

LAPAROSCOPY–ASSISTED PARTIAL GASTRECTOMY FOR EARLY GASTRIC CANCER

Gastrectomia parcial videoassistida para câncer gástrico precoce

José Roberto **ALVES**¹, Luiz Roberto **LOPES**¹, Marcelo de Paula **LOUREIRO**², Nelson Adami **ANDREOLLO**¹

From ¹Department of Surgery, School of Medical Sciences, University of Campinas (Unicamp), Campinas, SP, Brazil; ²Jacques Perissat Institute, Positivo University, Curitiba, PR, Brazil.

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Correspondence:

José Roberto Alves,
e-mail: jrobertoa@uol.com.br

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ABSTRACT - Introduction – Early gastric cancer limits the mucosa or submucosa of the gastric wall, regardless of metastases. Despite the high prevalence, gastric cancer is diagnosed in advanced stage, since in most cases the earliness is silent. Thus, is identified such cancer at first using a diagnostic test performed for other reasons. Nowadays, minimally invasive surgery by laparoscopy has usually been presented as a solution to decrease the incidence of postoperative complications and to improve the quality of postoperative recovery. **Aim** – To assess the evidence related to the advantages and disadvantages inherent in the use of laparoscopy–assisted partial gastrectomy for the treatment of early gastric cancer. **Method** – The headings used were: cancer; stomach; laparoscopic surgery in PubMed (www.pubmed.com), in Bireme (www.bireme.br) and in Cochrane VHL (<http://cochrane.bvsalud.org>). Afterwards, the relevant articles for laparoscopic-assisted surgery to treat early gastric cancer were selected. **Conclusion** – Laparoscopy to treat early gastric cancer was proved beneficial, even when used in part during surgery and can reduce complications related to partial gastrectomy.

RESUMO - Introdução - É considerado câncer do estômago precoce aquele que ocorre limitado à mucosa ou submucosa da parede gástrica, independentemente da presença de metástases. Apesar de alta prevalência, o câncer gástrico é de diagnóstico tardio, pois na maioria dos casos quando precoce possui apresentação silenciosa. Assim, muitas vezes, através de um exame complementar realizado por outras causas, incidentalmente identifica-se a sua presença proporcionando tratamento de forma precoce e menos invasiva. Atualmente, a cirurgia minimamente invasiva, através da videolaparoscopia, apresenta-se cada vez mais como solução para diminuir-se a incidência de complicações pós-cirúrgicas, assim como melhorar a qualidade da recuperação pós-operatória. **Objetivo** – Verificar o grau de evidência relacionado às vantagens e desvantagens inerentes a utilização da gastrectomia videoassistida para o tratamento do câncer gástrico precoce. **Método** – Foram utilizados os descritores: câncer, estômago, cirurgia laparoscópica, para pesquisa no PubMed (www.pubmed.com), na Bireme (www.bireme.br) e na Cochrane BVS (<http://cochrane.bvsalud.org>). A seguir foram selecionados os artigos pertinentes relacionados à abordagem cirúrgica videoassistida para o tratamento do câncer gástrico precoce. **Conclusão** - É possível evidenciar-se que o uso da videolaparoscopia para o tratamento do câncer gástrico precoce, mesmo que em parte do ato operatório, tem potencial para diminuir as complicações relacionadas às gastrectomias parciais.

INTRODUCTION

Gastric cancer is increasingly present worldwide as one of the higher incidence of malignant neoplasms due to rapid technological advances with the complementary diagnostic tests and by using more mass screening, especially in Eastern countries^{5,8,20,24} Early gastric cancer (EGC) is limited to the mucosa or submucosa of the

gastric wall, regardless of metastases^{5,17}. Nowadays, people recognise such cancer as an entity with a favourable prognosis after surgical treatment, with five years survival rates superior to 90 %, reported by Western and Japanese surgeons⁵.

The seek for improvement of more conservative surgical techniques, which can provide better quality of life and survival to patients operated through cancer, is frequent.

