

# Difficulties of Laparoscopic Rectum Cancer Surgery in a Patient with Cirrhosis

## *Sirozlu Bir Hastada Laparoskopik Rektum Kanseri Cerrahisindeki Zorluklar*

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### ÖZET

Sirozda, portal hipertansiyon mezenterik konjesyon ve ödeme neden olur. Bu mezenterik değişiklikler ameliyat esnasında bazı problemlere yol açabilmekte olup ameliyat öncesi bilgisayarlı tomografi ile tespit edilebilmektedir. 58 yaşında Child A siroz tanılı bir hastaya laparoskopi yardımıyla extralevator abdominoperineal rezeksiyon ameliyatı uygulandı. Mezenterik venöz göllenme ve perivasküler fibrozise bağlı inferior mezenterik ven zorlukla diseke edildi. Dev ödematöz spesmen extralevator eksizyon defektinden zorlukla karın dışına alınabildi.

Sirozlu kolorektal kanser hastalarının tedavisi zorluklar içermektedir. Mezenterik fibrozis ve mezorektal ödem rektal kanser cerrahisi esnasında karşılaşılan ana sorunlar olup, her ikisi de ameliyat öncesi bilgisayarlı tomografi ile tespit edilebilmektedir. Gastrointestinal cerrahlar bu

### ABSTRACT

Portal hypertension in cirrhosis causes mesenteric congestion and edema. These mesenteric changes can be predicted by computerized tomography and may lead some problems during colorectal surgery. A 58 year old male patient with Child A cirrhosis underwent a laparoscopy assisted extralevator abdominoperineal excision. Secondary to mesenteric venous stasis and perivascular fibrosis, the dissection of the inferior mesenteric vein was problematic. The removal of the giant, edematous specimen out of the abdomen could hardly be completed through the extralevator excision defect.

The management of colorectal cancer patients with cirrhosis is challenging. Mesenteric fibrosis and mesorectal edema seems to be the main per-operative problem in the surgical treatment of rectal cancer and

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mezenterik deęişikler konusunda dikkatli olmalıdır. Extralevator eksizyonun temin ettięi geniş perineal boşluk dev spesmenin karın dışına alınmasında hastayı ek bir laparotomiden koruyabilir.

**Anahtar Kelimeler:** *Kolorektal kanser, Siroz, Sisli mezenter, Laparoskopji*

### Introduction

Nowadays, total mesorectal excision (TME), is the gold standard for the treatment of rectal cancer due to lower local recurrence rates, better survival and functional outcomes. TME can be performed with lower morbidity and mortality rates by well-trained and experienced surgeons, either open or laparoscopic.

Portal hypertension in cirrhosis causes mesenteric congestion and edema. This condition may cause a difficult dissection of the mesenteric vessels during the operation. Another problem is the dissection of the enlarged mesorectum in a relatively narrow pelvis. Taking the specimen out of the abdomen, through perineum may be challenging, if the operation is an abdominoperineal resection (APR).

In this case report we discussed the problems occurred during a laparoscopy assisted abdominoperineal excision in a patient with cirrhosis.

### Case Report

A 58 year old male patient was referred to our outpatient clinic with a complaint of rectal bleeding. He had a medical history of chronic viral hepatitis C and Child A cirrhosis. A digital rectal examination revealed a rectal mass, 4 cm above the anal verge. Endoscopic studies showed an irregular mass, just above the dentate line and grade 2 esophageal varicose veins. Biopsy of the rectal mass resulted in adenocarcinoma.

