

LAPAROSCOPIC POSTERIOR TRUNCAL VAGOTOMY AND ANTERIOR HIGHLY SELECTIVE VAGOTOMY - A CASE REPORT

C K Kum, P Goh

ABSTRACT

Laparoscopic vagotomy provides a viable alternative to expensive long-term treatment with H₂ antagonists in patients with intractable peptic ulcer disease. The minimally invasive procedure offers reduced postoperative discomfort and improved cosmesis. Here, we report our first case of a posterior truncal vagotomy and anterior highly selective vagotomy performed laparoscopically for the first time in Asia. The surgery was uneventful. Diet was resumed on day 3 and the patient was discharged on day 4. Post-vagotomy acid secretion tests on the third week revealed a dramatic decrease in acid production. With further experience, laparoscopic vagotomy can be an attractive alternative to long term medication in peptic ulcer disease.

Keywords: Laparoscopy, Vagotomy, Laparoscopic vagotomy, Highly selective vagotomy, Peptic ulcer.

SINGAPORE MED J 1992; Vol 33: 302-303

INTRODUCTION

The advent of laparoscopic highly selective vagotomy has provided patients with ulcer diasthesis a viable alternative to long term dependency on H₂ antagonists. Laparoscopic surgery, in contrast to conventional open surgery, is characterized by short postoperative recovery, brief hospitalization and negligible scars. We report our first case of laparoscopic highly selective vagotomy performed with minimal discomfort to the patient. With this new technique, the disadvantages of ulcer-related surgery are markedly reduced and thus the threshold for selecting patients with intractable ulcer diasthesis for surgical treatment should be lowered too.

CASE REPORT

A 47-year-old Chinese man was referred to us for evaluation for his peptic ulcer diasthesis. He had a four year history of ulcer disease with multiple endoscopically confirmed recurrences of the ulcer despite adequate treatment with H₂ antagonists. The most recent endoscopically revealed one small prepyloric and two small duodenal ulcers. The patient was keen on surgical treatment to alleviate his symptoms. Acid secretion tests were performed prior to surgery (Table I). Laparoscopic posterior truncal vagotomy and anterior highly selective vagotomy was successfully performed. The total du-

ration of the procedure was 150 mins. Postoperatively, the patient was able to have feeds on the second day and normal diet the next day. He was discharged on the fourth day. Acid secretion tests with insulin stimulation three weeks later revealed a dramatic improvement (Table I).

Operative Procedure

The objective was to denervate the acid-secreting parietal cells of the stomach with preservation of the pyloric sphincter control. This was achieved by transecting the main posterior vagus nerve and only branches of the anterior vagus nerve to the lower esophagus, fundus and body of the stomach. The branches of the anterior vagus nerve to the pylorus were preserved (Fig 1).

Fig 1 - Posterior Truncal Vagotomy and Anterior Highly Selective Vagotomy

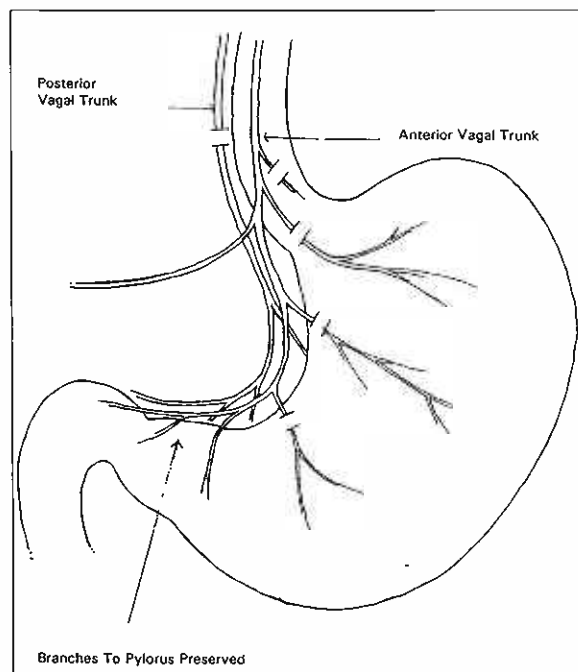


Table I - Preoperative and postoperative acid secretion levels

	Preop* (meq/hr)	Postop# (meq/hr)
Basal Acid Output	20.44	3.18
Peak Acid Output	36.12	2.56
Maximum Acid Output	33.55	2.25

* Pentagastrin stimulation

Insulin stimulation

Department of Surgery
National University Hospital
Lower Kent Ridge Road
Singapore 0511

