

Article

Psychosocial stress and abdominal pain in adolescents

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ABSTRACT

Children and adolescents may express psychiatric symptoms via somatic complaints. Likewise, children with chronic somatic illnesses are likely to experience psychiatric sequelae. We report three cases of adolescents who were admitted to general paediatrics services for abdominal pain and/or nausea and vomiting with a negative medical workup. In each case, a clear psychosocial stressor was evident. It is possible that somatic symptoms without clear medical causes may reflect psychosocial stress, but it is difficult to discern whether the psychosocial issues preceded the somatic

complaints or were a result of them. Making an accurate diagnosis is difficult, and broaching such a subject with patients and their families is a delicate matter. More research is needed to determine appropriate screening tools for identifying cases where psychosocial stress may play a relevant role in symptom presentation, as well as potential treatment modalities for such cases.

Keywords: abdominal pain, adolescents, paediatrics, psychiatry, stress

Introduction

As many as one in five children and adolescents have a mental illness.¹ Despite the availability of effective treatments, the delay between the first onset of symptoms and when treatment is first sought can be lengthy and costly and can lead to the development of other comorbid mental illnesses² and several serious social and interpersonal consequences, including difficulties with school, poor peer relationships, low self-esteem and alcohol or drug use.² Unfortunately, it is estimated that of the children and adolescents with mental illness, only one in five is diagnosed and receives treatment each year.² One possible reason for this is that mental illness often has a different presentation in youth from that in adulthood, making diagnosis difficult. Rather than endorsing subjective feelings of sadness or worry, children and adolescents may express their emotions

in other ways, such as irritability, disruptive behaviours, school refusal, difficulty sleeping, poor concentration, changes in appetite or eating habits and vague physical complaints like stomach aches and headaches.³ Thus, psychiatric illnesses in children and adolescents may initially present as somatic complaints.

Complicating the issue is the fact that children with chronic medical illnesses have increased rates of anxiety and depression compared to children without medical illnesses.⁴⁻⁶ Children with chronic medical illness are up to three times as likely to develop a psychiatric illness as other children.⁷ Chronically ill children commonly experience fear, anxiety, depression, irritability, anger and feelings of guilt regarding their illness.^{6,8} Therefore, it is often difficult to discern whether somatic complaints are

representative of a pre-existing psychiatric illness or if psychiatric symptoms develop later in response to an actual somatic illness. In either case, mental health should be addressed in children being chronically evaluated or treated for somatic complaints. Seeking treatment for only physical complaints without considering mental health issues may lead to unnecessary and excessive diagnostic testing and the use of potentially harmful medications, as well as neglecting an important aspect of the patient's general health and wellbeing.

In this article, we present three cases of adolescents admitted to general paediatric services with physical complaints without an identifiable medical cause. The parents of the patients consented to evaluation for possible psychiatric symptoms related to their physical complaints.

Case 1

The patient was a 15-year-old Caucasian female with no previous psychiatric history who was admitted to paediatrics with a one-month history of abdominal pain and vomiting. She reported non-bloody, non-bilious vomiting up to four times daily, usually within 15 minutes of finishing meals. She had only been able to tolerate liquids and soft foods such as Jello and apple sauce. She denied having a decreased appetite, but even foods she enjoyed resulted in nausea. These symptoms caused the patient to miss several days of school. She had had normal bowel movements approximately once a week for the previous four weeks. There was no significant weight loss. She also reported recurrent, diffuse abdominal pain that was occasionally periumbilical and that did not appear to be related to her eating behaviour. Studies performed during the hospitalisation included an abdominal CT scan and ultrasound of the gallbladder and pancreas – results were normal. Laboratory tests including liver enzymes, electrolytes, lipase and amylase and a pregnancy test were also negative. A gastric-emptying study was attempted, but was unable to be completed due to the patient vomiting during the examination. An upper gastrointestinal (GI) endoscopy series was performed which showed no abnormalities.

