Early Experience in Laparoscopic Colectomy for Refractory Colitis in Children

Abstract:
L Stephens, J Gillick
Department of Paediatric Surgery, Our Lady's Childrens Hospital, Crumlin, Dublin 12

There is limited literature endorsing the laparoscopic approach for the treatment of refractory colitis in children. We report our experiences of paediatric laparoscopic colectomies performed for ulcerative colitis. A retrospective review over a three year period was undertaken. Operative time, length of stay, post-operative analgesia, time to commencement of diet, and complications were recorded. Nine laparoscopic colectomies were performed. Median operative time was 320 minutes (range 240-475). Mean time to commencement of full diet was 3.9 days (range 2-8). Median length of stay was 6 days (range 5-16). In our experience, laparoscopic colectomy in children is a feasible and superior method to open colectomy and in our opinion, facilitates further restorative procedures and will become the default method of treatment in the near future.

Introduction
Laparoscopic procedures in paediatric patients are becoming increasingly commonplace as endoscopic techniques become more frequently used. However, there is limited literature endorsing the laparoscopic approach for the treatment of refractory colitis in children. The aim of this study is to describe our first experiences of the management of refractory ulcerative colitis by way of minimal access surgical techniques.

Methods
A single centre, retrospective chart review of all laparoscopic colectomies performed for refractory ulcerative colitis by a single consultant was undertaken. Operative time, rate of conversion to open, length of postoperative stay, analgesic requirements, time to full diet, and complications were recorded.

Results
9 laparoscopic colectomies were performed for refractory ulcerative colitis between 2009 and 2011. Laparoscopic subtotal colectomy with ileostomy formation was performed in all patients. An epidural or intravenous morphine infusion or both were the analgesic modalities used. The median age was 11.3 years (range 2.4-15.6). Median operative time (time from induction of anaesthesia to arrival in recovery) was 320 minutes (range 240-475) (Table 1). Mean time to commencement of full diet was 3.9 days (range 2-8). Length of post-operative stay (LOS) was also recorded giving a median LOS of 6 days (range 5-16) (Figure 1). All nine cases were completed without converting to open, however, intraoperative trauma resulting in a caecal perforation and faecal contamination occurred in one case, requiring a port site to be extended. Complications occurred at a rate of 33% and consisted of stoma prolapse, prolonged ileus and an abdominal collection.

Discussion
Refractory ulcerative colitis (UC) is defined as colitis unresponsive to adequate doses of corticosteroids (corticosteroid-resistant) or that relapses quickly upon corticosteroid withdrawal or dose tapering (corticosteroid dependent), however with widespread use of 6-mercaptopurine (6-MP) and azathioprine (AZA) with aminosaliclylates, chronic UC may not be considered refractory unless the patient has not responded to additional immunosuppression (corticosteroid-refractory) or that relapses quickly upon corticosteroid withdrawal or dose tapering (corticosteroid refractory) or that relapses quickly upon corticosteroid withdrawal or dose tapering (corticosteroid refractory). A two-stage approach of subtotal colectomy and ileostomy formation with a delayed restorative procedure is commonly used in children with refractory colitis. Other options include proctocolectomy and end ileostomy, total colectomy and ileoanal pouch, subtotal colectomy and ileorectal anastomosis, and ileoanal endorectal pull through. Laparoscopic bowel resection for IBD has been shown to reduce LOS, postoperative pain, and ileus and improve cosmesis in the adult population but has also been shown to increase operative time and is more costly. In our experience, we found that laparoscopic subtotal colectomy in children is a feasible and effective surgery for several reasons. Firstly, we observed effective pain control with short duration of opioid analgesic requirements. Early introduction of diet was another important benefit of this approach and a short postoperative LOS was also observed. Surgeon satisfaction with the wound appearance at 6 weeks post surgery in all patients illustrated the advantage of superior cosmesis. Finally, we believe that laparoscopic resection facilitates further restorative procedures particularly due to the fact that adhesion formation is reduced in laparoscopic procedures as compared to open. We are aware that laparoscopic surgery is more costly, but this is somewhat counteracted by the decrease in postoperative LOS and therefore the decreased number of inpatient bed days required.

Correspondence: L Stephens
Department of Paediatric Surgery, Our Lady's Childrens Hospital, Crumlin, Dublin 12
Email: lindastephens@eircom.net

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