Anorexia Nervosa versus Superior Mesenteric Artery Syndrome in a Young Woman: Case Report and Literature Review

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Abstract

Anorexia nervosa is an eating disorder seen mainly in females. It is one of the differential diagnoses of a rare surgical syndrome called superior mesenteric artery syndrome. Differentiation between them is usually difficult. We report here a case of superior mesenteric artery syndrome with later diagnosis of anorexia nervosa. Patient did not respond to surgical treatment. Indicative factors to suspect anorexia nervosa are discussed with literature review.

Key words: Anorexia nervosa, superior mesenteric artery syndrome, eating disorder, Saudi Arabia

Introduction

Anorexia Nervosa (AN) is an eating disorder that has high mortality rate with 0.3 percent as an average prevalence rate among young females. It presents with weight loss, distorted body image, amenorrhea and sometimes with vomiting and loss of appetite. Similar symptoms could occur also in a rare surgical syndrome called Superior Mesenteric Artery Syndrome (SMAS) which is caused by intermittent functional obstruction of the third part of the duodenum between the superior mesenteric artery and aorta, resulting in duodenal obstruction. With a reported incidence of 0.013% to 0.3%2,3. We report a 35- year-old female who was diagnosed as SMAS that did not respond to surgical intervention, and was later diagnosed with AN. The following report describes the indicative factors that strongly support a diagnosis of AN in a patient with SMAS and the review of literature.

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Case Report

A 35-year-old married illiterate woman presented to general surgeon in emergency room in King Khalid University Hospital, giving a 12-year-history of post-prandial bloating, epigastric pain followed sometimes by nausea and vomiting after ingestion of any solid food, and severe weight loss.

At first, the patient started to eat semi liquid food in small amount at frequent periods to ameliorate her symptoms with no benefit. She had been treated in various clinics and hospitals regarding her complaints with unsatisfactory results. At emergency room, investigation of blood count, electrolytes and liver function were all within normal range.

After admission a barium meal revealed “a dilated stomach, gross dilatation of the proximal two thirds of the duodenum, delay in gastric emptying, and a straight extrinsic defect across the third part of the duodenum” (Figure 1).

Fluoroscopy revealed that “turning the patient to her left side allowed the barium to flow into the distal duodenum”. CT scan with oral and intravenous contrast confirmed the diagnosis of SMA syndrome (Figure 2).

The surgeon made a diagnosis of superior mesenteric artery syndrome and began to treat her conservatively. She was referred then to psychiatry because of depressive symptoms.

The patient complained to the psychiatrist that she suffered from low mood, lack of interest, chest tightness, crying bouts with no sleep changes, death wishes and suicidal ideas. These complaints started after the onset of the epigastric pain and continued with fluctuation in severity. She reported that she is fat and afraid to be so, although others told her that she is very thin.

The patient denied that she had ever tried to lose weight. There was a history of binge eating and trials to vomit as a method to relieve the pain only, not as an attempt to lose weight. Over the 12 years prior to her presentation there was fluctuation of her weight ranging between 45 kg (82% of ideal body weight, BMI= 18) and 33 kg (60% of ideal body weight, BMI= 13) and her height was 158 cm. Her weight was 26 kg at presentation (47% of the ideal body weight 55 kg, BMI= 10). Her menstrual period was irregular in frequency and amount, and disappeared 8 months prior to presentation.
The patient gave past history of repeated ablutions and prayers because of doubts which disappeared later, but she still had irresistible blasphemous thoughts regarding God associated with great distress. She described herself as over concerned, perfectionist, and thinking a lot while her husband described her as delicate, tidy, exaggerates things, over concerned about small issues and always blaming herself. There was no family history of psychiatric illness.

Our psychiatric diagnoses were: Anorexia Nervosa Binge-Eating/Purging Type, major depressive disorder, obsessive compulsive disorder and cluster C personality traits.

During hospitalization, patient was already on mirtazapine which was increased to 45 mg daily, imipramine 50 mg was added and she was started on cognitive behavioral psychotherapy sessions. Unfortunately patient can not tolerate more increase in her medication and she was uncooperative and not motivated in the psychotherapy sessions. She refused to be transferred to the psychiatric ward for more involvement of the psychotherapy. Three months after admission, it was decided by surgical team that conservative treatment had failed and a gastrojejunostomy was performed. Unfortunately, her physical symptoms did not improve and her weight did not change significantly. Even after the surgery, patient still refused to eat, despite reassurance that with medication and special regime there would be no pain. She was discharged from the hospital and given appointment in psychiatric out-patient clinic but she did not show up.

