Case Report

Analysis of Misdiagnosis of Right Hemicolon Cancer: Clinical Analysis of 11 Cases

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ABSTRACT **Objective:** To analyze the misdiagnosis of right hemicolon cancer. **Methods:** This retrospective study was carried out in 11 patients with right hemicolon cancer who were preoperatively misdiagnosed as other diseases in our hospital. **Result:** All of the patients were preoperatively misdiagnosed and therefore received the wrong therapies. Nine underwent right colon resection, and two were submitted to anastomosis of the ileum to transverse colon. All died within a short time after the operation, except one who survived another 18 years. **Conclusion:** Right hemicolon cancer was characterized by constipation or diarrhea. Physicians should pay closer attention to patients who suffer from these symptoms, to identify whether they have right hemicolon cancer, and whether colonoscopy should be performed to allow for early diagnosis and treatment. Once patients have abdominal masses or intestinal obstruction, the cancer may be at an advanced stage.

Key Words: Right hemicolon cancer; abdominal mass; intestinal obstruction; right colon resection

Colorectal cancer, also called colon cancer or large bowel cancer, includes cancerous growths in the colon, rectum and appendix. The incidence rate for rectal cancer is highest among patients with colorectal cancer, immediately followed by those with left and right hemicolon cancer, and finally by patients with transverse colon cancer[1, 2]. Surgical treatment was performed for about 140 patients with colorectal cancer at Xijing Hospital, Fourth Military Medical University, each year. In recent years, many clinical reports showed that certain right hemicolon cancer patients were still misdiagnosed, which delayed treatment and led to adverse consequences[3-5]. The objective of the present study was to retrospectively analyze the characteristics of patients with right hemicolon cancer, for a better understanding of the clinical progression and to promote clinical diagnosis and treatment efficacy. We present 11 cases in this paper.

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MATERIALS AND METHODS

Medical records

In this study, 11 patients whose average age was 60.4 years (36~81 years) were admitted to our hospital between January 1990 and May 2009. Among the 11 patients, eight were male and three were female.

Clinical manifestations and characteristics

Case 1: The patient was a 72-year-old male, the director of a pharmacy, who was admitted to the hospital because a mass was found in the head of pancreas upon physical examination. The patient was quite healthy, except for constipation. After admission to the hospital, CT and PET examinations revealed cecal lesions.

We chose to perform right hemicolectomy for the patient; the operation was performed under general anesthesia. During surgery, we found swollen lymph nodes at the rear of the head of pancreas, which cannot be removed. Surgical removal of the mass and pathological examination revealed colon adenocarcinoma. Although the patient received postoperative chemotherapy, the patient died 3 months later as a result of jaundice and upper gastrointestinal bleeding.

Case 2: A 63-year-old woman working as a professor of chemistry was admitted to the hospital due to the accidental discovery of a right lower-quadrant mass. Review of the case history of the patient revealed no other abnormality, except for right-side abdominal pain and constipation. He was diagnosed as cecal tumor. Surgical exploration revealed a large mass within the cecum and enlarged mesenteric lymph nodes. Right hemicolectomy and lymph node dissection were preformed. Rigorous pathological examination of the surgical cecum and lymph node resected definitively confirmed our diagnosis. The patient died of systemic organ failure caused by abdominal metastasis 7 months after surgery.

Case 3: The patient was a 48-year-old male working as a professor of respiratory medicine. The patient had experienced a persistent change in his bowel habits. He did not report to the doctor for an examination until discovery of a right lower-quadrant mass. After a physical exam, an apparent mass was palpated in the lower right quadrant. Further colonoscopy revealed adenocarcinoma of the cecum. Additional surgical exploration revealed mesenteric lymph node metastases but no liver metastases. The patient was given chemotherapy after right hemicolectomy to kill any cancer cells remained, but liver metastasis occurred, and this patient eventually died.

Case 4: A 38-year-old male patient presented to the emergency room for acute onset of nausea and vomiting associated with right lower-quadrant abdominal pain. Past medical history showed that bowel obstruction occurred 3 times, and because conditions improved after medical treatment, further examination was not performed. Abdominal CT revealed ascending colon cancer. During surgery, we found a large tumor mass at the ascending colon which adhesion to the inferior vena cava and duodenum. Further surgical exploration showed liver metastases. We believed that the cancer could not be completely removed by surgery, so we performed ileal colonic anastomosis to help relieve symptoms. The patient died due to systemic failures after 9 months.

