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Case Report

Surgical Therapy in the form of Duodenojejunostomy Anastomosis in A Patient with Wilkie's Syndrome: A Case Study

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Abstract

Wilkie's Syndrome, a rare digestive disorder caused by compression of the duodenum by the Superior Mesenteric Artery (SMA) and the aorta, results in obstruction. This case study is unique due to its rarity and the successful surgical intervention performed, contributing valuable insights into the management of Wilkie's Syndrome in adolescents.

Patient's main concerns and clinical findings: A 14-year-old girl presented with vomiting after eating, epigastric pain, and abdominal distension. Examination revealed increased bowel sounds, abdominal distension, and epigastric tenderness. Laboratory tests showed leukocytosis and hypokalemia, and radiology indicated gastric distension, duodenal dilation, and a narrow aortomesenteric angle, suggestive of Wilkie's syndrome.

Main Diagnoses, therapeutic interventions, and outcomes: Diagnosed with Wilkie's Syndrome based on clinical and radiological findings, the patient initially received conservative treatment, which failed. She underwent laparotomy and duodenojejunostomy, revealing a short Treitz ligament causing SMA compression. Post-surgery, the patient's symptoms improved, and she gained weight within a month.

Conclusion: This case highlights the importance of considering Wilkie's Syndrome in patients with persistent gastrointestinal symptoms and the efficacy of surgical intervention when conservative treatments fail. The multidisciplinary approach and timely surgical management are crucial for favorable outcomes.

Keywords: Wilkie's syndrome; Treitz ligament; Superior mesenteric artery; Duodenojejunostomy

Introduction

Wilkie's syndrome is a rare digestive disorder [1]. This disorder is caused by the compression of one-third of the duodenum by the Superior Mesenteric Artery (SMA) and the aorta, resulting in obstruction [2]. Only 500 cases have been reported in various literatures with an estimated prevalence of 0.003% - 0.3%. This case occurs more often in females than in males with a ratio of (2:1) [3]. This case was first described by Carl Von Rokitansky in 1861, and then detailed again by Wilkie in 1927. Normally, the SMA and aorta form an angle of 25°-60°, but an abnormal narrowing angle can be caused by congenital anomalies, weight loss, lumbar hyperlordosis, and various other conditions. Additionally, the compression of the duodenum can be caused by a short Treitz ligament or hypertrophy. However, as many as 40.4% of these abnormalities are idiopathic.

However, various imaging techniques are valuable for diagnosing it [4]. The diagnosis can be established by using ultrasonography to measure the aorto-mesenteric angle [5]. The initial management provided is conservative care, including nutritional therapy, symptomatic therapy such as antiemetics, changes in body position after eating, and correction of fluids and electrolytes [3]. If conservative care is deemed to have failed, surgical intervention is required. As many as 75% of cases require surgical intervention to reduce mortality rates. In this case, the mortality rate is 33% [1]. Misdiagnosis can lead to death due to electrolyte imbalance, nutritional deficiencies, gastric perforation, and peritonitis.

This case is still widely discussed due to its diverse etiology, non-specific clinical manifestations, and varied management. Therefore, multidisciplinary collaboration is needed to ensure an accurate diagnosis and appropriate management.

Case Presentation

A 14-year-old girl came to the Emergency Department of Karawang General Hospital with complaints of vomiting every time she eats. The complaint was accompanied by epigastric pain and a cramping sensation in her stomach. On abdominal examination, increased bowel sounds, abdominal distension, and epigastric tenderness were found.

Laboratory examination revealed leukocytosis of 27.01 × 10^3/µl and hypokalemia of 2.8 mmol/L. The patient underwent upper gastrointestinal fluoroscopy. This examination revealed dilation of the upper two-thirds of the duodenum, extrinsic compression of the lower third of the duodenum, and collapse of the distal small intestine. To determine the cause of the collapse of the lower third of the duodenum, the patient underwent a contrast-enhanced computerized tomography scan (CT scan). The CT scan showed a narrowing of the aortomesenteric angle. From the longitudinal slice of the abdominal

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CT scan, the distance from the superior mesenteric artery to the duodenum can be measured, which in this case was found to be 6.39 mm. Additionally, the aortomesenteric angle can also be measured, which was found to be 12.3° (Figure 1).

