CIRUGÍA ESPAÑOLA

www.elsevier.es/cirugia

Editorial

Laparoscopic Approach in Crohn's Disease☆

Abordaje laparoscópico en la enfermedad de Crohn

Crohn's disease (CD) concerns a heterogeneous spectrum of intestinal and extra-intestinal manifestations. Although the surgical and recurrence rates seem to be decreased since the introduction of biological treatment, 40%–50% of the patients still need surgery. Failure to respond to medical treatment or the inability to tolerate effective therapy are the most common indications for surgical treatment of CD.[1] The feasibility and safety of laparoscopic approach for CD has long-time been questioned due to the associated inflammatory lesions (thickened bowel loops, thickened and fragile mesentery, inflammatory mass, unexpected fistulas or abscesses), the frequent preoperative malnutrition and steroid therapy, and the common presence of adhesions rising from previous surgery. Laparoscopy is now considered as the best approach in CD patients for ileal and/or colonic resections.[2,3]

The laparoscopic approach was firstly recognised for ileocolic resection indicated for stenotic form of CD with similar morbidity rates, shorter hospital stay, and improved cosmetic results compared to open approach.[4] Indeed, the recent European Crohn's and Colitis Organisation (ECCO) guidelines recommend that laparoscopic approach is to be preferred for ileocolic resections in CD where appropriate expertise is available (ECCO Statement 7F).[5,6]

Only two randomised trials comparing laparoscopic and open approaches for ileocolic resection for stenotic forms of CD are currently available.[7,8] Milsom et al. reported that postoperative morbidity, incisional length and respiratory recovery were significantly reduced after laparoscopic approach, whereas operative time was increased. There were no difference between groups regarding to analgesic use, transit recovery, length of stay and long-term results (recurrence, incisional hernia, small bowel obstruction).[7,9] Similarly, Marteense et al. observed that laparoscopic approach was significantly associated with decreased morbidity, transit recovery and length of stay, whereas operative time and costs were increased compared to open approach. Moreover, quality of life and cosmetic results were significantly improved after laparoscopic approach, but long-term results were similar between groups.[8,10] More recently, Patel et al. reported through a meta-analysis, including the 2 previous randomised trials and 29 non randomised series, that laparoscopic approach was significantly associated with lower perioperative complication (12% vs 18%, Relative Risk=0.71, P=.001) and incisional hernia (1 vs 12/1000, RR=0.24, P=.02) rates. Surgical recurrence (25% vs 34%, P=.17) and small bowel obstruction rates (10 vs 19/1000) were similar.[11]

Regarding more complex cases such as perforating or recurrent forms of CD, ECCO guidelines stated that there is insufficient evidence to recommended laparoscopic surgery as the technique of first choice (ECCO Statement 7F).[5,6] In the previous randomised trials, patients with recurrent or complex CD were not included. Moreover, in a nationwide data analysis of 49609 CD patients, fistulising disease or complex cases requiring ostomy were more frequently operated through open than laparoscopic approach ($P<.01$).[12] However, we have already reported in a comparative study between 54 patients with complex CD (i.e. fistula, abscess, recurrence) and 70 patients with stenotic forms of CD, that laparoscopic ileocolonic resection for complex CD was feasible and safe with similar postoperative outcomes.[13] More recently, through a 14-year experience, we have also reported that the rate of laparoscopically managed complex procedures increased significantly (from 16% at the beginning to 33% at the end, P=.023), with significant lower rates of conversion to open surgery (decreasing over time from 18% to only 6%, $P<.001$) and severe postoperative morbidity (from 14% to 8%, $P<.001$).[3] We considered thus that laparoscopy must now be regarded as the gold standard for almost all patients with inflammatory bowel disease, except maybe patients presenting several previous operations, those with multiple small bowel lesions, and those with postoperative wound dehiscence requiring concomitant abdominal wall repair. Finally, obesity does not seem to be anymore a contra-indication for laparoscopic ileocolic resection. In the nationwide data

☆ Please cite this article as: Mege D, Panís Y. Abordaje laparoscópico en la enfermedad de Crohn. Cir Esp. 2017;95:555–557.

analysis previously cited, obesity had not impact in laparoscopic approach neither in the occurrence of postoperative morbidity.[12] More recently, a comparative study published in ''Cirugía Española'' did not report difference in postoperative morbidity after laparoscopic ileocecal resection for CD between patients with obesity or not (29% vs 29%, P=.74).[14]