Case 5: The patient was a 73-year-old male and professor of neurosurgery. He presented to our department for a right lower-quadrant mass. The patient was quite healthy until a mass was accidentally discovered. He reported that the mass was small at first and did not feel any discomfort, and later he was gradually getting worse as the mass grew in size. After detailed examination and discussion, the patient was diagnosed as ascending colon cancer. One week later, right hemicolectomy, regional lymph node dissection and subsequent chemotherapy were performed. Mesenteric lymph nodes and liver metastases from ascending colon cancer were detected during surgery. The patient expired due to bowel obstruction, ascites and systemic failure 11 months after the surgery.

Case 6: A 78-year-old man, a professor of oral and maxillofacial surgery, was admitted to our hospital due to the presence of an abdominal mass. The patient was quite healthy, except for constipation and diarrhea. Physical examination revealed a right lower-quadrant mass. Abdominal CT scan showed a lesion occupying a large space in the descending colon, with metastasis in the liver. Right hemicolectomy was performed for the patient. The histological diagnosis was adenocarcinoma, and the patient was referred to an oncologist for chemotherapy. Eight months later, another abdominal mass was observed. The patient died due to systemic failure.

Case 7: A 53-year-old man with two-year history of abdominal masses presented to our department due to right lower-quadrant abdominal pain. Abdominal CT scan revealed cecum adenocarcinoma, with metastasis to the liver. Follow bowel preparation an exploratory laparotomy was planned. A huge irregular mass in the cecum was found, which adhere to right iliac arteries and pelvic wall. Ileal colonic anastomosis was performed. The patient was referred to an oncologist for anticancer therapy after operation, and died due to systemic failure.

Case 8: A 51-year-old male farmer was referred to an outpatient clinic with symptoms of bowel obstruction. After a period of therapy, conditions continued to be critical with no improvement. The physician referred him to our hospital for consultation. Physical examination showed a 10 cm × 11 cm mass in the right lower quadrant of the patient. Further abdominal CT scan revealed right hemicolon cancer, with no metastasis to the liver or mesenteric lymph nodes. Right hemicolectomy and chemotherapy were performed. Currently, 18 years after surgery, the patient remains in good condition.

Case 9: A 56-year-old man sought medical care for a 3-year history of bowel obstruction. After each attack, the patient was referred to medicine for conservative treatment, and his condition improved. A recent examination revealed a right lower-quadrant mass, so he was referred to general surgery. Colonoscopy and biopsy showed ascending colon adenocarcinoma. During surgery, we found a large movable tumor mass, with metastasis in the liver and mesenteric lymph nodes. Although right hemicolectomy and subsequent chemotherapy were performed, abdominal mass and ascites reappeared, and the patient ultimately died due to systemic

failure.

Case 10: A woman aged 68 years old was admitted to our hospital due to liver lesions. Further PET/CT scan revealed the patient had an abdominal mass, small intestine tumor and liver metastases. We considered that malignant tumors in the small intestine were uncommon, so colonoscopy was recommended for the patient in order to obtain a clear diagnosis. First, we conducted a barium enema examination, which revealed a block in the ascending colon. So we considered the diagnosis of colon cancer. Both colonoscopy and biopsy showed colitis. Because the diagnosis was not clear, no further treatment was administered. After 5 months, the patient was readmitted due to bowel obstruction. Repeat colonoscopy with biopsy was performed, the result revealed right-side hemicolon cancer. Right hemicolectomy was done. Due to metastasis to the liver and mesenteric lymph nodes, chemotherapy treatment was initiated, however, the patient died 6 months later.

Case 11: A previously healthy 51-year-old woman physician presented with unexplained anemia. Upon examination, the patient had a mass on her right waist, and was diagnosed as renal ptosis. The patient received Chinese medical treatments, but her condition continued as critical with no improvement. After a surgical consultation, the diagnosis was thought to be colon tumor. Surgical exploration revealed the patient suffered from ascending colon cancer with metastasis to the liver and mesenteric lymph nodes. Although right hemicolectomy and subsequent chemotherapy were performed, the patient died due to systemic failure 14 months later.

RESULTS

All patients underwent surgery and were pathologically confirmed to have colon cancer. Management procedures included right hemicolectomy in 9 cases and ileal colonic anastomosis in 2 cases. All patients were referred to an oncologist for chemotherapy. Among the patients, case 8 achieved long-term survival, case 11 survived for 14 months, and the remaining patients all died within one year.

DISCUSSION

The incidence of right hemicolon cancer among the patients with colorectal cancer was not the highest, but it were easily misdiagnosed, which led to delayed treatment and the related adverse consequences[6].

