# Severe electrolyte disturbance in anorexia nervosa with gastrointestinal complications: reading both the clinical evidence and the patient

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## Introduction

This report describes the case of a 38-year-old woman with anorexia nervosa (purging subtype), obsessive-compulsive personality disorder, depression and functional bowel disorder, presenting with gastrointestinal and neurological symptoms. The case was complicated by a questionable prescription of long-term high doses of laxatives and further complicated by the involvement of teams from three trusts. She was difficult to

### Case report

A 38-year-old woman with anorexia nervosa (purging subtype), obsessive-compulsive personality disorder and depression presented to the emergency department of a district general hospital with 2 days of abdominal pain, diarrhoea, mild central chest pain, generalised weakness and leg cramps.

Obtaining a history from her was difficult as she had poor health literacy; she could not explain why bowel surgery had been considered, nor her high laxative usage. Her functional illiteracy meant she could not use her phone, use the Internet or any written information, and made it hard for her to use public transport to attend appointments. She had been under the care of eating disorder services and under gastroenterology for 2 years and had functional bowel disorder with complex constipation. Her gastroenterologist prescribed high doses of laxatives, but the trust pharmacy could not always supply these. Therefore, she often bought over-the-counter laxatives to 'top up' her supplies, resulting in irregular bowel movements. She could not have further bowel investigations as she was too unwell (body mass index 12.9–15 kg/m$^2$ during the 3 months before admission) to do so safely.

Her anorexia nervosa, diarrhoea and leg cramps had increased 2 years earlier when her family unit split; she became extremely isolated. Her low mood was perpetuated by chronic diarrhoea, leg cramps causing decreased mobility, low body mass index, and functional illiteracy and resulting helplessness. Throughout admission, eating disorder services liaised with medical and liaison psychiatry teams. Communication with her needed to be simple, patient and collaborative.

She was transferred to the medical ward with regular monitoring of electrolytes, cardiac parameters, and bowel movements. An abdominal radiograph supported the diagnosis of diarrhoea without colitis. A chest radiograph and echocardiogram were normal. Before treatment, she was hypokalaemic (2.5 mmol/litre), hyponatraemic (130 mmol/litre) and hypotensive. Nerve physiology tests were normal, and leg cramps initially appeared functional, but were deemed to be caused by hyponatraemia secondary to laxative use causing hypovolaemia.

Initial fluid and electrolyte replacement occurred under an impression of laxative-induced diarrhoea causing hypokalaemia. A high protein diet, fluid restriction and diuretics were started to treat the oedema from her high fluid intake and hypoalbuminaemia from malnutrition and fluid dilution. Laxatives were withheld and 24-hour 1:1 psychiatric nursing deployed to control her chaotic usage. Mirtazapine was prescribed as this has minimal impact on sodium levels.

Electrolytes normalised by day 7, but pitting oedema developed on her lower abdomen. She refused meals, hid food, and did not fluid restrict despite distress regarding the oedema, bloating, and weight gain; the oedema decreased from day 22. By day 22 she was medically cleared with a body mass index of 25.42 kg/m$^2$, up from 15.11 kg/m$^2$ on admission. She accepted she needed help and agreed to transfer to an inpatient eating disorders unit, something she had previously steadfastly refused.

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## Learning points

- When a complex patient with anorexia nervosa presents with a dysregulated gastrointestinal system and deranged electrolytes in the context of prescribed high doses of laxatives, communication between all teams involved in the patient's care needs to be clear to minimise laxative use while investigations are ongoing. This would be greatly aided if the patient was being treated by just one trust.
- Complex and seemingly intractable problems at the interface between physical and mental health may lead to secondary illness gains, with the patient presenting as unable or too ill to change, thereby eliciting care, and clinicians inadvertently reinforcing the patient's helplessness and inaction.
- Healthcare professionals must assertively enable patients to have good health literacy to avoid hospital admission and to feel empowered to self-care; information should be clear and simple without jargon.
- The complex concurrent physical and psychological comorbidities and consequences of anorexia nervosa mean that a carefully coordinated multidisciplinary team approach to management is crucial to reduce risk and optimise outcomes.

manage because of her functional illiteracy, resulting low health literacy, and aspects of her obsessive-compulsive personality disorder that meant that she had an inflexible information processing style. Secondary gains reinforced her helplessness, prevented further diagnostic investigations and made treatment of electrolyte disturbances and gastrointestinal complications challenging. Healthcare professionals must ensure good health literacy for complex patients to feel empowered to self-care; communication between teams must be clear and ideally under one trust, and a carefully coordinated multidisciplinary approach to anorexia nervosa management should be used to optimise outcomes.

## Discussion

This highly unusual case was complicated by a questionable prescription of long-term high doses of laxatives. It was further complicated by the involvement of different teams from three trusts, with different patient record systems and treatment approaches. Management of Really Sick Patients with Anorexia Nervosa (MARSIPAN) guidelines were followed during her admission (Royal College of Psychiatrists et al, 2014); afterwards a MARSIPAN group was created involving liaison psychiatry, acute medicine, enhanced care (mental health), mental health nursing sub-directorate, dietitians, adult safeguarding, and gastroenterology teams at the admitting hospital as well as eating disorder services from the mental health hospital trust.

Anorexia nervosa is a cause of medical complications and increased mortality (Westmoreland et al, 2016). Electrolyte disturbances are common with laxative misuse (Winston, 2012); misuse leads to weight loss and malnutrition (Westmoreland et al, 2016). Slow food transit occurs in anorexia nervosa; stress affects gut motility and sensitivity, precipitating anxiety, resulting in further gastrointestinal dysregulation (Weterle-Smolińska et al, 2015). Here, gastrointestinal dysregulation resulted from chronically high doses of prescription laxatives; it was unclear whether her 'topping up' with laxatives maintained or worsened the dysregulation, causing laxative overuse and dependence, or whether purging behaviours maintained the dysregulation.

This case was difficult to manage because of her functional illiteracy (Vágvölgyi et al, 2016), resulting low health literacy, and aspects of her obsessive-compulsive personality disorder that involved an inflexible information processing style (U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion, 2015). Habitual behaviours and limited social contacts, both caused by her functional illiteracy, reinforced her helplessness. This kept her and the professionals working with her 'stuck', keeping her unwell, unable to undergo further diagnostic investigations and making treatment

of electrolyte disturbances and gastrointestinal complications challenging. Moreover, despite her physical, psychiatric, learning and social impairments, there was a sense that her helplessness might have been inadvertently reinforced by clinicians responding to her distress in a piecemeal fashion. Cross-disciplinary discussions during her admission allowed them to realise this and adopt a more integrated approach to her management.

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