After 7 days of conservative treatment without improvement, it was decided to perform surgical intervention. The surgical therapy involved the techniques of duodenojejunostomy anastomosis and Ladd's procedure. Intraoperatively, it was found that the lower third of the duodenum was obstructed by the superior mesenteric artery and abdominal aorta, with shortening of the ligament of Treitz. By the fourth day post-operation, the patient's symptoms had improved. Nasogastric tube residual was 100cc/6 hours, greenish in color. Bowel sounds were heard 18 times per minute. The patient was given a clear fluid diet *via* NGT (Nasogastric Tube) at 6 × 10 ml per NGT. On the sixth day after the operation, the patient was transitioned to an oral fluid diet, and an Oesophagus Maag Duodenum (OMD) radiographic examination was performed to evaluate the success of the surgical procedure.

On the eighth day after the operation, the patient is planned for outpatient care as there are no complaints such as vomiting after meals, epigastric pain, or abdominal distension and in a month post-operation, the patient experienced a weight gain of 3.7 kg (Figure 2).

Discussion

Syndrome Wilkie involves the compression of one-third of the duodenum by the Superior Mesenteric Artery (SMA) and the aorta, leading to obstruction. This condition predominantly affects females aged 10-39 years. Obstruction can occur partially or totally, presenting with acute or chronic symptoms due to congenital or acquired causes.

A 14-year-old female patient presents with complaints of vomiting after every meal, leading to dehydration that can trigger infections. Laboratory results show leukocytosis of 27.01 × 10^3/μL, indicating an infection. The vomiting is caused by pressure within the gastrointestinal tract, forcing the contents of the stomach outwards. This pressure results from the obstruction of the lower third of the duodenum by the superior mesenteric artery.

The fatty and lymphatic tissue surrounding the superior mesenteric artery protects the duodenum from compression. Compression of the duodenum occurs due to drastic weight loss, leading to a reduction in fatty tissue. However, several conditions can also cause compression, such as the shortening of the ligament of Treitz and adhesions involving the ligament of Treitz, as observed in the patient during intraoperative findings. The abnormal shape of the ligament of Treitz in the patient results in narrowing of the aortomesenteric angle. The normal aortomesenteric angle ranges from 25° to 60°, but in the patient, it measures only 12.3°. Additionally, duodenal compression in the patient is caused by the close proximity of the aortomesenteric distance, which measures 6.39 mm compared to the normal range of 10-28 mm.

Based on the supportive diagnostic findings for Wilkie's syndrome and the failure of conservative therapy, the patient underwent surgical treatment. There are several surgical options for Wilkie's syndrome, such as duodenojejunostomy, gastrojejunostomy, and Strong's procedure. Strong's procedure is often performed in pediatric patients but has a high failure rate. Gastrojejunostomy also carries a high failure rate as it cannot effectively resolve proximal duodenal obstruction and increases the risk of peptic ulcers. Duodenojejunostomy achieves success rates of up to 90% and can be performed minimally invasively, which is considered safer and more effective in managing this condition.

In this case, the patient underwent laparotomy with duodenojejunostomy anastomosis and Ladd's procedure. Intraoperative findings revealed that the lower third of the duodenum was compressed by the superior mesenteric artery due to the shortening of the ligament of Treitz.

Conclusion

Establishing a diagnosis of Wilkie's syndrome requires multidisciplinary collaboration across medical fields. This involves cooperation among radiologists, pediatric specialists, and surgeons to confirm and manage the condition.

Following surgical therapy, the patient's health condition improved significantly with the absence of initial complaints upon admission to the Emergency Department. A month post-operation, the patient experienced a weight gain of 3.7 kg.

