**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.

**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. Early gastric cancer (EGC) is limited to the mucosa or submucosa of the
gastric wall, regardless of metastases\textsuperscript{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 surgeons\textsuperscript{5}.

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 Europe\textsuperscript{4} apud\textsuperscript{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 lymph nodes\textsuperscript{5,13,18,27} (Figura 1).\textsuperscript{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\textsuperscript{13,4,6,7,9,10,12,13,19,20,22,23,24,26,27}.

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\textsuperscript{11,18}.

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\textsuperscript{11,13,14}.

### Technique\textsuperscript{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.

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clips. Cardiac lymph nodes (upper, left) are dissected below the distal portion of the stomach. Suprapiloric 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 cm¹⁰,¹³.

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 life¹,³,⁴,⁵,⁶,⁷,⁹,¹⁰,¹²,¹³,¹⁴,¹⁸,¹⁹,²⁰,²²,²³,²⁴,²⁶,²⁷.

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 location.➀

Some studies indicate a more complex and longer surgical time at the beginning of the experiment, especially in patients with body mass index superior to 25 Kg / m².¹⁰,¹⁴,¹⁶,²²,²⁷. Moreover, there are also mortality rates with no statistically long-term difference, when comparing gastrectomy via laparotomy, in particular tied up with occurrence of wound infection with anastomotic stricture or fistula and complications of duodenal stump.²⁷ The LAG, however, remains with several advantages over the conventional procedure without losing safety and quality on oncology principles.¹⁴,²⁷,²⁸

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 complications.¹⁸

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.

REFERENCES


