

# Multiple Adhesions in Adenocarcinoma of Colon without prior Surgery

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## Abstract

Colon cancer incidence is increasing in the younger population while screening regimens remain relatively unchanged in the past decade. This patient presented with non-specific symptoms for colon cancer and had multiple adhesions on the right sided malignancy with attachments to the right kidney, liver, stomach, duodenum, and gallbladder with no previous surgical history. Unsuspected adhesions cause increased OR time with higher anesthesia exposure as well as the increased need to switch to an open laparotomy.

## Keywords

colon adenocarcinoma; adhesions; surgery

## Introduction

Colon cancer in younger patients is becoming more and more prevalent in recent decades. Siegel, Jemal and Ward (2009) state there is an increased incidence in colon cancer in adults of average risk under the age of 50 by a rate of 1.5% per year in men and 1.6% per year in women from 1992 to 2005. Current screening guidelines for patients at average risk for colorectal cancer between 50 and 75 years of age is shown in Table 1. Adults of average risk are defined as asymptomatic and have no personal history of colorectal cancer or adenomatous polyps, no family history of colorectal neoplasia, no inflammatory bowel disease and no unexplained anemia [3]. No major Medical Society recommends screening for adults of average risk under age 50. Do these guidelines need to be adjusted as the incidence of colon cancer changes? There is always a cost to benefit ratio of screening regimens, which should be considered further as the incidence, as well as the cost of testing, changes.

Currently, there is no effective way to detect adhesions on imaging prior to direct visualization upon opening the abdominal cavity. CT scan is able to visualize the complications, such as bowel obstruction or bowel ischemia, but cannot directly visualize the adhesions responsible.

## Case Report

50-year-old male with no past medical history and no significant family history was admitted to the hospital following a 2 month history of watery diarrhea and a 2 day history of diffuse lower abdominal pain. Patient stated he was admitted to a different hospital 1 month earlier with a similar

clinical presentation for a “minor tear,” which resolved spontaneously with fluids and antibiotics. The patient had no record with him from this hospital admission. An abdominal CT revealed a large quantity of free fluid with considerable dilatation of the ascending colon and wall thickening in the hepatic flexure. The decision was then made to perform a colonoscopy which showed narrowing around the hepatic flexure. It was thought that this narrowing was most likely due to an impinging mass, which was subsequently tattooed and biopsied. Pathology determined the biopsy to be tubular adenoma with high grade dysplasia. After speaking with the patient about surgery and obtaining written consent, a laparoscopic colorectal resection possible open was planned. Once the laparoscopic camera entered the abdominal cavity, it was clear that there was an extensive mass in the right colon. The tumor also had several large adhesions around it, extensively attaching itself to the liver, gallbladder, duodenum, stomach, right kidney and colon. The procedure began by reducing the vast amount of adhesions on the liver. After some time, it was decided that the procedure be switched from laparoscopic to open due to failure of progression in resection of the mass. After opening the abdominal cavity via a midline incision, the adhesions were much more accessible and easier to cut down to isolate the mass for removal. Adhesions to the liver, gallbladder, stomach, kidney and duodenum were lysed and the mass was removed, along with the mesentery and the lymph node basin surrounding the lesion totally 24 lymph nodes. An end to end anastomosis was accomplished using the ileum and transverse colon with no complications. Histology of the mass revealed adenocarcinoma with staging of T3N0Mx. A gross image of the mass is shown in Figure 1. Note that the adhesions cannot be visualized but you can see attachments of the adhesions around the mass shown by the arrow. Twenty-four lymph nodes were removed along with the mass and none showed any abnormal histologic findings.

## Discussion

This seemingly conventional manifestation of colon cancer in this patient is a reminder of the shortcomings associated with current preoperative diagnostic techniques. Failure to consider presence and extent of adhesions can lead to increased intraoperative conversion, increased anesthesia exposure, increased hospital stay duration, inadvertent enterotomy and prolonged return to normal bowel function [4]. Not only can patient welfare be compromised, but these issues also present a significant fiscal burden on an already struggling health care system.