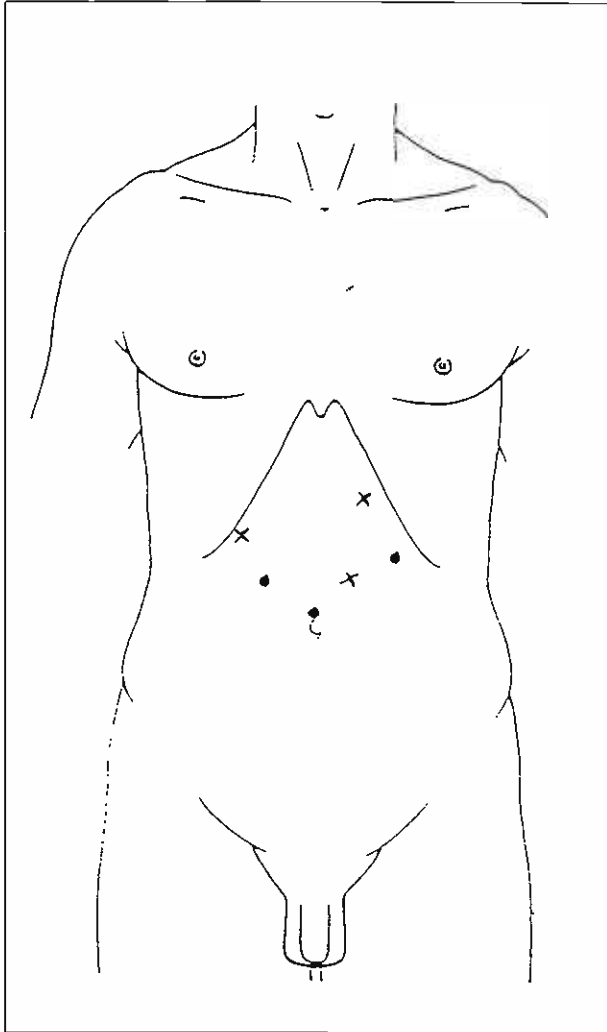
C K Kum, MBBS, FRCS
Registrar

P Goh, MBBS, M Med(Surg), FRCS(Edin), FRCS(Glas), FAMS
Consultant Surgeon

Correspondence to: Dr C K Kum

The patient was put under general anaesthesia in the usual supine position. Pneumoperitoneum was created with carbon dioxide via a Veress needle inserted through a supraumbilical incision. When an intraperitoneal pressure of 14mmHg was reached, a 11mm trocar was introduced into the supraumbilical site and the laparoscope inserted. Two more 11mm and three 5mm trocars were also introduced at sites shown in Fig 2.

Fig 2 - Sites of Trocar Placement



- 11mm trocars
- x 5mm trocars

Exposure was achieved by retracting the left lobe of the liver upwards and pulling the cardia of the stomach downwards and to the left. The posterior vagal trunk was identified by a combination of sharp and blunt dissection. The nerve was clipped proximally and distally with a segment of the nerve removed for histological confirmation.

The anterior vagus nerve was identified at the lower end of the esophagus and traced caudad. Branches of the nerve to the lesser curve of the stomach were doubly clipped and ligated. The dissection was carried up to 7 cm from the pylorus. A final check was made to ensure that the lower esophagus was cleared of all nerve branches except the anterior vagus nerve.

DISCUSSION

Until recently, surgical treatment of peptic ulcer disease has necessitated laparotomy with its attendant major drawbacks. Thus surgery was reserved as a last resort only for those with intractable disease or for those who developed complications. The operation of choice for elective cases is highly selective vagotomy which is effective in reducing acid output with the least derangement of normal physiology⁽¹⁾. The classical technique of highly selective vagotomy is difficult to perform laparoscopically. However, techniques whereby posterior truncal vagotomy together with interruption of the anterior nerve fibres either by an anterior seromyotomy or direct ligation are feasible laparoscopically. Both these methods have been shown by open surgery to be effective in reducing acid secretion with preservation of adequate gastric emptying^(2,4). Mouiel and Katkhouda⁽⁵⁾ demonstrated the feasibility of performing anterior seromyotomy laparoscopically. In our patient, we used the method described by Zucker⁽⁶⁾ whereby the fibres from the anterior nerve of Latarjet to the lesser curve are individually ligated. The effectiveness of the technique was attested by the impressive results of decrease in acid secretion and normal gastric emptying.

The development of this minimally invasive procedure associated with little postop discomfort, short hospitalization and cosmetic scars will have a significant impact on the overall management of peptic ulcer disease. The threshold for considering patients for surgery should be lowered proportional to the reduction in morbidity associated with less invasive surgery.

REFERENCES

1. Jordan PH: Technique of parietal cell vagotomy. *Surg Rounds* 1990;13:17.
2. Taylor TV, MacLeod DAD, Gunn AA et al: Anterior lesser curve seromyotomy and posterior truncal vagotomy in the treatment of chronic ulcer disease. *Lancet* 1982;ii:846
3. Hill CL, Barker MCJ: Anterior highly selective vagotomy with posterior truncal vagotomy: a simple technique for denervating the parietal cell mass. *Br J Surg* 1978;65:602
4. Taylor TV, Holt S, Heading RC: Gastric emptying after anterior lesser curve seromyotomy and posterior truncal vagotomy. *Br J Surg* 1985; 72: 620.
5. Katkhouda N, Mouiel J: A new technique of surgical treatment of chronic duodenal ulcer without laparotomy by videoceloscopy. *Am J Surg* 1991;161(3):361.
6. Zucker KA, Bailey RW, Reddick EJ .eds. *Surgical laparoscopy*. St Louis: Quality Medical Publishing 1991.