The conventional gastrectomy with D2 lymphadenectomy is the gold standard treatment for gastric cancer in East and Europe⁵ apud^{5,11,58,59}, especially in Japan and Korea, to treat cases of EGC. However, considering minimally invasive surgery techniques have come up, laparoscopic-assisted gastrectomy (LAG) began to be performed especially for potentially metastatic cases in regional

FOR LIMITED EGC MUCOSA	Age below 57 years
	Location in the middle 1/3 of the stomach
	Lesion size
	Depressed macroscopic type
	Presence of associated ulcer
	Undifferentiated histological type
	Diffuse type (Lauren classification)
FOR LIMITED EGC SUBMUCOSA	Presence of lymphatic invasion
	Female
	Location in the middle 1/3 of the stomach
	Lesion size
	Greater depth of submucosa invasion
	Undifferentiated histological type
	Tumours with mucinous phenotype

FIGURE 1 - Variables associated with the presence of lymph node metastases for early gastric cancer (EGC)¹⁵

lymph nodes^{5,13,18,27} (Figura 1)¹⁵.

Considering such less invasive approach, it can improve the morbimortality and speed up the postoperative recovery of patients in substitution of gastrectomies for laparotomy, without jeopardising the safety of the surgical procedure^{1,3,4,6,7,9,10,12,13,19,20,22,23,24,26,27}.

This review covers the current situation regarding the use of laparoscopic-assisted gastrectomy for the surgical treatment of EGC.

METHOD

The headings used were: cancer; stomach; laparoscopic-assisted surgery in PubMed (www.pubmed.com), in Bireme (www.bireme.br) and in Cochrane BVS (<http://cochrane.bvsalud.org>). Afterwards, were selected the relevant articles related to laparoscopic-assisted surgical approach to treat EGC. The focus was on the inferences reported in metanalysis type studies, in systematic reviews and in randomised controlled trials.

Indications

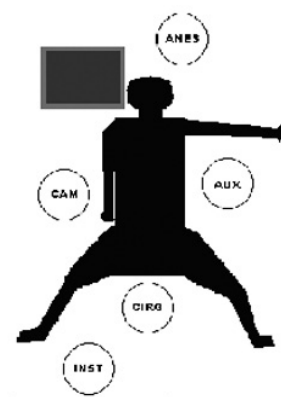
The laparoscopic-assisted distal gastrectomy to treat early gastric cancer with potential risk for regional lymph node metastasis is currently being used most in large Japanese and Korean urban centres^{13,18}.

These large centres adopt the recommendations from the Japanese Gastric Cancer Association, which recommends LAG implemented for cases of EGC without preoperative diagnosis of lymph node metastasis. Such cases are focused on: presence of high infiltration of mucosa (> 25 mm in length) or depressive infiltration (> 15 mm in length); existence of ulceration; lesions slightly invading (< 1/3) the submucosa; remaining cancer after endoscopic mucosa resection; and any technical difficulty to other more conservative therapeutic approach^{11,13,14}.

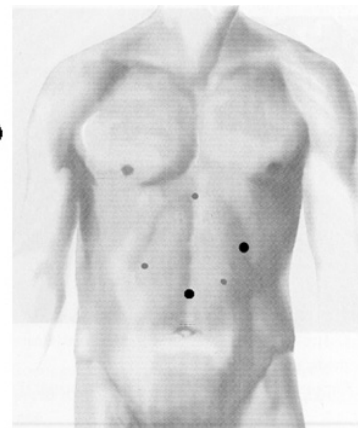
Technique^{10,13,14}

Starts with the introduction of a 10 mm trocar in the umbilical scar. Other four trocars located in the upper abdomen allow a perfect mobilisation and presentation to structures inside the cavity (Figures 2 and 3).

Since pneumoperitoneum is established (10–14 mmHg), the dissection and dieresis begin, including ultrasonic scalpel or other new technology for hemostasis, from greater omentum to nearly 4 cm from gastroepiploic vascular arcade, as well as from gastrocolic ligament with subsequent ligation of left gastroepiploic vessels. This, in addition, aids subpiloryc lymph nodes to be dissected.