A paucity of information exists in the literature concerning the presence of intra abdominal adhesions without prior surgery. Currently, surgical procedures such as laparoscopy/laparotomy are the only definitive way to determine the presence of adhesions. However, the utility of this method is undermined by its adhesiogenic potential. Techniques like dynamic MRI have had reported success, but examination of the images in sufficient enough detail to detect abnormalities has proven labour intensive and the results are subject to high inter-operator variability [5]. Other studies suggest that routine CT and MRI scans do in fact offer useful information about peritoneal adhesions. However, radiologists must be cognizant of these subtle clues and learn to sensitize their perception on diagnostic analysis [6].

Considering the implications associated with diffuse abdominal adhesions and the insufficiency behind diagnostic methods, how should we proceed? When faced with any pathologic condition, a holistic, multifaceted approach proves to be most effective. The same can be implemented in this situation. One area that may need reconsideration are current preventative/detection guidelines. The

prudence of existing algorithms should be under constant scrutiny to maintain congruence with the ever-evolving idiosyncrasies of today's patient population. Novel (and potentially carcinogenic) consumer trends form on a near daily basis. Complacency with the status quo could potentially be catastrophic for patient welfare in the not-so-distant future.

Despite successful surgery and notable therapeutic progress, treatment is not necessarily definitive. Local recurrence after curative colorectal resection occurs in up to 32% of patients [7]. A multitude of factors from surgical to genetic can dictate the likelihood of recurrence. A disconcerting feature in this operation was the en-bloc resection of the diffusely adherent tumour. In addition to radial margins, inadvertent rectal perforation, distal and proximal rectal margins, en-bloc resections of adherent tumours are considered to be the main surgical risk factors of local recurrence [8]. Considering this feature, close follow up is required and reinforces the significance behind prevention as the most effective means of treatment.

## Table

**Table 1:** US guideline recommendations for screening and screening intervals to reduce mortality from colorectal cancer in patients at average risk

Strategy	U.S. preventive Services Task Force (2016) <sup>23*</sup>	National Comprehensive Cancer Network (2015) <sup>43</sup>	Multi-Society Task Force (2018) <sup>50†</sup>	American College of Gastroenterology <sup>51</sup>
Sensitive guaiac FOBT‡	Anually	Recommended (Anually)	Recommended (Anually)	Recommended (Anually)
FIT‡	Anually	Recommended (Anually)	Recommended (Anually)	Recommended (Anually)
Stool DNA Test	Anually or every 3 yrs§	Not Recommended	Recommended (interval unknown)	Recommended (every 3yr)
Flexible sigmoidoscopy	Every 5yr	Recommended¶ (every 5yr)	Recommended (every 5yr)	Recommended (every 5 yr)
Flexible sigmoidoscopy plus FIT	Every 10 yr, with annual FIT or sensitive FOBT	Not Recommended	Not Recommended	Not Recommended
Colonoscopy	Every 10 yr	Recommended (every 10 yr)	Recommended (every 10 yr)	Preferred   (every 10 yr)
CT colonography	Every 5 yr	Not Recommended	Recommended (every 5 yr)	Recommended (every 5 yr)
Circulating methylated SEPT9 DNA	Not specified	Unavailable for guideline	Unavailable for guideline	Unavailable guideline

\* No recommended strategy was provided

† The Multi-Society Task Force included the American Gastroenterological Association, the American Society for Gastrointestinal Endoscopy, the American College of Gastroenterology, the American Cancer Society, and the American College of Radiology

‡ Sensitivity for detection of colorectal cancer is higher than 70%.

§ The screening interval is for multitarget FIT-DNA.

¶ Stool-based testing may be added at year 3.

|| Colonoscopy was identified as the preferred strategy.

## Figures



**Figure 1:** Gross image of adenocarcinoma mass with adhesions lysed



**Figure 2:** Dilation of the ascending colon with pericolic fluid and wall thickening

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