

# Initial Two-Year Experience with Laparoscopic Colorectal Surgery in a Service in Salvador, Bahia, Brazil: A Critical Analysis

## Experiência Inicial de Dois Anos em Cirurgia Colorretal Videolaparoscópica em um Serviço em Salvador: Uma Análise Crítica

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### ABSTRACT

Introduction: Since the first reports by Jacobs in 1990, colorectal surgery is increasingly performed via videolaparoscopic access, shortening hospital stays, and offering patients better esthetic results, less postoperative pain, and an earlier resumption of their work and leisure activities. Objective: to report a case series of a team using videolaparoscopic access. Methods: Retrospective, descriptive study cases performed from April 2010 to May 2012 in Salvador, Bahia, Brazil. Results: 81 procedures were analyzed, 59.3% of the patients were female. Mean age was 58.3 years. Benign disorders were treated in 48.1% of the cases. Rectosigmoidectomy was performed in 41.5% and right colectomy in 21% of cases. The intraoperative complication rate was 3.7%; the postoperative rate 21%. The conversion rate was 6.2%. Conclusions: Videolaparoscopic procedures are safe and the training of the surgeons has yielded better results in this case series.

**Key words:** Laparoscopic colorectal surgery. Colectomy. Laparoscopic.

**Braz. J. Video-Sur, 2013, v. 6, n. 1: 018-022**

Accepted after revision: january, 13, 2012.

### INTRODUCTION

Since 1990, when the first videolaparoscopic surgical procedures of the colon were performed by Moises Jacobs,<sup>1</sup> the feasibility of this approach has become well established. In 1992, Regadas et al<sup>2</sup> marked the beginning of use of this surgical approach in Brazil. The good outcomes with reduction in the duration of hospital stays, earlier return to normal activities, better cosmetic results, and less postoperative pain have led to an increase in the number of laparoscopic resections. Data published in the literature have demonstrated results comparable to conventional colectomy in the treatment of colorectal cancer.<sup>3,4,9,19</sup> Mastering this technique requires good training of the surgeon in the operative techniques and the special instruments to be used.<sup>5-8</sup> To date, there is limited data reported in the literature about laparoscopic

colorectal surgery performed in the Brazilian state of Bahia.

### OBJECTIVE

Present and analyze the initial case series – accumulated over two years – of a surgical team that uses laparoscopic access in the treatment of colorectal diseases.

### METHODS

This retrospective, descriptive study was conducted at the Santa Izabel Hospital in Salvador, Bahia by reviewing the database of the surgical service for the period from April 2010 to May 2012. We included all patients who underwent laparoscopic colorectal surgery in this period.

The variables studied included age, gender, length of the hospitalization in days, procedure performed, the type of condition treated, complications, and reason for the conversion. The data were collected and analyzed using version 17.0 of the Statistical Package for the Social Sciences (SPSS) for Windows.

## RESULTS

Of a total of 81 laparoscopic colorectal procedures performed, 48 (59.3%) were in female patients and 33 (40.7%) were male patients (Figure 1). The mean age was 58.2 years (range 1-88 years). The mean duration of hospitalization was 5.78 days, and ranged from 1 to 31 days. Brazil's public health system paid for 17.3% of the procedures; 82.7% were reimbursed by private health plans.

48.1% of the patients treated with the laparoscopic approach had benign disease. The frequency distribution of the benign pathologies were diverticular disease (19.8%), rectal prolapse (2.5%), megacolon (3.7%), and colonic polyposis (14.8%). Malignancies constituted 51.9% of the cases and were distributed as follows: 18.5% were located in the rectum, 7.4% in the sigmoid colon, 6.2% were in the cecum and descending colon, 1.2% in the anal canal and synchronous disease, and 2.5% in the transverse colon, and 8.6% in the ascending colon. (Figure 2)

Malignancies constituted 51.9% of the cases and were distributed as follows: 6.2% were in the cecum and ascending colon, 2.5% in the transverse colon, 8.6% in the descending colon, 7.4% in the sigmoid colon, 18.5% in the rectum, and 1.2% in the anal canal and synchronous disease.

Figure 3 presents the frequency distribution of the 81 laparoscopies procedures performed: 40.7% were rectosigmoidectomies, followed by right colectomy at 21%, total colectomy at 9.9%, left colectomy at 7.4%, Milles' surgery at 4.9%, Duhamel's surgery at 4.9%, transversectomy at 3.7%, sacro-promontory fixation of the rectum and bowel reconstruction each accounting for 2.5%, and total proctocolectomy at 1.2%.