References

1. Claro M, Sousa D, Abreu da Silva A, Grilo J, Martins JA. Wilkie's Syndrome: An Unexpected Finding. Cureus. 2021;13(12): e20413.
2. Van Brussel JP, Dijkema WP, Adhin SK, Jonkers GJPM. Wilkie's syndrome, a rare cause of vomiting and weight loss: Diagnosis and therapy. Neth J Med. 1997;51(5):179-81.
3. Haidar A, Davies A, Hussain A, Gregerson S, Thammineni D, Markus J. Wilkie's Weight Loss Wonder: A Case Series. Spartan Med Res J. 2020;5(2):13485.
4. Hermosillo-Cornejo DG, Girón-Gidi AD, Vélez-Pérez FM, Lemus-Ramírez RI, Martínez-Garza PA. Síndrome de Wilkie. Reporte de un caso. Cir y Cir. 2017;85(1):54-9.
5. Farina R, Foti PV, Cocuzza G, Costanzo V, Costanzo G, Conti A, et al. Wilkie's syndrome. J Ultrasound. 2017;20(4):339-42.

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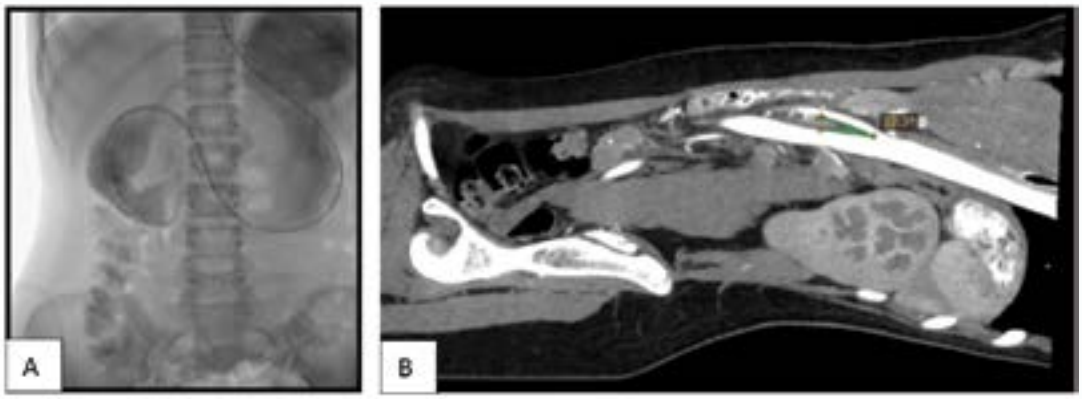

Figure 1: (A). Upper gastrointestinal fluoroscopy. (B). Abdominal CT scan Longitudinal Slice.

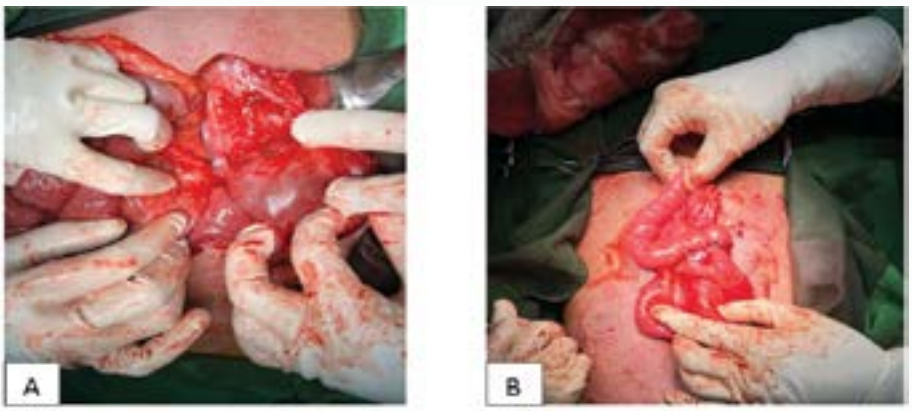

Figure 2: (A). Compression of one-third of the duodenum by the Superior Mesenteric Artery (SMA). (B). Duodenojejunostomy Anastomosis

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