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Case Report

Single Port Laparoscopic Resection of Locally Advanced and Obstructed Caecal Cancer

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Introduction

The feasibility of employing single incision or single port laparoscopic techniques for right colonic resection has recently been reported by a number of units [1-4]. This paper describes the use of single incision laparoscopic approach for the management of a locally advanced and obstructed caecal cancer.

Keywords: SILCS (Single Incision Laparoscopic Colorectal Surgery); Gelport; Laparoscopic; Minimally Invasive Surgery; Single Incision; SILS

Patient

A 72 year old male (BR) was admitted as an emergency, having presented with increasing dyspnoea. He was determined to have a lower respiratory tract infection and was treated for an infective exacerbation of COPD. Routine bloods demonstrated a microcytic anaemia of 71g/dl and confirmed iron deficiency. Colonoscopy to investigate the anaemia revealed an annular tumour of the caecum which on biopsy proved to be an adenocarcinoma. Having been assessed as having a very significant operative risk BR was transferred to a specialist colorectal unit for further management. Staging CT confirmed the presence of a locally advanced caecal mass associated with small bowel obstruction (Figure1).

Figure 1: Coronal CT demonstrating locally advanced caecal cancer with obstruction at the level of adherent small bowel loop.

There were no obvious metastases in the liver or lungs, but pulmonary emboli were suspected. CTPA confirmed the presence of multiple Pulmonary Thrombo-Emboli (PTE) in the majority of segmental pulmonary arteries as well as changes of emphysema. After multi-disciplinary review, it was decided that an IVC filter was not required and the PTE would be managed by means of anticoagulation only. Having begun to experience abdominal discomfort associated with increasing abdominal distension and given the small bowel obstruction on CT nasogastric decompression was attempted with limited effect. BR was counselled regarding his very significant operative risk (ASA 4e) and the benefits of a minimally invasive approach to intervention particularly with regard to his respiratory status were outlined. Consent for a Single Incision Laparoscopic Surgical procedure was obtained.

Method

Patient was placed in the modified Lloyd Davies position under general anaesthesia. A Gelport (Applied Medical, Orange County USA) was inserted via a 40mm incision. Pneumoperitoneum was then established via a 12mm port inserted through the Gelport. Four trocars were used in total: 2 x 5mm Pediports (Covidien, Loughlinstown Ireland) and 2 x 10mm ports (Excel, Johnson & Johnson, Cincinatti USA) (Figure 2). The previously described SILCS technique was used [3]. Laparoscopy (30 degree Olympus laparoscope) confirmed the presence of a locally advanced caecal tumour causing small bowel obstruction at the level of a mid ileal loop adherent to the tumour mass. The tumour was also seen to be adherent to the anterolateral abdominal wall in the right iliac fossa.