Concerning Crohn's colitis, laparoscopic approach is also become the best approach for total colectomy with ileorectal anastomosis or total proctocolectomy with ileal-pouch anal anastomosis.[15,16] Based on surgical ECCO guidelines about ulcerative colitis, laparoscopic approach in emergency subtotal colectomy for acute or severe colitis complicating CD, is now recommended because it decreases postoperative complications and hospital stay (ECCO Statement 5C).[17] In a recent large series including 233 patients with ulcerative colitis and 41 patients with CD, after multivariate analysis, laparoscopic approach was significantly associated with longer median operative duration (+25.5 min; P<.001) but reduced median morphine requirements (−72.8 mg; P=.04) and reduced minor complications (22.2% vs 34.6%; Odd Ratio 0.47; P=.04). However, the major complications (8.4% vs 10.7%; P=.93) and median length of stay (−1.46 days; P=.17), were not different between the groups.[18] A meta-analysis including 9 non-randomised studies reported that laparoscopic subtotal colectomy for acute colitis was significantly associated with short-term benefits compared to open approach. The pooled risk ratio for wound infection was 0.6 (P=.03) and that for intra-abdominal abscess was 0.27 (P=.04), both in favour of laparoscopic approach. No significant difference was observed for other complications or mortality. Length of stay was significantly shorter after laparoscopic subtotal colectomy, with a pooled mean difference of 3.17 days (P<.001).[19] Moreover, besides the advantages in postoperative course, quality of life, cosmetic results, and incisional hernia rates, laparoscopic approach is also associated with long-term reduction of adherences in case of ileal-pouch anal anastomosis (IPAA) for ulcerative colitis and selected cases with CD, which might facilitate recurrent resection, and increase fertility rates in young women.[20,21] A bicentric comparative study (Amsterdam and Leuven) reported that spontaneous pregnancy occurred more frequently after laparoscopic than open IPAA (70% vs 39%, P=.02).[20] We have reported similar results by comparing laparoscopic IPAA to controls undergoing laparoscopic appendectomy. There was no difference in fertility over time between patients attempting pregnancy from the two groups (90% vs 86% at 36 months, P=.4).[21] In our series, we reported 4 cases with CD who underwent IPPA, whereas the other one concerned only ulcerative colitis or familial adenomatous polyposis.[20]

Finally, regarding to single port laparoscopic surgery, few data are available in CD. Only three retrospective studies have compared standard laparoscopic approach to single port laparoscopic approach, with conflicting results.[22–24] One study reported a significant decrease of operative time, analgesic use and length of stay with single port laparoscopy,[22] whereas the two others series did not observe any difference between groups.[23,24] A French randomised trial (the True Trial) comparing single port to standard laparoscopic surgery is ongoing. Long-term data are still missing and evidence is needed, whether the approach is suitable for different approach of complicated CD. Furthermore, the technique needs experienced laparoscopic surgeons. Thus, there is still a doubt if single port laparoscopic surgery will get adapted by most surgeons in future.

In conclusion, the laparoscopic approach is recommended for primary ileocolic resection in CD, not only for stenotic forms but also for more complex cases including perforating and recurrent forms of the disease, even if appropriate expertise is mandatory in the most difficult cases. In all these situations, laparoscopic approach has clearly demonstrated its benefits on postoperative results over open surgery. For large bowel CD, laparoscopic approach is also strongly advised, especially for subtotal colectomy for acute colitis. Finally, laparoscopic approach is today the procedure of choice for the great majority of CD patients. Only patients with acute severe conditions (i.e. peritonitis with septic shock, toxic megacolon, severe bleeding during acute colitis) or in recurrent form of CD with large wound dehiscence still require an open approach. Thus, for the great majority of CD patients, laparoscopic approach combined with enhanced recovery pathways may lead to further improvements in surgical outcomes for those patients, who are often young and active, for whom quick return to normal activity and cosmetic results are mandatory.[2] In a near future, single port laparoscopic surgery could possibly gain popularity in this indication.

REFERENCES

1. Hurst RD, Molinari M, Chung TP, Rubin M, Michelassi F. Prospective study of the features, indications, and surgical treatment in 513 consecutive patients affected by Crohn's disease. Surgery. 1997;122:661–8.
2. Maggiori L, Panis Y. Surgical management of IBD – from an open to a laparoscopic approach. Nat Rev Gastroenterol Hepatol. 2013;10:297–306.
3. Maggiori L, Khayat A, Treton X, Bouhnik Y, Vicaut E, Panis Y. Laparoscopic approach for inflammatory bowel disease is a real alternative to open surgery an experience with 574 consecutive patients. Ann Surg. 2014;260:305–10.
4. Bemelman WA, Slors JF, Dunker MS, van Hogezand RA, van Deventer SJ, Ringers J, et al. Laparoscopic-assisted vs open ileocolic resection for Crohn's disease. A comparative study. Surg Endosc. 2000;14:721–5.
5. Dignass A, van Assche G, Lindsay JO, Lémann M, Söderholm J, Colombel JF, et al. The second European evidence-based consensus on the diagnosis and management of Crohn's disease current management. J Crohn's Colitis. 2010;4:28–62.
6. Gionchetti P, Dignass A, Danese S, Magro Dias FJ, Rogler G, Lakatos PL, et al. 3rd European evidence-based consensus on the diagnosis and management of Crohn's disease 2016: Part 2: Surgical management and special situations. J Crohn's Colitis. 2017;11:135–49.
7. Milsom JW, Hammerhofer KA, Böhm B, Marcello P, Elson P, Fazio VW. Prospective, randomized trial comparing laparoscopic vs conventional surgery for refractory ileocolic Crohn's disease. Dis Colon Rectum. 2001;44. 1-8-9.
8. Maartense S, Dunker MS, Slors JF, Cuesta MA, Pierik EG, Gouma DJ, et al. Laparoscopic-assisted versus open ileocolic resection for Crohn's disease. Ann Surg. 2006;243:143–9.
9. Stocchi L, Milsom JW, Fazio VW. Long-term outcomes of laparoscopic versus open ileocolic resection for Crohn's disease. Follow-up of a prospective randomized trial. Surgery. 2008;144:622–8.

