oz of extra starch in the form of potatoes or rice to the daily dietary intake of four retarded subjects, Rast et al showed significant differences in reducing rumination frequency.

In conclusion, rumination is a rare, poorly understood cause of gastrooesophageal regurgitation in adults. The diagnosis must be made on the typical history in most cases. This report of two patients stresses the importance of recognising this disorder and shows that sophisticated oesophageal function tests are not indicated, as they are unlikely to reveal any abnormalities in such patients.

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