The psychiatry service was consulted to determine if there was a psychogenic cause for the nausea and vomiting. The patient and parent consented for a psychiatric consultation. On clinical interview, there were no signs and symptoms of an eating disorder such as anorexia or bulimia. The patient and her mother said that these symptoms started after she attended the funeral of her uncle, to whom the patient was not particularly close. However, the

patient's father had passed away roughly six months prior to this hospitalisation. The patient felt she had coped well with her father's passing and that she had a good support system, but said that attending her uncle's funeral had brought up memories of her father's passing. The patient reported disrupted sleep due to the abdominal pain, but denied other symptoms of depression such as anhedonia, depressed mood, decreased energy, decreased concentration or suicidal ideation. She did report crying spells two to three times per week. She denied excessive worrying and other anxiety symptoms. Screening for mania, psychosis, panic attacks and obsessive compulsive disorder was negative. The patient reported 'vivid flashbacks' to her father's passing, but denied hypervigilance, hyperarousal, avoidance, nightmares or other signs and symptoms of post-traumatic stress disorder. The patient had no previous psychiatric diagnosis, had never seen a psychiatrist or therapist, had never been in a psychiatric hospital and had never been on psychotropic medications. Her past medical history included only asthma without any prior hospitalisations.

She was initially placed on IV fluids and started on Prevacid daily and Zofran as needed. Her abdominal pain was minimal, and vomiting occurred two to three times during the hospitalisation. The patient's nausea improved and she began tolerating oral intake. She was discharged by paediatrics with a diagnosis of 'nausea, vomiting and abdominal pain' and instructed to follow up as an outpatient. She was given a diagnosis of depressive disorder, not otherwise specified (NOS) by the psychiatry service, and no acute psychiatric interventions were indicated during the hospitalisation. She was encouraged to follow up with outpatient grief counselling.

Case 2

The patient was a 13-year-old female who was admitted to general paediatrics with a two-year history of vomiting after meals. The vomiting had progressed from twice a month to nearly every day, getting worse over the previous few months. She was able to eat meat, wheat bread and clear liquids, but otherwise had difficulty with both solids and coloured liquids. For the two weeks prior to admission, the patient had had a decreased appetite and reportedly lost six pounds. The patient denied abdominal pain, nausea, reflux symptoms or viral symptoms. The patient did report intermittent constipation. The patient had tried Phenergan, Zantac, Maalox and Tums, none of which had helped. She was initially placed on intravenous (IV) fluids and given nil by mouth. An upper GI endoscopy series performed

during the hospitalisation was normal. Other studies, including thyroid function testing, liver enzymes and electrolytes, were also normal.

On further interview by the paediatrics service, the patient reported getting into frequent arguments with her mother and feeling depressed, and the psychiatry service was consulted. The patient and mother gave consent for a psychiatric evaluation. The patient denied anorexia or bulimia symptoms, or any other signs or symptoms of an eating disorder. The patient stated that she vomited less when she was distracted while she ate, doing such things as watching TV or going on the computer. She also vomited more frequently when she ate with others than when eating alone. The patient also reported increased mood lability and increased periods of sadness over the previous few months. She reported initial insomnia, decreased energy, anhedonia and depressed mood. She denied suicidal ideation or past attempts. She reported a history of cutting herself approximately three to four years previously. She had been seeing a psychologist weekly since this behaviour had started, and she denied current self-injurious behaviour. The patient denied previous psychiatric hospitalisations or medications. The patient's parents are divorced – the father lives in another state, and the patient usually spends her summers with him. He is now remarried and has another child with his new wife. The patient's mother also remarried approximately three years ago. A psychiatric review of systems is otherwise negative.

During her hospitalisation, her IV was discontinued and she was encouraged to tolerate oral intake. However, she did have non-blood, non-bilious vomiting after almost every meal which continued until her discharge. She was discharged by paediatrics with 'intractable vomiting' and an appointment was made with the paediatric GI clinic for one week later. The patient was given a diagnosis of depressive disorder, NOS by the psychiatry service, and no acute psychiatric interventions were made. The patient was not felt to be in any imminent danger, and the patient and mother were encouraged to continue with her weekly outpatient psychologist appointments.

Case 3

The patient was a 14-year-old female with multiple admissions to general paediatrics for chronic abdominal pain, nausea and vomiting. These symptoms had been present for eight weeks, and vomiting occurred immediately after eating and up to six times daily. The patient also reported a 20-pound

weight loss over the past month. She said the abdominal pain was constant and caused her to have difficulty with concentration – she has been unable to attend school or socialise with friends. She reported a good appetite during this time, but was only able to tolerate liquids. The symptoms appeared to be chronic and relapsing/remitting, as she had these symptoms two to three times per year, each episode lasting for a couple of months and spontaneously resolving. She had been treated with Zofran, Phenergan, and Compazine which alleviated her nausea but not the vomiting. The medical evaluation included a biliary scan, colonoscopy, gastric emptying scan, ultrasound and abdominal CT scan, which were all within normal limits. An upper endoscopy showed duodenal erosions. Her medical history was significant for juvenile rheumatoid arthritis.