Legend: CIRG = Surgeon; AUX = Auxiliary; CAM = Camera; INST = Instrumentator; ANES = Anesthesiologist



Legend: black circle = 10-mm orifice for trocar; gray circle hole = 5-mm orifice for trocar

FIGURE 2 - Position used by the surgical team, adopted by the Service of Gastric Surgery, Unicamp

FIGURE 3 - Position of trocars used for LAG, adopted by the Service of Gastric Surgery, Unicamp

Then, the lesser curvature is dissected; the left gastric vessels are connected with double metal

clips. Cardiac lymph nodes (upper, left) are dissected below the distal portion of the stomach. Suprapyloric lymph nodes are also dissected after ligation of right gastric artery.

After laparoscopic stomach mobilisation (2/3 distal) is completed, a small subxiphoid median laparotomy of 10-15 cm is done. A transection in duodenum at 1 cm distal to the pylorus is performed by using a linear stapler, as well as one dries up the 2/3 of gastric neoplastic lesion. By using laparotomy, can also be possible to complete lymphadenectomy along the distal stomach.

Finally is proceeded reconstruction by using gastroduodenal anastomosis and subsequent closure of the abdominal wall in layers. For cases of EGC, distal tumour-free margins need to be at least of 1 cm^{10,13}.

Advantages and disadvantages

Most studies have emphasised - even with LAG not fully performed by laparoscopy -, the presence of several benefits for patients with EGC, who undergo these procedures, instead of laparotomy gastrectomy only^{1,3,4,5,6,7,9,10,12,13,14,18,19,20,22,23,24,26,27}. Among them, was highlighted: a) the best cosmetic appearance; b) lower rate of intraoperative bleeding; c) less pain; d) faster recovery of postoperative ileus; e) early feedback; f) shorter hospital stay with consequent lower cost; g) lower overall rate of postsurgical complications (especially pulmonary, infectious); h) better immune response; i) lower formation of intraperitoneal adhesions; j) reducing the incidence of postgastrectomy syndromes (especially gastric dumping syndrome) and k) earlier return to labour activities. Thus, there is a convergence for a better postoperative quality of life^{1,3,4,5,6,7,9,10,12,13,14,18,19,20,22,23,24,26,27}.

Following the principle of minimally invasive surgery in experienced groups, the less invasive the procedure, the greater the benefits. Thus, when the gastrectomy is performed totally by laparoscopy, there is more advantages that the laparoscopy-assisted procedure especially for smaller incisions, less surgical trauma, greater possibility of safe anastomoses regardless of the body constitution of patients or of cancer location⁷.

Some studies indicate a more complex and longer surgical time at the beginning of the experience, especially in patients with body mass index superior to 25 Kg / m² ^{10,14,16,21,27}. Moreover, there are also mortality rates with no statistically long-term difference, when comparing gastrectomy via laparotomy^{9,10,20,22}, in particular tied up with occurrence of wound infection with anastomotic stricture or fistula and complications of duodenal stump²⁷. The LAG, however, remains with several advantages over the conventional procedure without losing safety and quality on oncology principles^{14,27}.

Furthermore, concerning the quality of lymphadenectomy performed during LAG, a metanalysis comprised of 12 systematic reviews reported that the total number of lymph nodes removed was lower than that found in conventional approach (laparotomy only). Such data, however, did not achieve statistical significance when the lymphadenectomy performed was D2²⁷. To do so, given the low incidence of metastases in cases of EGC, much is argued over how important lymphadenectomy is in extensiveness, since it would not improve the prognosis of such patients. Further, it could produce even greater postsurgical complications¹⁸.

CONCLUSION

Treatment of EGC using minimally invasive surgery is feasible and can be performed safely. There are less lymph nodes retrieved in LAG, compared with conventional gastrectomy. Nevertheless, papers showing large, prospective, properly designed, multicentre studies must be performed. Thus, quality of life, cost/effectiveness, long-term survival for patients treated with minimally invasive surgery could be assessed. Such information is essential to support LAG as an alternative therapy better than conventional gastrectomy^{10,13,14,18,27}.

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