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## CASE REPORT

# Laparoscopic Colectomy Via Distance Mentoring: A Case Report to Develop Laparoscopic Surgery in Developing Caribbean Nations

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## ABSTRACT

Although the laparoscopic approach is the gold standard for operative resection of colorectal carcinoma, the skill sets to complete colectomy laparoscopically is not universally available in developing Caribbean nations. We encountered this situation when general surgeons in Jamaica with experience in open colorectal resections encountered a patient who demanded laparoscopic resection of a confirmed carcinoma. The surgeons completed a laparoscopic sigmoid colectomy via remote mentoring. This may be, in select cases, a method to increase the availability of laparoscopic colorectal operations in developing countries.

### Key Words:

Laparoscopy, Colectomy, Sigmoid, Cancer, Distance Mentoring

## INTRODUCTION

Laparoscopic Colectomy is widely accepted as standard of care for malignant disease<sup>1-8</sup>, but this operation requires advanced laparoscopic skill sets. The necessary skill sets are not universally available across the English-speaking Caribbean, so many patients still undergo open colectomies in the English-speaking Caribbean<sup>9-13</sup>.

We encountered a unique situation where general surgeons with considerable experience in open colectomy diagnosed a patient with colorectal carcinoma. The patient demanded a laparoscopic colectomy, but the surgeons only had experience in open colectomies. Using a technique of distance mentoring, these surgeons performed their first laparoscopic sigmoid colectomy with a remote mentor. We suggest that this method may be used to increase access to laparoscopic operations in developing nations.

## REPORT OF A CASE

A 45-year-old man presented to the emergency room in rural Jamaica with haematochezia. He was optimized and investigated with colonoscopy that revealed a polypoid mass at the sigmoid colon. A biopsy confirmed the presence of an adenoma with high grade dysplasia and malignant change. A staging CT scans confirmed the presence of a sigmoid mass, without extramural spread or distant metastases. A decision was made to offer the patient a sigmoid colectomy.

This patient demanded a laparoscopic sigmoid colectomy, but a colorectal surgeon with experience in minimally invasive surgery was not immediately available in this setting in rural Jamaica. The attending surgeon had

considerable experience with basic laparoscopic operations and with open colectomies, but had not previously performed a laparoscopic colectomy. Therefore, the attending surgeon contacted a surgical mentor from Trinidad & Tobago, who offered to assist via remote mentoring. A multidisciplinary team meeting was organized, and included the operating surgeons and the surgical mentor. A detailed operative plan was devised, including how to handle potential complications should they occur.

The mentor surgeon was virtually present for the entire duration of the operation. The mentor used FaceTime software (Apple Inc., Cupertino, California, USA) to video conference with the operating surgeons in Jamaica 1,200 miles away. A previously described technique utilizing Apple iPhones®<sup>14-15</sup> was used to stream live feed to the remote mentor (Figure 1).



Figure 1: Retrograde view of the operating team as viewWed by the remote mentor. The mentor is able to visualize the surgeons' port placement and hand movements with this setup.

With instruction from the remote mentor, a medial-to-lateral approach was performed. The ureter was identified and preserved prior to transection of the sigmoid vascular pedicles. The lateral peritoneal reflection was then divided using cautery from the splenic flexure to the pelvis, always with the ureter under vision. The rectosigmoid

junction was mobilized and transected with an endo-GIA stapler. The specimen was exteriorized through a small phannesteil incision and a primary anastomosis was created using a circular stapler (Figure 2). The procedure was completed uneventfully. The patient was returned to the surgical wards and the recovery period was uneventful.



Figure 2: Photograph of the distance mentoring procedure. The operating surgeons are creating a primary anastomosis while the laparoscopic mentor observes and instructs them via distance mentoring.

## DISCUSSION

In developing nations, it is common for patients to under open colectomies because laparoscopic skillsets are unavailable<sup>9-13,16,17</sup>. While the option to travel to developed nations exists, it is expensive and out of reach for many persons<sup>17</sup>. This method of remote mentoring may be a solution when competent mentors and experienced mentees are matched.

Traditional mentoring is an established concept in surgical training<sup>17,18</sup>, but this was a modified model with a virtual mentor guiding an operation. The obvious limitation here is that the mentor cannot physically demonstrate tips and tricks and also cannot intervene if there is an intra-operative misadventure. Therefore, precautions must be taken for this to be safely performed.

The operating surgeon should be sufficiently experienced so they are able to manage a complication should one occur, even if it means conversion to open surgery. Therefore, we recommend that the mentee have considerable experience in open colectomy. The operating surgeon should also have some experience in minimally invasive surgery since it requires unique skillsets such as hand-eye coordination, visual appreciation of relevant anatomy and spatial awareness. Essentially, the operating surgeon will be applying these skill sets to a new approach to an operation with which they are familiar using an open approach.

The mentor should be experienced and well trained<sup>14-16</sup>. As the mentor would have to guide the progress of the operation without being physically present, they must be a good communicator and both operators should be fluent in the same language.

Both participating surgeons must have good interpersonal relationships. In this case, both surgeons were familiar with each other and had operated together in the traditional way before. Therefore, each was aware of the other's capacity and limitations so that realistic expectations could be made on both sides.

A pre-operative planning meeting between the mentor and mentee should be a mandatory requirement. This planning session should include the equipment that is required, operative steps and pre-emptive plans in case of any reasonably possible intra-operative misadventure. We also recommend that the potential patient should meet with both surgeons pre-operatively to give consent for distance mentoring and for thorough appraisal of the planned procedure. For this to be successful, mature surgical judgment is required to select appropriate cases for remote mentoring.

## CONCLUSIONS

This case adds to the accumulating data on distance mentoring, supporting its potential to increase access to laparoscopic colectomy in developing nations, if used judiciously. Cases must be carefully selected and there must be well thought-out contingency plans in place in case of emergency.

### Conflicts of Interest:

None

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