Psychiatry services were consulted for evaluation of depression or anxiety and psychiatric components to the nausea and vomiting. In terms of depression, the patient reported feeling 'upset' about her symptoms. She reported feelings of guilt over not being able to help out at home with taking care of a younger sibling with a neurological disorder. She denied anhedonia, but said that she was unable to do things she finds pleasurable because of her abdominal pain. She reported decreased energy and had experienced thoughts of 'not wanting to go on' in the past, but denied current suicidal ideation, intent or plan. She also reported worrying about how long her symptoms would last. She worried about her family and not having enough help at home. She was having some difficulty sleeping and worried about someone breaking into the house. The patient denied nightmares, panic attacks, substance abuse, or signs or symptoms of mania or psychosis. She denied a history of abuse. The patient's father had been physically abusive towards the mother and had recently left the family.

The patient was diagnosed with generalised anxiety disorder and depressive disorder, NOS. We recommended citalopram 5 mg by mouth daily to target symptoms of mood and anxiety. We also recommended outpatient therapy for management of anxiety and depression and a return to school as soon as possible. Because of the Food and Drug Administration black box warning⁹ on the use of antidepressants in children and adolescents leading to increased suicidal ideation, and because the patient did not have outpatient psychiatric follow-up arranged, the citalopram was not started at this time. The patient and her family were encouraged to seek outpatient psychiatric follow-up. She was discharged from the paediatric service with a diagnosis of 'abdominal pain' and was to be followed up in a paediatric GI clinic.

Summary and discussion

We have presented three cases of adolescents admitted to inpatient paediatric services for abdominal pain, nausea and vomiting without known underlying medical causes. Comprehensive medical testing revealed no clear identifiable medical aetiologies. However, in all three cases a clearly identifiable psychosocial stressor was revealed that could perceptibly cause anxiety, depression or both. One of the three patients was diagnosed with generalised anxiety disorder, and all three were diagnosed with depressive disorder, NOS (clinically significant depression that does not meet DSM-IV criteria for a major depressive episode).¹⁰

In children and adolescents, somatic symptoms without an underlying medical cause may represent an anxiety or depressive disorder.^{3,6,8,11-14} There is a known association between chronic abdominal pain and emotional disturbance in children and adolescents,^{3,11,14} specifically anxiety disorders.¹⁴ Studies have clearly shown that children with depression are more likely to complain of pain rather than psychological symptoms,^{6,12,13} and that somatisation may be more common in girls and younger children.¹⁵⁻¹⁸

Identifying psychosocial stressors for the patient and family may be crucial in explaining the symptoms and tailoring treatment.^{3,19} Fully optimised treatment would involve psychosocial and behavioural techniques to help manage anxiety; therefore psychiatric symptoms^{14,20} and somatic symptoms are unlikely to completely resolve if the underlying psychiatric disorder is not addressed.¹⁴

Attempting to confront patients with a psychiatric diagnosis may make patients or parents feel that their symptoms are not real, are 'all in their mind' or that there is nothing medically wrong with them.³ Therefore, the onus often falls on physicians to appropriately screen for such problems and to make cost-effective and appropriate referrals.³

Finally, not all patients who present with medically unexplained abdominal pain present with overt psychiatric disorders, and it may be inappropriate to assume there is an underlying psychiatric illness without supporting evidence.³ However, if a psychosocial stressor or an emotional component is suspected to be a major contributing cause of somatic symptoms, studies have used several assessments to screen for psychiatric symptoms, namely the Children's Symptom Inventory for ages three to 12, and the Youth's Report for ages 13 to 18.¹⁴

In summary, physical symptoms and psychological factors often coexist and are interrelated in complex ways that are not completely understood at this time. It is not clear if there is a cause-effect

relationship, but it would be safe to say that adolescent patients who present with chronic somatic complaints, with or without identifiable medical causes, are more likely to be experiencing significant anxiety or depression, or current psychosocial or environmental stressors. The treating physician or team should be careful to screen appropriately.