Discussion

Superior mesenteric artery syndrome was first described in 1861 by Von Rokitansky and since then more than 400 cases have been reported worldwide making it an uncommon but well recognized clinical entity. The exact etiology of SMAS is not known; certain predisposing conditions are clearly recognized:

1. Constitutional factors such as tall thin body build which is reported in 80% of patients, exaggerated lumbar lordosis, visceroptosis, and rapid linear growth without compensatory weight gain, particularly during adolescence.

2. Severe injuries, such as head trauma, leading to prolonged bed rest.

3. Dietary disorders: anorexia nervosa and malabsorption.

4. Spinal disease, deformity, or trauma.

5. Use of body cast in the surgical treatment of scoliosis or vertebral fractures. SMA cases after corrective spine surgery is due to the result of spinal elongation, which decreases the superior mesenteric/aortic angle.

6. Postoperative weight loss is an important factor for development of SMA syndrome.

7. Anatomic anomalies: Abnormally high and fixed position of the ligament of Treitz with an upward displacement of the duodenum and unusually low origin of the SMA.

8. Unusual causes: Traumatic aneurysm of the SMA after a stab wound, Familial SMA syndrome and recurrent SMAS.

The “gold standard” for the diagnosis of the SMA syndrome is said to be a barium study of the upper GI tract which was been applied in our case.

However, there are other modalities of diagnosis mentioned in the literatures: CT scan of the abdomen will measure the aorta-SMA distances and duodenal distension. Also, it can be used to assess the intra-abdominal as well as retroperitoneal fat contents; abdominal ultrasonography and arteriography are useful for measuring the angle of the SMA and aortomesenteric distance; Upper GI endoscopy to exclude mechanical causes of duodenal obstruction. However, the diagnosis of SMA syndrome may be missed with this study; Manometry may be used to differentiate between the possibility of a myopathic form of chronic intestinal pseudo-obstruction type of syndrome by demonstrating low-amplitude waves throughout the duodenum, and frequently the stomach, versus an irregular or absent
motility changes in a neuropathic form of chronic intestinal pseudo-obstruction syndrome.

Anorexia Nervosa is one of the differential diagnoses of Superior Mesenteric Artery Syndrome, and it is difficult to distinguish the cause from the consequence specially when identification of SMAS can be a diagnostic dilemma and is frequently made by exclusion.

Usually they share some of the symptoms like vomiting and weight loss; however there are many differences between the tow disorders. For example patients with SMAS usually suffer from epigastric pain, postprandial discomfort and bloating which occur after or are aggravated by eating. They are usually relieved by postural changes, such as turning to the left side, in prone or knee-chest position. On the other hand, body image distortion and amenorrhea are diagnostic criteria in AN which are not seen usually in SMAS.

Table 1: DSM-IV-TR* Diagnostic criteria for Anorexia Nervosa

| Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected). |
| Intense fear of gaining weight or becoming fat, even though underweight. |
| Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight. |
| In postmenarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.) |

Specify type:

Restricting Type: during the current episode of Anorexia Nervosa, the person has not regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas)

Binge-Eating/Purging Type: during the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas)

* Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision

An is associated with depression in 65 percent of cases and with obsessive-compulsive personality disorder (OCPD) in 3-60%. In this patient there were clear depressive and obsessive symptoms and obsessive-compulsive personality traits. When conservative measures fail to treat SMAS, surgical management is indicated. However, certain criteria must be met before operative intervention: (i) the diagnosis is confirmed radiographically; (ii) a thorough radiographic, endoscopic and psychologic evaluation rules out other causes; (iii) the symptoms do not disappear after a period of medical therapy; and (iv) in cachectic patients, an attempt of weight gain is unsuccessful. In our patient, most of the above criteria are fulfilled, except the presence of psychiatric symptoms. In some cases conservative treatment will result in optimal weight gain and complete recovery especially in orthopedic patients. But in others, surgery will be a must, the use of laparoscopic surgery that involves division of the ligament of Treitz and mobilization of the duodenum has been reported and carries great success. However, duodenojejunostomy is the most frequently used procedure, and it is successful in about 90% of cases. Although our patient...
underwent for gastrojejunostomy, she did not improve, raising the possibility of other etiologies for her presentation. A similar case was reported in Saudi Arabia before, where the patient did not respond to surgical intervention. Eventually, the treating team discovered that the patient had the diagnosis of anorexia nervosa since adolescence. Also, another Saudi case report showed that patient’s family was uncooperative and discharged the patient against medical advice which lead to treatment failure. This also happened with our patient where the family asked for the operation and they insisted for it.

In conclusion, Anorexia Nervosa is a differential diagnosis of SMAS and should be considered in all cases of SMAS specially if the following are present: (i) other features of AN (e.g. distorted body image). (ii) co morbidity of other psychiatric illnesses like depression and obsessive compulsive disorder. (iii) no response to conservative treatment of SMAS. This can lead to early diagnosis and avoid unnecessary suffering for the patient.

References