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Is the single-incision laparoscopic duodenojejunostomy factible, safe and effective for patients with Wilkie's syndrome?☆

¿Es factible, segura y eficaz la duodenoyeyunostomía laparoscópica por puerto único para el tratamiento del síndrome de Wilkie?

Superior mesenteric artery (SMA) syndrome or Wilkie's syndrome causes intestinal obstruction by compression of the third duodenal portion between the aorta and the SMA and, although rare, can be the origin of any condition associated with weight loss. Treatment includes medical management for uncomplicated cases, leaving the surgical option for those that are chronic or refractory.[1]

We reviewed patients treated at our hospital by single-port laparoscopic duodenojejunostomy for SMA syndrome refractory to medical treatment between July 2013 and November 2015, and collected demographic, clinical, and imaging data (Table 1).

We included two women, median age 32 years (23–41) with upper abdominal pain, associated in one of the women with vomiting and acute weight loss (2 kg), and a median duration of 23.5 months (12–35 months).

Diagnosis was based on clinical findings and complementary tests, by gastroduodenal study (GDS), upper gastrointestinal endoscopy (UGE), and computed tomography (CT). UGE was not diagnostic in either case, whereas the first case was suspected after GDS. The key to diagnosis was CT, which showed a reduced aortomesenteric angle in both patients (median 22.5°).

The surgical technique used a single-port laparoscopic approach, starting with exposure of the third duodenal

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Table 1 – Demographic and clinical presentation data.

Case	Age	Sex	Symptoms and duration (months)	Emergency department attendance (n°)	Weight loss (kg)	BMI at diagnosis (kg/m^2)	GDS	UGE	CT	Aorto-mesenteric angle (degrees)
1	23	Female	Abdominal pain, vomiting; 12 months	5	2	19.95	Yes	Not diagnostic	Yes	21
2	41	Female	Abdominal pain; 35 months	2	–	17.01	Not diagnostic	Not diagnostic	Yes	24

portion and the creation of a mechanical isoperistaltic laterolateral intracorporeal anastomosis between it and a loop of jejunum at 30cm from the angle of Treitz. Tightness was checked by methylene blue via nasogastric tube and no significant blood loss was described, with a median operating time of 62.5 min (55–70 min). All the patients were mobilised early, diet was started on the second postoperative day and the median hospital stay was 4 days (2–6 days). After a median follow-up of 158 months (65–93), the symptoms of both patients had resolved, and they had gained weight. The surgical and treatment efficacy data are shown in Table 2.

Wilkie's syndrome is caused by compression of the third duodenal portion, when the angle between the aorta and the SMA is less than 25°, consistent with the findings in our series. It is thought to be due to rapid weight loss leading to a reduction in mesenteric fat around the aorta and SMA, although in up to 40% of patients it has no explainable cause.[2] Our sample consisted of young women, as described in the literature.

This entity may present acutely or, more frequently, as chronic intermittent compression of the duodenum leading to symptoms such as abdominal pain, nausea, vomiting, weight loss, or early satiety, which are relieved by lateral or prone decubitus by increasing the aortomesenteric distance. In our series, both patients presented with upper abdominal pain, associated in one of the women with vomiting and acute weight loss.

Diagnosis requires a high index of suspicion and detailed radiological evaluation. UGE may show extrinsic duodenal compression and exclude mechanical causes of obstruction, whereas GDS may reveal proximal dilatation. However, the key to diagnosis is visualisation of a narrow aortomesenteric angle on sagittal CT[3] reconstruction, which confirmed the diagnosis in our two patients and ruled out other associated syndromes, such as arcuate ligament or nutcracker syndrome.

Medical management is the mainstay of treatment in uncomplicated cases, with strict diet, nasogastric tube, rehydration, and water and electrolyte correction, which may be helped by placing the patient in prone or left lateral decubitus. Surgical treatment should be chosen in the event of complications or lack of response to treatment after 6–8 weeks,[4] and open or laparoscopic gastrojejunostomy or duodenojejunostomy have been most frequently described. The single-port laparoscopic approach performed by surgeons with experience in minimally invasive surgery had good results in our series, with short operating times, no significant perioperative complications, less postoperative analgesic requirements and rapid recovery.[5] In our series, hospital stay was shorter than that described in the literature for the open approach and there was an earlier return to activities of daily living.[6] Surgical treatment is effective in most cases,[7–9] which was also confirmed in our series.

To conclude, the single-port laparoscopic approach to SMA syndrome appears feasible, safe, and effective in the long term, with short hospital stays, few complications and good long-term results when performed by experienced surgeons.

Table 2 – Surgical and treatment efficacy data.

Case	Operating time (min)	Blood loss (ml)	Hospital stay (days)	Follow-up (months)	Clinical resolution	BMI post-surgery (5 years) (kg/m^2)
1	70	0	2	93	Yes	21.6
2	55	0	6	65	Yes	18.4

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