Colorectal Cancer Patients With Liver Metastases Live Just as Long After Laparoscopic Surgery as Open Surgery

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ASCO Perspective

“Minimally invasive laparoscopic surgery is becoming more common for many types of solid tumors in the abdomen as patients have a less complicated, faster recovery. However, for technically challenging operations such as liver surgery, concerns regarding long-term survival from cancer remain. This study is the first to show that laparoscopic surgery is just as effective long-term as open surgery for patients undergoing removal of colorectal cancer that has spread to the liver, which should give patients confidence when choosing between these options. The experience of your surgeon with these techniques is key,” said ASCO Expert Nancy N. Baxter, MD.

CHICAGO – The randomized OSLO-COMET trial found that laparoscopic surgery did not change chances of survival, when compared to open surgery, to remove metastases that had spread to the liver in patients with colorectal cancer. Overall, patients lived more than 6.5 years after surgery, regardless of whether it was laparoscopic or open.

The study will be featured in a press briefing today and presented at the 2019 American Society of Clinical Oncology (ASCO) Annual Meeting.

“Laparoscopic liver surgery not only had a lower rate of post-operative complications, an improved quality of life, and was cost-effective, compared to open liver surgery, it also had life
expectancies that are similar to open surgery," said lead study author Åsmund Avdem Fretland, MD, Surgeon in the Intervention Centre and the Department of HPB Surgery at Oslo University Hospital, Norway. “After many years of improvements in laparoscopic surgery, we now have results showing that survival is as good with this procedure as with open surgery, and morbidity is lower, so we expect that this will cause a shift to even more operations on the liver being done laparoscopically,” noted Bjørn Edwin, MD, PhD, Intervention Centre and the Department of HPB Surgery at Oslo University Hospital, Norway, who is leading the research effort.

Laparoscopic surgery, sometimes known as keyhole surgery, is considered to be minimally invasive. In more conventional open surgery, a single incision, inches long or more, is made to access the abdomen. Laparoscopic surgery, however, uses several incisions of one-quarter inch or less. In one incision, a laparoscope is used to send images of the abdominal cavity to a monitor so that the surgeon can use tools inserted through the other incisions to perform the operation.

The first report of laparoscopic liver surgery was in 1991, with several other reports worldwide occurring shortly thereafter. The use of laparoscopic surgery has become more common, but until this study, no one had looked at long-term outcomes in cancer that has metastasized to the liver in a randomized trial, according to the researchers.

The surgeons in this study had extensive training in laparoscopic liver surgery. Open surgery is considered a good option if a surgeon does not have sufficient training for laparoscopy.

**About the Study**

From February 2012 to January 2016 the investigators randomly assigned 280 colorectal cancer patients with liver metastases to either laparoscopic surgery or open surgery. The operations were performed with a liver sparing technique, which means that the surgeons removed only the tumors and a minimal amount of surrounding liver tissue. One-hundred and thirty-three people received laparoscopic surgery, while 147 people had open surgery. About half of the patients received chemotherapy before or after their surgery, following standard Norwegian guidelines, which included the use of chemotherapy medicines 5-fluorouracil plus leucovorin (folinic acid) and oxaliplatin (Eloxatin).

**Key Findings**
Based on ongoing outcomes (patients who were enrolled in 2015-2016 have not yet been observed for 5 years), the researchers found the following comparable, non-statistically significant results:

- People who had the laparoscopic procedure lived a median of 80 months after surgery compared to 81 months for those who had open surgery.
- For people who had a laparoscopic procedure, median recurrence-free survival was 19 months compared to 16 months for those who had open surgery.
- After a minimum of 3 years of follow-up (the last patients were enrolled in early 2016), the researchers were able to estimate that 56% of people who had open surgery would be alive 5 years after their procedure compared to 57% of those who had a laparoscopic procedure.
- An estimated 31% of people who had open surgery would have no recurrence of disease 5 years later compared to 30% of those who had laparoscopy.

When looking solely at the surgical process, there was no difference between the groups in terms of the rate of complete tumor removal, or the amount of tissue removed beyond the observable tumor.

Patients reported improved health-related quality of life after laparoscopy, which also had less post-operative complications (19% with laparoscopy vs. 31% with open surgery). The researchers found that the monetary costs for either type of surgery were comparable, however, differences in costs may vary in other countries.

**Next Steps**

Dr. Fretland and colleagues are now using artificial intelligence, genetic, and digital-image analyses to parse results from the study so that they can improve the diagnosis and treatment of future patients. They plan to explore new aspects of minimally invasive liver surgery, including enrolling patients in multicenter randomized trials to examine other types of liver operations. The researchers are also exploring ablation of liver tumors using heat to kill cancer cells.

This study received funding from South-East Norway Regional Health Authority.

**Study at a Glance**

<table>
<thead>
<tr>
<th>Study Focus</th>
<th>Laparoscopic surgery for liver metastases from colorectal cancer</th>
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<tbody>
<tr>
<td>Trial Type</td>
<td>Phase III randomized clinical trial</td>
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<tr>
<td>Patients on Trial</td>
<td>280</td>
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<td>Treatment Tested</td>
<td>Laparoscopic surgery vs. open surgery</td>
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<tr>
<td>Primary Finding</td>
<td>People who had the laparoscopic procedure lived a median of 80 months after their surgery compared to 81 months for those who had open surgery</td>
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<tr>
<td>Secondary Finding(s)</td>
<td>Morbidity was 31% in the open group vs. 19% in the laparoscopic group</td>
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**For your readers:**

Guide to Colorectal Cancer

What is Cancer Surgery?

What is Metastasis?

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