Complications occurred in 24.7% of cases; 3.7% were intraoperative and 21% post-operative. Intraoperative complications included an opening of the bladder wall, due to an advanced tumor of the cecum, which was corrected with simple suture repair; and a small bowel injury due to adhesion of the ileum to a rectal tumor.

Postoperative complications included three instances of dehiscence of an anastomosis (3.7% of the 81 patients). One occurred on the third postoperative day in a patient with Crohn's Disease who underwent right colectomy for cancer of the cecum, requiring another procedure to reinforce the suturing. Another dehiscence occurred after a total colectomy with a latero-lateral ileorrectal anastomosis. Two patients (2.5%) presented with an intra-abdominal abscess; both were resolved by drainage guided by interventional radiology. Respiratory infections and ileus occurred in 6.2% and 7.4% respectively, and we reported one case (1.2%) of postoperative pulmonary embolism (Figure 4).

In this series, there were five (6.2%) conversions, four because of peritoneal adhesions, and one (1.2%) for CO<sub>2</sub> retention at the beginning of the surgical procedure, which was converted immediately.

There were two deaths (2.4%), one due to an episode of bronchoaspiration on the third postoperative day resulting in respiratory failure, and the

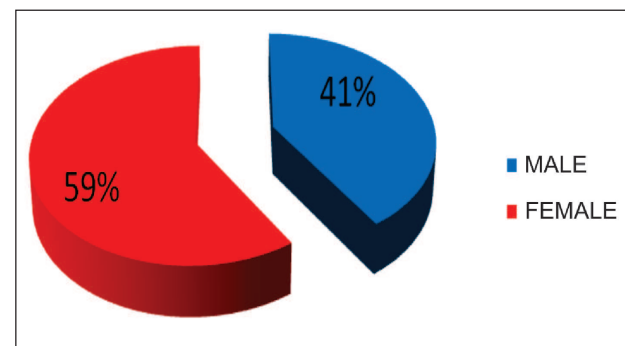


Figure 1 – Frequency Distribution by gender.

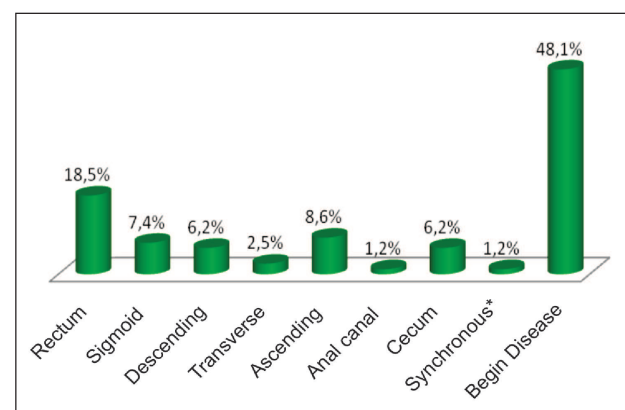


Figure 2 – Location of the tumor.

\*synchronous colorectal carcinomas

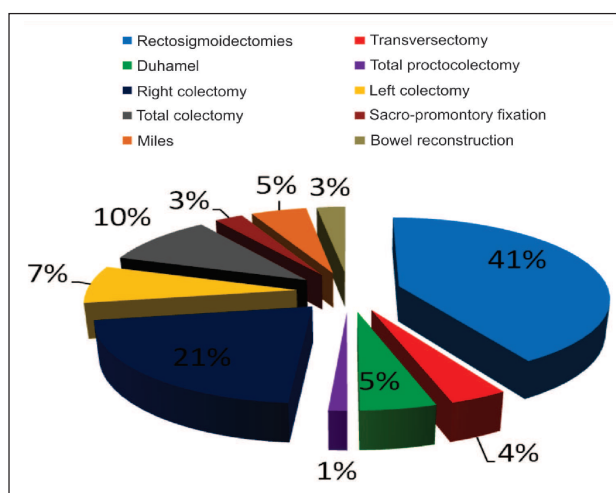


Figure 3 – Procedures performed.

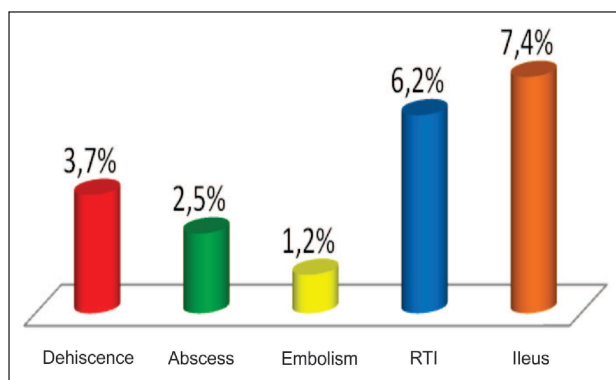


Figure 4 – Postoperative complications.  
RTI = Respiratory Tract Infection

second due to a respiratory infection which evolved to multi-organ and system failure.

