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ADOLESCENT EATING DISORDER IN PRIMARY CARE – A CASE STUDY

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ABSTRACT

Anorexia Nervosa is one of the eating disorders, as classified in the Diagnostic and Statistical Manual, the fifth edition. It is characterised by a pathological fear of weight gain associated with an overwhelming drive for thinness. Patients do present to primary care with vague, non-specific complaints. A heightened degree of suspicion is required for the diagnosis, as patients tend to hide symptoms and are often in denial. We present a case in an 11-year-old girl brought by her mother to the polyclinic with a history of restrictive eating and excessive exercise for three weeks. This case provided a learning opportunity on the assessment and management of an eating disorder, as well as the adverse effects of undernutrition.

Keywords:
Anorexia Nervosa; Eating disorder

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PATIENT'S (PARENT'S) REVELATION: WHAT HAPPENED?

"Doctor, my daughter is behaving strangely."

ES was withdrawn during the consultation, even when interviewed alone. She denied any physical symptoms and did not see why her mother had brought her to see a doctor.

Present History: Madam T visited a primary care clinic with her 11-year-old daughter, ES, with concerns that ES had been eating less and exercising excessively. This had prompted her opening statement, "Doctor, my daughter is behaving strangely." ES had been skipping her breakfast (a serving of milk), recess and afternoon tea. She consumed her lunch (mixed rice and vegetables) as usual but had cut her dinners to one-quarter of the typical adult-sized portions. ES avoided eating fruits because it was 'high in sugar,' as well as her favourite foods (meat, noodles, pasta, and cake) because these were 'high in calories'. She would throw tantrums to force her fraternal twin sister to eat. This was causing her sister much distress.

Furthermore, ES had added ten static exercise sets and extra running time to her daily recreational jogs. If interrupted during her exercise sets, she would become agitated and start the sequence over.

These abnormal behaviours began after ES attended a physical education lesson in school on calorie counting and energy balance. She had lost 3.2 kilograms (kg) over the past three weeks. Despite this, she still felt 'fat' and intended to lose more weight. The child weighed herself multiple times daily, regularly studied herself in the mirror, and expressed exuberance about her weight loss. Her school teacher had also noticed that she seemed distracted in classes in the recent one to two weeks. Madam T was afraid her behaviour would affect her health and her school performance, especially as she was in Primary 6.

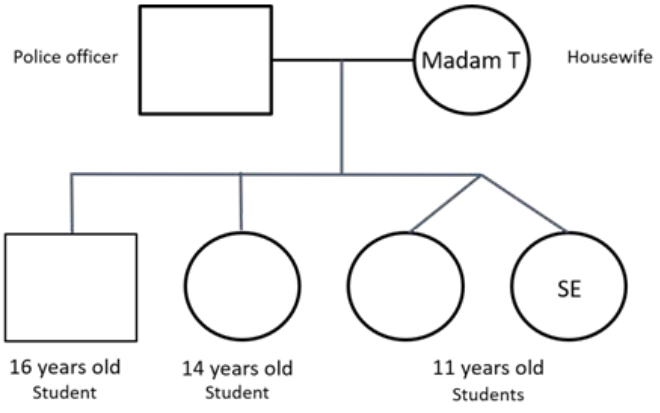
No binging, purging or laxative use was apparent. No acts of self-harm, suicidal thoughts, or actions had been observed.

Menarche occurred two months before, with the latest period having concluded a week earlier. ES had a history of Kawasaki's disease without any cardiac sequelae at five years old, and separation anxiety disorder. She was close to her mother and habitually sought affirmation and reassurance from her.

The child was described by Madam T to be an 'inflexible' character, who rigidly followed timetables and rules. She had always been competitive with her sister. While both twins passed their subjects, ES' sister performed better academically, and it seemed to their mother that weight was something ES did 'better' in to compensate for this. Individuals had told ES that she looked better skinnier, and had teased her sister for being 'overweight' (her sister was 8 kg heavier at baseline).

ES lives with her immediate family (Figure 1). There was no family history of psychiatric disorders.

Figure 1. Genogram.



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Physical findings: Growth parameters; height 137 cm (25th percentile), weight 33.8 kg (25th to 50th percentile) and Body Mass Index (BMI) 18.0 kg/m^2 (50th percentile). Baseline weight of 37 kg three weeks ago. Vital signs were not recorded, as it is not routinely performed for children. No pallor, peripheral edema or evidence of deliberate self-harm was observed. The mucosal surfaces were moist, and no dental erosions were observed. Cardiovascular, respiratory, and abdominal examinations unremarkable. There was no difficulty getting up from a supine position. Gait was steady and unassisted.

Mental state examination revealed a calm, cooperative, and well-groomed girl who was reticent, with a restrictive and guarded affect. Eye contact was lacking, and she ignored open-ended questions. When both mother and daughter were present, ES interacted only with her mother.

ES denied ongoing bullying at school and substance use. She was not currently engaged in any romantic relationships.

