

Editorial

*Corresponding author

Alexandros Charalabopoulos, MD,

MSc, PhD, MRCS, FRCS

Consultant Upper Gastrointestinal Surgeon

Department of Upper Gastrointestinal Surgery

Broomfield Hospital

Mid Essex Hospital Services NHS Trust

Court road, Chelmsford

Essex, CM1 7ET, England, UK

E-mail: acharalabopoulos@yahoo.com

Volume 3 : Issue 1

Article Ref. #: 1000SROJ3e002

Article History

Received: March 22nd, 2016

Accepted: March 29th, 2016

Published: March 29th, 2016

Citation

Rashid F, Charalabopoulos A. Laparoscopic gastrectomy for gastric cancer. *Surg Res Open J.* 2016; 3(1): e3-e5. doi: [10.17140/SROJ-3-e002](https://doi.org/10.17140/SROJ-3-e002)

Copyright

©2016 Charalabopoulos A. This is an open access article distributed under the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Laparoscopic Gastrectomy for Gastric Cancer

Farhan Rashid, MBBS, DM, FRCS; Alexandros Charalabopoulos, MD, MSc, PhD, MRCS, FRCS*

Department of Upper Gastrointestinal Surgery, Broomfield Hospital, Mid Essex Hospital Services NHS Trust, Chelmsford, Essex, England, UK

Gastric cancer is still the second most common cancer worldwide.¹ Perioperative combination chemotherapy conveys a significant survival benefit and is a standard of care. However, surgery still remains the mainstay of treatment.

Gastrectomy is a complex operation and carries morbidity and mortality. Increased experience with laparoscopic surgery has shown improved benefits - Minimal post-op pain, quicker mobilisation and better cosmetic results have been shown from laparoscopic gastrectomies.² These features are advantageous only when curability can be guaranteed as compared to that in open surgery and in some cases early gastric cancer is a good target for laparoscopic gastrectomy because the nodal metastasis is rather limited and serosal surface is intact. Recently, laparoscopic gastrectomies have been suggested for prophylactic gastrectomy performed for hereditary diffuse gastric cancer.³ Recent meta-analysis of early gastric cancer showed a superior post-operative recovery in patients treated laparoscopically compared with those treated using an open approach.^{4,6} National oesophago-gastric cancer audit results in England and Wales between April 2011 and March 2013 showed 287 gastrectomies were performed with a minimally invasive approach (includes converted) out of a total of 1806 gastrectomies. It is still 15.9% of total procedures.⁷ The latest National oesophago-gastric cancer audit results in England and Wales released in January 2016, are also supportive of the same findings where minimally invasive gastrectomies (including open conversions) represented only 14.5% (246 laparoscopic *versus* 1447 open gastrectomies).⁸ The Korean laparoscopic gastrointestinal surgical society has conducted a multicentre randomised controlled trial comparing laparoscopic and open surgery in the treatment of early stage gastric cancer.⁹ The long-term oncological outcomes of laparoscopic gastrectomy for patients with gastric cancer have been shown to be comparable to those of open gastrectomy in a large scale, multicentre clinical study.⁴ Increased overall survival rate for patients with stage IA cancer treated by laparoscopy (laparoscopy group; 95.3%, open group; 90.3%; $p < 0.001$) has been shown by Kim et al.⁴

A meta-analysis of 1161 patients showed fewer overall complications following laparoscopic procedures (11%, 58/535) as compared to open gastrectomy (18%; 97/519) $p < 0.001$.¹⁰ One non-randomised control trial by Adachi et al showed no significant difference in complication rate between laparoscopic surgery (8%) and open surgery.¹¹

Laparoscopic gastrectomy obviously has a steep learning curve and performing laparoscopic gastrectomies may initially take longer to do; one non-randomised control trial has shown that open procedure was 55 minutes shorter than laparoscopic.¹² In the UK, it will be challenging to perform randomised controlled trials comparing laparoscopic and open gastrectomies whilst, even today, only about 15% of gastrectomies are performed laparoscopically.^{7,8} Lymph node dissection remains a challenge when it comes to laparoscopic procedures and must not be forgotten for the completeness of curative resection. Meta-analysis has shown fewer lymph nodes in laparoscopic surgery compared to open. Weighted mean difference; -4.35 nodes (95% CI -5.73 to -2.98 nodes) ($p < 0.001$).¹⁰ From OG 2014 UK audit 15.9% of minimally invasive gastrectomies also included procedures converted to open and similarly conversion from laparoscopic to open surgery has been reported between 2-3% in other studies.^{7,10,12-14}

Length of hospital stay has been shown to be shortened by 5.5 days in laparoscopic gastrectomies compared to patients who underwent open gastrectomy in a meta-analysis.¹⁰

Intraoperative blood loss with subsequent blood transfusion has proven implication in the outcome, especially when it comes to cancer surgery and significantly lower blood loss has been shown in laparoscopic surgery as compared to open, with a weighted mean difference of 146 ml ($p < 0.001$).¹⁰

Robotic surgery has recently been used in Upper GI surgery; limitations of laparoscopic approaches to gastrectomy can be explored using robotic approach to allow greater degree of freedom and hence improved dissection.