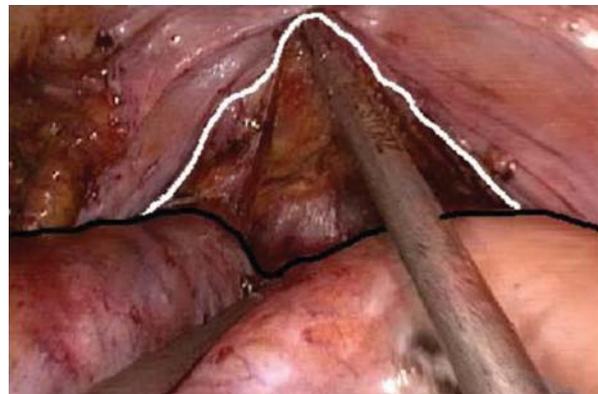
After imaging studies, clinical stage of the patient was found to be T3, N1 and M0. Mesenteric changes due to cirrhosis could also be detected by the same imaging studies. He was referred to oncology for neoadjuvant chemoradiotherapy (nCRT).

After completion of long course nCRT, a laparoscopy assisted abdominoperineal resection was planned. He had no previous abdominal surgery and his body mass

both can be predicted preoperatively by computerized tomography. Gastrointestinal surgeons must be aware of these mesenteric changes. Extralevator excision of the perineum may provide a larger perineal space and saves the patient from an additional laparotomy for the removal of giant specimen.

**Key words:** *Colorectal cancer, Cirrhosis, Misty mesentery, Laparoscopic*

index (BMI) was calculated as 24 kg/m<sup>2</sup>. During the operation inferior mesenteric vein (IMV) could not be isolated due to peri-vascular fibrosis. Fibrotic tissue including IMV was divided by vascular stapler. Inferior mesenteric artery was divided easily. An unusual bleeding occurred during lateral peritoneal dissection of the descending colon from the enlarged veins of peritoneum. After reaching the level of sacral promontory, the enlarged mesorectum secondary to mesenteric edema limited our surgical plane, through the minor pelvis both anteriorly and posteriorly (Fig. 1). With gentle dissection and great effort, we could reach pelvic floor and TME was completed. The rest of the operation was continued from perineum and an extended (extralevator) perineal resection (eAPR) was performed (Fig. 2). Specimen was removed out of the abdomen successfully through the perineal defect with excessive effort. The defect could be closed in primary fashion after dissection of subcutaneous fat tissue and no flap reconstruction was needed.



**Figure 1.** *A relatively narrow pelvis. Pelvic peritoneum is marked with white line. Black line is showing the borders of enlarged mesorectum.*



**Figure 2.** Large perineal defect of extended perineal excision.

The maximum diameter and circumference of the specimen was 15 and 45 centimeters respectively (Fig. 3). After pathological investigation, specimen was reported as ypT2, N (0) with a complete mesorectal fascia. Patient's postoperative course was uneventful. He was referred to oncology to complete his chemotherapy.

### Discussion

TME, defined by Heald has a proven survival benefit on rectal cancer surgery.<sup>1</sup> Especially in the last decade, laparoscopic TME for rectal cancer gained popularity and is being implemented successfully. Technical difficulties of the procedure are narrow pelvis, higher T values of TNM classification, tumor close to anal canal, preoperative radiotherapy and obesity.<sup>2,3</sup>



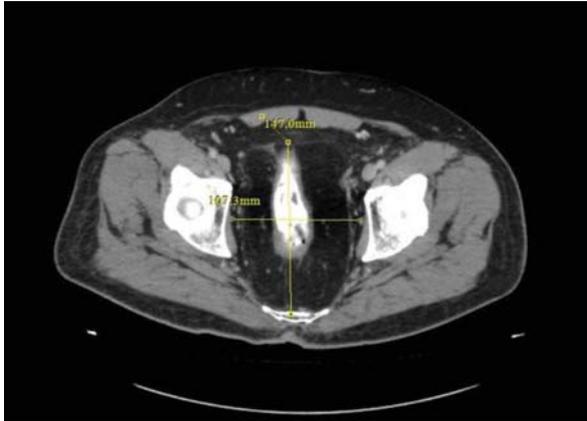
**Figure 3.** Giant abdominoperineal excision specimen.