## DISCUSSION

Laparoscopic Colorectal Surgery may be performed on all patients regardless of their age or gender. Published studies have demonstrated benefits of the laparoscopic approach. Most of these published studies involve patients with benign disease; in our initial series such patients constituted 48.1% of cases. Patients undergoing surgery for treatment of cancer accounted for 51.9%. All oncologic measures used in open surgery were maintained, such as ligation of the artery at its origin, removal of the surgical specimen with protection of the abdominal wall and fixation of the trocars.

In relation to the literature, we note the study of Queiroz and cols.<sup>10</sup> that reported 42.5% of patients

who underwent laparoscopic colorectal surgery in the state of Minas Gerais were operated for cancer. A female predominance was observed in all studies presented.

There are several benefits of laparoscopic colorectal surgery. Among them is a shorter hospital stay; Regadas et al<sup>5</sup> reported a mean duration of hospitalization of 4.3 days, quite close to the average in our series.

As for the procedures performed, Campos et al, in a national survey, reported rectosigmoidectomy was the most frequently performed at 40.7%, identical to our study (also 40.7%), followed by the right colectomy at 8%. In our series right colectomies represented 21% of the case volume.

The complication rate reported in the literature – as presented by Campos et al<sup>7</sup> and Regadas et al.<sup>5</sup> – varies from 8% to 29.6%. Our series had a complication rate of 24.7%, and an intraoperative complication rate of 3.7%, somewhat lower than range in the literature of 5.1% to 14%.<sup>5</sup>

Regarding postoperative complications, it is clear that there are differences among the publications reviewed, ranging from 14.7% reported by Bennett et al.,<sup>11</sup> and reaching 29.6%, as reported in a national survey in 2001. In Regadas et al's series of 102 cases,<sup>12</sup> the complication rate approached 24.5%, very similar to our rate of 21%. But in a new survey by the same author, with 401 cases,<sup>5</sup> there was a decline in the complication rate to 17%, demonstrating a reduction in the complication rate as the case series grew.

The mortality rate described in the literature ranges from zero to five percent; our mortality was 2.4%. Of the two deaths reported in our series, one was a patient with COPD who had an episode of vomiting on the third postoperative day, aspirated, and evolved to respiratory insufficiency. The second case was also a smoker who developed CO<sub>2</sub> retention at the onset of the pneumoperitoneum progressing to respiratory insufficiency and death.

Given that the conversion rates reported in the literature include a 6% rate reported by Lumlet et al,<sup>13</sup> 7.9% reported by Boulez et al,<sup>14</sup> and 9% reported by Coelho et al,<sup>4</sup> our conversion rate of 6.2% was quite close to these rates.

## CONCLUSION

It may be noted that the videolaparoscopic colorectal procedures have proven safe, permitting

oncologic resections, shorter hospital stays, less postoperative pain, and better cosmetic results. With the surgeon's training and team training, the complications and surgical time tend to improve.

Future studies building on the experience of this case series are needed to provide a national perspective and in order to stimulate new teams to undertake the laparoscopic treatment of colorectal diseases.

## RESUMO

**Introdução:** A cirurgia colorretal videolaparoscópica tem se tornado um via de acesso viável, desde o início de 1990, por Jacobs. Tem-se obtido redução dos dias de internamento, retorno precoce as atividades, melhor resultado estético e menor dor pós-operatória. **Objetivo:** relatar a casuística de uma equipe utilizando o acesso videolaparoscópico. **Materiais e métodos:** Estudo retrospectivo, descritivo realizado em Salvador, de abril de 2010 a maio de 2012. **Resultados:** 81 procedimentos foram analisados, com 59,3% do sexo feminino, média de idade de 58,3 anos. Tratado doença benigna em 48,1% dos pacientes. A retossigmoidectomia foi realizada em 40,7% e a colectomia direita em 21%. Das complicações encontradas 3,7% foram transoperatórias e 21% pós-operatórias com uma taxa de conversão de 6,2%. **Conclusão:** O procedimento videolaparoscópico tem-se mostrado seguro e a capacitação do cirurgião tem trazido melhores resultados na casuística.

**Descritores:** Cirurgia laparoscópica colorretal. Colectomia. Laparoscopia.

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