10. Eshuis EJ, Slors JF, Stokkers PC, Sprangers MA, Ubbink DT, Cuesta MA, et al. Long-term outcomes following laparoscopically assisted versus open ileocolic resection for Crohn's disease. Br J Surg. 2010;97:563–8.
11. Patel SV, Ramagopalan SV, Ott MC. Laparoscopic surgery for Crohn's disease a meta-analysis of perioperative complications and long term outcomes compared with open surgery. BMC Surg. 2013;13:14.
12. Lesperance K, Martin MJ, Lehmann R, Brounts L, Steele SR. National trends and outcomes for the surgical therapy of ileocolonic Crohn's disease a population-based analysis of laparoscopic vs open approaches. J Gastrointest Surg. 2009;13:1251–9.
13. Goyer P, Alves A, Bretagnol F, Bouhnik Y, Valleur P, Panis Y. Impact of complex Crohn's disease on the outcome of laparoscopic ileocecal resection a comparative clinical study in 124 patients. Dis Colon Rectum. 2009;52:205–10.
14. Parés D, Shamali A, Flashman K, O'Leary D, Senapati A, Conti J, et al. Cirugía laparoscópica en el tratamiento de la enfermedad de Crohn del área ileocecal impacto de la obesidad en los resultados postoperatorios inmediatos. Cir Esp. 2017;95:17–23.
15. Tilney HS, Lovegrove RE, Heriot AG, Purkayastha S, Constantinides V, Nicholls RJ, et al. Comparison of short-term outcomes of laparoscopic vs open approaches to ileal pouch surgery. Int J Colorectal Dis. 2007;22:531–42.
16. Fleming FJ, Francone TD, Kim MJ, Gunzler D, Messing S, Monson JR. A laparoscopic approach does reduce short-term complications in patients undergoing ileal pouch-anal anastomosis. Dis Colon Rectum. 2011;54:176–82.
17. Øresland T, Bemelman WA, Sampietro GM, Spinelli A, Windsor A, Ferrante M, et al. European evidence based consensus on surgery for ulcerative colitis. J Crohn's Colitis. 2015;9:4–25.
18. Messenger DE, Mihailovic D, MacRae HM, O'Connor BI, Victor JC, McLeod RS. Subtotal colectomy in severe ulcerative and Crohn's colitis what benefit does the laparoscopic approach confer? Dis Colon Rectum. 2014;57:1349–57.
19. Bartels SAL, Gardenbroek TJ, Ubbink DT, Buskens CJ, Tanis PJ, Bemelman WA. Systematic review and meta-analysis of laparoscopic versus open colectomy with end ileostomy for non-toxic colitis. Br J Surg. 2013;100:726–33.
20. Bartels SA, D'Hoore A, Cuesta MA, Bensdorp AJ, Lucas C, Bemelman WA. Significantly increased pregnancy rates after laparoscopic restorative proctocolectomy, a cross-sectional study. Ann Surg. 2012;256:1045–8.
21. Beyer-Berjot L, Maggiori L, Birnbaum D, Lefevre JH, Berdah S, Panis Y. A total laparoscopic approach reduces the infertility rate after ileal pouch-anal anastomosis a 2-center study. Ann Surg. 2013;258:275–82.
22. Gardenbroek TJ, Verlaan T, Tanis PJ, Ponsioen CY, D'Haens GR, Buskens CJ, et al. Single-port versus multiport laparoscopic ileocecal resection for Crohn's disease. J Crohn's Colitis. 2013;7:e443–8.
23. Maeda K, Noda E, Nagahara H, Inoue T, Takii M, Watanabe K, et al. A comparative study of single-incision versus conventional multiport laparoscopic ileocecal resection for Crohn's disease with strictures. Asian J Endosc Surg. 2012;5:118–22.
24. Rijcken E, Mennigen R, Argyris I, Senninger N, Bruewer M. Single-incision laparoscopic surgery for ileocolic resection in Crohn's disease. Dis Colon Rectum. 2012;55:140–6.

Diane Mege, Yves Panís*
Departamento de Cirugía Colorrectal, Pôle des Maladies de l'Appareil Digestif (PMAD), Hospital de Beaujon, Assistance Publique-Hôpitaux de Paris (AP-HP), Universidad Denis Diderot (París VII) , Clichy, France

*Corresponding author.
E-mail address: yves.panis@bjn.aphp.fr (Y. Panís).

2173-5077/