As per NICE guidelines (NICE interventional procedure guidance [PG269]) the laparoscopic gastrectomy is a technically demanding operation; surgeons undertaking it should have specific training and special expertise in laparoscopic surgical techniques and should perform their initial procedures with an experienced mentor. As with any upper gastrointestinal cancer, these cases should be performed in high volume centres, where the appropriate experience is available.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

REFERENCES

1. Parkin DM, Bray FI, Devesa SS. Cancer burden in the year 2000: The global picture. *Eur J Cancer*. 2001; 37 Suppl: S4-S66. doi: [10.1016/S0959-8049\(01\)00267-2](https://doi.org/10.1016/S0959-8049(01)00267-2)
2. Uyama I, Sugioka A, Fujita J, Komori Y, Matsui H, Hasumi A. Laparoscopic total gastrectomy with distal pancreatectomy and D2 lymphadenectomy for advanced gastric cancer. *Gastric Cancer*. 1999; 2(4): 230-234. doi: [10.1007/s101200050069](https://doi.org/10.1007/s101200050069)
3. Rashid F, Suo C, Tan B, et al. PTU-145 Prophylactic total gastrectomy for hereditary gastric cancer syndrome. *Gut*. 2015; 64: A126. doi: [10.1136/gutjnl-2015-309861.260](https://doi.org/10.1136/gutjnl-2015-309861.260)
4. Kim H-H, Han S-U, Kim M-C, et al. Long-Term Results of Laparoscopic Gastrectomy for Gastric. *J Clin Oncol*. 2014; 32(7): 627-633. doi: [10.1200/JCO.2013.48.8551](https://doi.org/10.1200/JCO.2013.48.8551)
5. Ohtani H, Tamamori Y, Noguchi K, et al. A meta-analysis of randomised controlled trials that compared laparoscopy-assisted and open distal gastrectomy for early gastric cancer. *J Gastrointestinal Surg*. 2010; 14: 958-964. doi: [10.1007/s11605-010-1195-x](https://doi.org/10.1007/s11605-010-1195-x)
6. Ohanti H, Tamamori Y, Noguchi K, et al. Meta-analysis of laparoscopy assisted and open distal gastrectomy for gastric cancer. *J Surg Res*. 2011; 171(2): 479-485.
7. National Oesophago-gastric cancer Audit 2014. Web site. <http://www.hscic.gov.uk/catalogue/PUB16020/clin-audi-supp-prog-oeso-gast-2014-rep.pdf>. Accessed March 21, 2016.
8. National Oesophago-gastric cancer Audit 2015. Web site. <http://www.hscic.gov.uk/catalogue/PUB19627/clin-audi-supp-prog-oeso-gast-2015-rep.pdf>. Accessed March 21, 2016.
9. Kim HH, Hyung WJ, Cho GS. Morbidity and Mortality of laparoscopic gastrectomy versus open gastrectomy for gastric cancer: An interim report - A phase III multicentre, prospective, randomised Trial (KLASS Trial). *Ann Surg*. 2010; 251(3): 417-420. doi: [10.1097/SLA.0b013e3181cc8f6b](https://doi.org/10.1097/SLA.0b013e3181cc8f6b)
10. Hosono S, Arimoto Y, Ohtani H, Kanamiya Y. Meta-analysis of short-term outcomes after laparoscopy-assisted distal gastrectomy. *World J Gastroenterol*. 2006; 12(47): 7676-7683. doi: [10.3748/wjg.v12.i47.7676](https://doi.org/10.3748/wjg.v12.i47.7676)
11. Adachi Y, Shiraishi N, Shiromizu A, Bando T, Aramaki M, Kitano S. Laparoscopy-assisted Billroth I gastrectomy compared with conventional open gastrectomy. *Arch Surg*. 2000; 135(7): 806-810. doi: [10.1001/archsurg.135.7.806](https://doi.org/10.1001/archsurg.135.7.806)
12. Ziqiang W, Feng Q, Zhimin C, et al. Comparison of laparoscopically assisted and open radical distal gastrectomy with extended

lymphadenectomy for gastric cancer management. *Surg Endosc.* 2006; 20: 1738-1743. doi: [10.1007/s00464-006-0031-6](https://doi.org/10.1007/s00464-006-0031-6)

13. Kitano S, Shiraishi N, Uyama I, Sugihara K, Tanigawa N; Japanese Laparoscopic Surgery Study Group. A multicenter study on oncologic outcome of laparoscopic gastrectomy for early cancer in Japan. *Ann Surg.* 2007; 245(1): 68-72. doi: [10.1097/01.sla.0000225364.03133.f8](https://doi.org/10.1097/01.sla.0000225364.03133.f8)

14. Huscher CGS, Mingoli A, Sgarzini G, et al. Totally laparoscopic total and subtotal gastrectomy with extended lymph node dissection for early and advanced gastric cancer; early and long term results of a 100 patient series. *Am J Surg.* 2007; 194(6): 839-844; discussion 844. doi: [10.1016/j.amjsurg.2007.08.037](https://doi.org/10.1016/j.amjsurg.2007.08.037)