Further research is needed to determine the incidence of anxiety and mood disorders in children and adolescents who seek treatment for medical illnesses or somatic complaints. It remains uncertain whether these patients are already suffering from an anxiety or mood disorder when they present for treatment, which may in fact be contributing to their symptoms, or if psychiatric sequelae develop over time during the diagnosis and treatment of medical illnesses. Understanding this process will further help us to diagnose, treat and ideally prevent psychiatric symptoms in children and adolescents. It will also be important for more research to determine appropriate and recommended treatment options for patients with somatic and psychiatric symptoms, as these appear to be severely limited at this time.

REFERENCES

- 1 US Department of Health and Human Services. *Mental Health: a report of the Surgeon General*. Rockville, MD: US Department of Health and Human Services, 1999.
- 2 National Institute of Mental Health. *Release of Landmark and Collaborative Study Conducted by Harvard University, the University of Michigan and the NIMH Intramural Research Program*. www.nimh.nih.gov
- 3 Albrecht S and Naugle AE. Psychological assessment and treatment of somatization: adolescents with medically unexplained neurologic symptoms. *Adolescent Medicine* 2002;13:625-41.
- 4 Peele P, Lave JR and Xu Y. *Co-Morbid Mental and Medical Illnesses in Children and Adolescents*. Abstracts from the Academy for Health Services Research and Health Policy Meeting 2002; 19:17.
- 5 Spady DW, Schopflocher DP, Svenson LW and Thompson AH. Medical and psychiatric comorbidity and health care use among children 6 to 17 years old. *Archives of Pediatrics and Adolescent Medicine* 2005;159:231-7.
- 6 Northam EA. Psychosocial impact of chronic illness in children. *Journal of Paediatrics and Child Health* 1997;33:369-72.
- 7 Cohen P, Pine DS, Must A, Kasen S and Brook J. Prospective associations between somatic illness and mental illness from childhood to adulthood. *American Journal of Epidemiology* 1998; 147:232-9.
- 8 Hay WH, Levin MJ, Sondheimer JM and Deterding RR. *Current Pediatric Diagnosis and Treatment* (19e). New York: McGraw-Hill Professional, 2008.

- 9 US Food and Drug Administration. *Antidepressant Use in Children, Adolescents, and Adults*. Silver Spring, MD: US Food and Drug Administration, 2007. www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm096273.htm
- 10 American Psychiatric Association. *The DSM-IV-TR: the current manual*. www.psych.org/MainMenu/Research/DSMIV/DSMIVTR.aspx
- 11 Hyams JS, Burke G, Davis PM, Rzepski B and Androlonis PA. Abdominal pain and irritable bowel syndrome in adolescents: a community-based study. *Journal of Pediatrics* 1996;129:220–6.
- 12 American Academy of Pediatrics Subcommittee on Chronic Abdominal Pain. Chronic abdominal pain in children. *Pediatrics* 2005;115:812.
- 13 Boyle JT and Hamel-Lambert J. Biopsychosocial issues in functional abdominal pain. *Pediatric Annals* 2001;30:32.
- 14 Tarbell S and Li BU. Psychiatric symptoms in children and adolescents with cyclic vomiting syndrome and their parents. *Headache* 2008;48:259–66.
- 15 Egger HL, Costello EJ, Erkanli A and Angold A. Somatic complaints and psychopathology in children and adolescents: stomach aches, musculoskeletal pains, and headaches. *Journal of the American Academy of Child and Adolescent Psychiatry* 1999;38:852–60.
- 16 Rhee H, Holditch-Davis D and Miles MS. Patterns of physical symptoms and relationships with psychosocial factors in adolescents. *Psychosomatic Medicine* 2005;67:1006–12.
- 17 Mullick MS. Somatoform disorders in children and adolescents. *Bangladesh Medical Research Council Bulletin* 2002;28:112–22.
- 18 Masi G, Favilla L, Millepiedi S and Mucci M. Somatic symptoms in children and adolescents referred for emotional and behavioral disorders. *Psychiatry* 2000;63:140–9.
- 19 Ramchandani PG, Stein A, Hotopf M and Wiles NJ. Early parental and child predictors of recurrent abdominal pain at school age: results of a large population-based study. *Journal of the American Academy of Child and Adolescent Psychiatry* 2006;45:729–36.
- 20 Brent M, Lobato D and LeLeiko N. Psychological treatments for pediatric functional gastrointestinal disorders. *Journal of Pediatric Gastroenterology and Nutrition* 2009;48:13–21.

CONFLICTS OF INTEREST

None.

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