Our patient was in Child A group and eligible for curative surgery. In cirrhotic patients, the prognosis of colorectal cancer varies. Prognosis of cancer depends on to the liver reserve and functions instead of the cancer stage.<sup>4</sup> Gervaz et al, studied cirrhotic patients with colorectal cancer and insisted Child classification is to be more useful than TNM staging, to predict survival after colorectal cancer surgery.

Portal hypertension is an inevitable result of liver fibrosis caused by cirrhosis. This high pressure of portal system reflects to the mesentery as mesenteric and bowel wall edema, inflammation and finally mesenteric fibrosis. These changes can be detected by computerized tomography (CT).<sup>5</sup> In one study, CT images of cirrhotic patients were evaluated and radiologic mesenteric edema was found in 86% of the patient.<sup>6</sup> Mindelzun et al called this kind of mesenteric CT findings as "misty mesentery". They evaluated CT images showing high density mesenteric infiltrations and found cirrhosis to be one of the causes of this entity. Other causes are inflammatory cells invading mesentery, tumor deposits and increased fluid component (edema, lymphatic stasis, blood).<sup>7</sup> CT examination of our patient showed increased patchy density around the inferior mesenteric vein and also an enlarged edematous mesorectum (Figs. 4,5). These changes handicapped the isolation of IMV of the patient. We overcame this problem by dividing the fibrotic tissue including the vein by a vascular stapler rather than



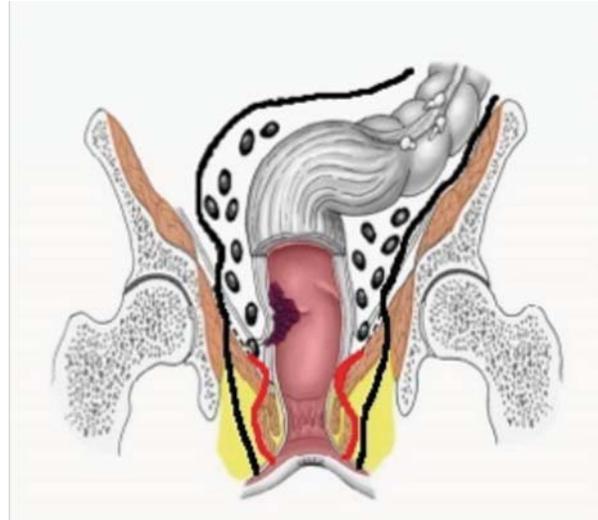
**Figure 4.** CT showing atrophy, parenchymal nodularity of the liver and patchy infiltration of the mesentery surrounding inferior mesenteric vein (arrow).



**Figure 5.** CT showing rectum and edematous, enlarged mesorectum.

forcing further dissection which might lead a serious hemorrhage. Among cirrhotic patients conversion to open surgery rates were found to be high secondary to difficult dissection. Recent publications are offering laparoscopic colorectal surgery in cirrhotic patients for better results.<sup>8</sup>

Firstly, Miles described the abdominoperineal resection in 1908 and his first description of the technique has not changed too much. In the last few years extended or cylindrical resection of rectum (eAPR) was defined. eAPR has lower rates of intraoperative bowel perforation and circumferential margin positivity compared to conventional APR. It aims to create a cylindrical specimen including levator muscles (Fig. 6). Technique provides



**Figure 6.** Extralevator (marked with black line) and traditional (marked with red line) excision of abdominoperineal resection for rectal cancer.

a better survival.<sup>9,10</sup> For our case, beyond the oncologic benefits, this extended resection provided us more space to take the enlarged specimen out of the abdomen. Due to the venous stasis and fibrosis of the mesentery, in cirrhotic patients colorectal surgery may be challenging. Preoperative CT changes of mesentery should be a clue for the surgeon about possible difficulties of mesenteric dissection. Extended abdominoperineal excision may provide a larger perineal space for the removal of giant edematous specimen.

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