GAINING INSIGHT: WHAT ARE THE ISSUES?

1. What was the reason for the abnormal behaviour?
2. How should this be managed in primary care?
3. What is the definitive management?

STUDY THE MANAGEMENT: HOW DO WE APPLY THE INSIGHTS IN OUR CLINICAL PRACTICE?

1-What was the reason for the abnormal behaviour?

The provisional diagnosis was Anorexia Nervosa (AN) of the restricting type. According to the Diagnostic and Statistical Manual, fifth edition (DSM-5)[1], features of anorexia nervosa include persistent behaviour that leads to significant weight loss over a short period, driven by an irrational and intense fear of weight gain that stems from a disturbed perception of one's body weight and its impact on self-worth. No formal definition exists for *'significant weight loss over a short period,'* and its determination is at the discretion of the attending clinician.

The DSM-5 criteria further categorise patients into two sub-types, the restricting type, and binge-eating or purging type, depending on the methods used to accomplish weight loss.

Significant revisions made from the DSM-IV-TR (fourth edition) to the DSM-5 criteria enable earlier diagnoses of eating disorders, which is beneficial. These revisions include the removal of amenorrhoea and a specific weight cut off for the diagnosis of AN. Patients who are not underweight for age and height despite having lost significant weight are labelled as 'atypical AN'.[2]

With BMI-for-age in the 50th percentile, ES was not underweight (in children and adolescents, low body weight has been suggested as BMI-for-age of less than 5th to 10th percentile).[2, 3] However, she demonstrated persistent behaviours specifically geared towards weight loss. Her rapid weight loss was concerning since younger age and quicker weight loss incur a higher risk of medical complications.[3] Her lack of insight into the seriousness of her problem is typical for the AN patient. Finally, distinct risk factors for AN were present. These include premorbid characteristics (low self-esteem, perfectionism, anxiety disorder) and experiences (critical comments about body image).[4] Hence, atypical AN was the primary concern.

2-How should it be managed in primary care?

AN in adolescence is a complex disorder, requiring intensive longitudinal follow-up by a multi-disciplinary team, comprising the psychiatrist, psychologist, dietician, and often, an adolescent medicine specialist. Locally, a specialist eating disorder service in the tertiary hospital is the usual site of care.

The role of the primary physician following diagnosis is to coordinate an early referral to a specialist eating disorder service, as early recognition and aggressive treatment is needed to prevent complications and chronicity.[5, 6] Of paramount importance is the initial assessment of medical stability and decision-making regarding the immediacy of specialist care.

Symptoms of cardiovascular, gastrointestinal, and metabolic complications of AN do not manifest until the late stage in a very ill patient. Therefore, family physicians need to be aware of objective warning signs in the early stage of the disease. A useful guide would be the local hospitalisation criteria for eating disorders. These criteria corroborate with international guidelines.[2, 5]

- <75% Ideal Body Weight (IBW; variable methods exist to determine this, without international consensus)
- Hypothermia (temperature <35.5 °C)
- Hemodynamic instability: hypotension (systolic blood pressure <90 mmHg); orthostatic changes in pulse (>20 beats per minute; bpm) or blood pressure (>10 mmHg); bradycardia (<50 bpm daytime; <45 bpm night time)
- Cardiac arrhythmias
- Suicidal ideation
- Refusal to eat or ongoing weight loss despite intensive out-patient treatment

The 12-lead ECG is a useful point of care test. Changes include bradycardia or raised QTc [>460 milliseconds (girls) or 400 milliseconds (boys)].[3, 7] Urine pregnancy test may be done to rule out pregnancy in an amenorrhoea patient.

Blood tests have limited utility. These are typically performed in the tertiary setting, before and during the process of nutritional rehabilitation.

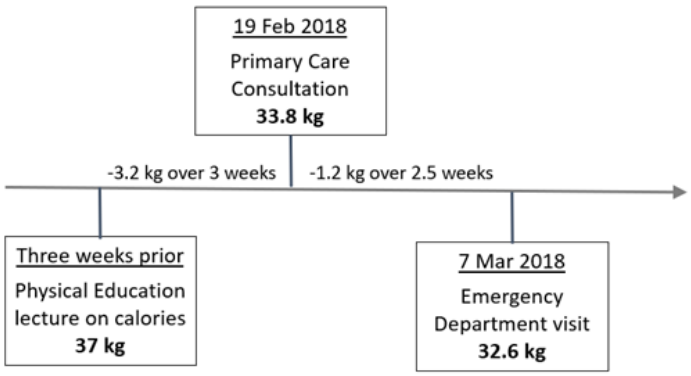
The management of ES at the time of initial consultation was an early outpatient referral to the child psychiatrist, with return advice given.

An important learning point to highlight is the need for measurement of vital signs, including any orthostatic change. This will help the physician determine if the patient is medically unstable and in need of more immediate help.