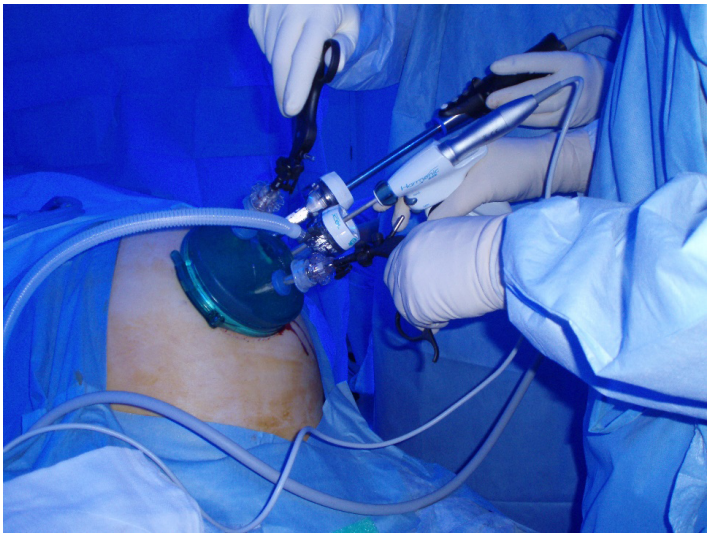

Figure 2: SILCS technique: Gelport, 4 ports(2x12mm, 2x5mm) and Harmonic scalpel

The harmonic scalpel (Ethicon Endosurgery, Johnson and Johnson, Cincinatti USA) was used for right colonic mobilisation performed in a medial to lateral direction beginning posterior to the ileo-colic pedicle and continuing cranially anterior to the duodenum. The hepatic flexure was then taken down and extra-anatomical dissection used to resect the adherent abdominal wall en-bloc with macroscopic clearance achieved. The ileocolic pedicle was then divided at its origin using a stapling device (Echelon 60 vascular, Johnson & Johnson Cincinatti USA). The entire specimen was sufficiently mobile to be removed via the retractor ring of the Gelport. The adherent loop of small bowel was taken en-bloc with the specimen with proximal division approximately 50cm from the ileocolic valve. The distal resection was performed in the proximal transverse. Intestinal continuity was restored with a handsewn anastomosis (interrupted, serosubmucosal 3/0 PDS Johnson and Johnson, Cincinatti USA). The wound was closed with number nylon to fascia and an absorbable subcuticular skin closure.

Results

The operation was completed successfully with the SILCS technique (ref3) the operative time was 150 minutes and the blood loss 200mls. The patient was electively transferred to the HDU but returned to the general surgical ward on the 2nd post operative day. A nasogastric tube was left in situ for 24 hours then removed and oral fluids recommenced. Gut function returned at 48 hours. Full ward diet was resumed on the 5th postoperative day. Anticoagulation with intravenous unfractionated heparin was restarted at 48 hours. Post-operative recovery was complicated by a deep wound infection which discharged spontaneously but was treated with antibiotics. The patient's extensive co-morbidities and poor social circumstances required a period in rehabilitation care prior to discharge home. He was alive and well at 3 months.

The specimen included the caecal cancer, ascending colon, with the distal 50 cm of ileum including the adherent ileal loop and a disc of adherent abdominal wall. The specimen (fixed) measured 740mm in total length with a tumour mass 70x60x28mm and an adherent portion of abdominal wall 70x50x12mm. The histopathology was reported as a moderately differentiated adenocarcinoma. None of the 17 nodes contained metastatic tumour and all margins were clear(ACPS Stage B1). In addition to the primary cancer there were three polyps two of which were small, sessile adenomas demonstrating low grade dysplasia. The distal resection margin was 60mm.

Discussion

Although SILCS resection of the right colon has been reported previously [2-4] and we have previously reported our

experience of laparoscopic resection for obstructing right colon lesions [4], this is the first report in the literature of the SILCS technique being used in the emergency setting for an obstructed and locally advanced cancer of the caecum. In the case reported here the patient's comorbidity and the emergent problem of obstruction presented very significant operative risk. The SILCS technique offered a minimally invasive approach to the surgery for the patient's obstruction and allowed for an oncologically sound resection despite the locally advanced stage of the cancer. While certainly more difficult than a conventional multiple port laparoscopic resection the SILCS approach described did not significantly increase the operative time. An experienced laparoscopic assistant, the use of a 30 degree scope and small profile trocars minimise the external clashing of instruments that is a potential difficulty with this approach. The presence of obstruction should not necessarily be seen as a contra-indication to a SILCS or laparoscopic approach in experienced hands. Any attempt at a laparoscopic resection for an obstructing lesion should ideally be preceded by a period of naso-gastric decompression if the clinical condition of the patient allows as was the case in this situation. While proprietary equipment and instrumentation currently in development will undoubtedly facilitate this technique we have again demonstrated that SILCS resection is feasible with currently available and standard equipment even in complex cases. In the case described here the application of a super-minimally invasive approach facilitated surgery in the face of significant co-morbidity without oncological compromise.

Conclusion

OObstructed or locally advanced tumours of the right colon should not necessarily be seen as a contra-indication to surgery by means of a SILCS approach which can feasibly be performed with currently available equipment.

Rather than advocating widespread adoption of this technique we would strongly suggest that SILCS should be performed by a limited number of experienced teams to facilitate meaningful assessment and determine the range of clinical scenarios to which it can be usefully applied.

Ethical Approval

Approval to conduct this study was obtained from Concord Repatriation General Hospital Ethics Committee, New South Wales, Sydney, Australia. Clearance was obtained from the office of Colorectal department at Concord Repatriation General Hospital, Sydney, New South Wales, Australia. Written informed consent was obtained by the patient for publication of this technical report and accompanying identifiable features and to be used as part of this medical research.

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