Emergency department visit
One week before her scheduled appointment, ES attended the emergency department with her mother, complaining of giddiness. A further 1.2 kg of weight was lost over the last two weeks. Madam T had tried unsuccessfully to obtain an earlier clinic appointment.

Her vital signs include blood pressure 102/55 mmHg, heart rate 48 bpm, with no postural hypotension or tachycardia. On examination, she was adequately hydrated. Sinus bradycardia was demonstrated on the 12-lead ECG. Venous blood tests were performed, with mildly elevated urea and creatinine levels, suggesting mild kidney injury.

Figure 2. Time line of events and weights leading up to the emergency department visit.



ES met hospitalisation criteria of sinus bradycardia less than 50 beats per minute and was admitted to the general ward.

3-WHAT IS THE DEFINITIVE MANAGEMENT?

Inpatient, ES was started on nutritional rehabilitation, with close surveillance for refeeding syndrome with regular electrolyte panels. Fortunately, she did not experience this complication.

Over the course of five weeks, ES gradually regained 3.9 kg of weight and was discharged, weighing 36.5 kg. Complications of dehydration and bradycardia resolved, with no postural symptoms and heart rate ranging 80 to 100 bpm.

She was subsequently enrolled into outpatient Family-Based Treatment (FBT; Table 1), which is the standard of care in the management of adolescent AN.[2, 5, 8] FBT is typically conducted over six to twelve months.[9]

Table 1. Phases of FBT with corresponding recovery goals in a patient with AN

Phase number	Action plan	Recovery goals
I	Caregiver training on refeeding child	Weight restoration and medical stability
II	The gradual transfer of developmentally appropriate control over eating back to the patient	Normalizing eating patterns, the return of flexibility in eating and psychological stability
III	Focussed on relapse prevention and treatment conclusion	Improved self-esteem, healthy perception of weight and restoration of age-appropriate function

Sources: Golden et al. (2015)[2], Campbell and Peebles (2014)[4]

At the conclusion of the first phase of FBT, ES had attained a peak weight of 40.3 kg, and she had experienced two successive, albeit light, periods.

Given the evidence of familial congregation of AN[4], her parents were pre-emptively cautioned to monitor her twin sister for emerging symptoms of an eating disorder. Of note, however, concordance for AN is much lower in dizygotic than monozygotic twins.[4]

DISCUSSION

Eating disorders are the third most prevalent group of chronic disorders in adolescence, after obesity and asthma.[3] Its onset peaks at adolescence.[2, 3, 5] A set of self-administered questionnaires used in a study population of 4,461 young females in Singapore (mean age of 16.7 years old; age range of 12 to 26 years) revealed that 7.4 percent of the surveyed population was at risk for eating disorders.[10] Screening tools like the SCOFF questionnaire[10] have been validated for clinical use.[5, 7]

The potential danger of AN must be emphasised. A local study of 271 patients with eating disorders identified that 28.4 percent suffer from related medical complications, the commonest of which are bradycardia, osteoporosis or osteopenia and hypokalaemia.[12] Patients with atypical AN are no less prone to these complications.[2]

Early diagnosis and intervention expedite recovery and improves outcomes.[5, 6, 13] FBT is the most efficacious treatment modality.[2,5] Pharmacological treatment, psychotherapy, and cognitive behavioural therapy are not routine in the treatment of AN in children and young persons. Medication may play a role in individual patients resistant to treatment or with comorbid psychiatric conditions.[5] Vitamin D deficiency is screened for and

replaced as needed in AN patients, but estrogen replacement and bisphosphonate therapy for low bone density is not routine.[2] Allowing menstruation to resume naturally serves as an indicator of a return to a healthy weight and is a source of motivation to the patient.[14]

While AN management is a specialised multi-disciplinary process, the Family Physician (FP) can play an important role. Preventive efforts include advocacy of a healthy body image and lifestyle, rather than blanket advice for weight loss in overweight children and adolescents. For patients and families familiar to the FP, changes in behaviour can be detected early on, before disordered eating becomes entrenched. FPs can be a source of support to a patient's caregivers and family as well. Furthermore, there may be a need to review patients with suspected AN while awaiting specialist review. A chance encounter or routine review with a patient with a history of AN is an opportunity to identify relapse; attention should be paid to growth, bone health, psychosocial issues, and general wellbeing. Finally, post-graduate training can be undertaken by family physicians keen to be involved in the process of FBT.

CONCLUSIONS

ES was an 11-year-old girl with a three-week history of restrictive eating habits and excessive exercise that led to rapid weight loss. She had poor insight into her condition, and her parent sought help on her behalf. She ultimately required hospitalisation for medical stabilisation. This case study highlights an important psychiatric condition in adolescence with potentially serious medical complications. It may be rare, but not unknown. Vigilance regarding its diagnosis and appropriate handling in primary care aids earlier diagnosis and treatment, with better outcomes.

Names have been changed to protect anonymity. The consent of the patient's guardian was obtained prior to the writing of this paper.

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