Reasons for misdiagnosis

Colorectal adenocarcinoma grows slowly, and a long period of time elapses before it is large enough to cause symptoms. Symptoms depend on lesion location, type, extent, and complications. The right hemicolon has a large caliber, a thin wall, and liquid contents; therefore, obstruction is delayed. Stool remains normal. Bleeding is usually occult. Fatigue and weakness caused by severe anemia may be the only complaints. Tumors sometimes grow large enough to be palpable through the abdominal wall before other symptoms appear. The left colon has a smaller lumen, the feces are semisolid, and cancer tends to encircle the bowel, causing alternating constipation and increased stool frequency or diarrhea. Partial obstruction with colicky abdominal pain or complete obstruction may be the clinical presentation. The stool may be streaked or mixed with blood. Some patients present with symptoms of perforation, usually walled off (focal pain and tenderness) or rarely with diffuse peritonitis. The ileocolic and right colic veins, tributaries of the superior mesenteric vein, drain the blood from the ascending colon. Because these veins usually connect directly to the hepatic portal vein, which drains blood into the liver, so the right hemicolon cancer commonly metastasizes to the liver[7, 8]. In this study, liver metastasis occurred in 6 cases among the 11 patients before surgery.

For these reasons, early detection, diagnosis and treatment are not possible. Most cases are detected during late stages of the disease. Due to our limited knowledge in this area, patients with obvious symptoms may be neglected, leading to delayed diagnosis and treatment.

Importance of early diagnosis

It is important to catch right hemicolon cancer early, because it can easily spread to the liver and mesenteric lymph nodes, leading to adverse consequences[9-11]. Right hemicolon cancer can be present for several years before symptoms develop. Symptoms vary according to the where the tumor is located. The right colon is spacious, and cancers of the right colon can grow to large sizes before they cause any abdominal symptoms. The symptoms which most often compel the patient to seek medical attention include an abdominal mass and intestinal obstruction; at this point, the cancer is in its advanced stages. All 11 cases investigated here were in advanced stages.

Abdominal mass: An abdominal mass is usually detected on routine physical examination and typically develops slowly. Patients may not be able to feel the mass. If a patient is found to have an abdominal mass, the cancer is usually in its advanced stages. Such patients must be examined carefully. The patients of case 10 and case 11 were both misdiagnosed.

Intestinal obstruction: A tumor that is large enough to fill the entire lumen of the bowel may cause bowel obstruction.

This situation is characterized by constipation, abdominal pain, abdominal distension and vomiting. This occasionally leads to perforation of the obstructed and distended bowel, and causing peritonitis. Three quarters of the patients with intestinal obstruction caused by cancer were afflicted with colon cancer. Among all cases examined in this study, intestinal obstruction occurred in 6 patients, and 2 patients presented with recurrent intestinal obstruction. However, case 9, with recurrent intestinal obstruction, did not receive sufficient attention, which led to a delay in diagnosis and treatment.

Local invasion and distant metastasis: Hemicolon cancer can often be effectively treated when found early. In fact, it can often be entirely prevented when precancerous polyps are detected and removed through routine screening via colonoscopy. This type of cancer is much more difficult to treat when it has spread beyond the colon. Hemicolon cancer most commonly spreads to the liver and lung. When hemicolon cancer metastasizes to the liver, it may go unnoticed, but large deposits in the liver may cause jaundice and abdominal pain. CT scans, abdominal ultrasound and blood tests to evaluate liver function can be used in determining whether cancer has spread to the liver. Symptoms of hemicolon cancer metastasis to the lung include shortness of breath, nonproductive cough, cough with blood-containing sputum and pain in the chest. Chest X-ray and CT scan are the tests most commonly used to diagnose the spread of cancer to the lung. The majority of patients in our cases developed liver metastases. Metastasis in mesenteric lymph nodes is also common. In case 7, we not only found metastasis in mesenteric lymph nodes but also observed adhesion to the right iliac arteries and pelvic wall. The prognosis of this patient was poor.

Anemia: Typically, hemicolon cancer causes iron deficiency anemia due to the chronic occult bleeding over a long period of time. Iron-deficiency anemia causes fatigue, weakness, and shortness of breath. Case 11 presented with unexplained anemia, and further examination revealed a mass. However, the patient was still misdiagnosed as renal ptosis.

Bloody Stool: Since tumors tend to bleed, lower gastrointestinal bleeding, including the passage of bright red blood in the stool, may indicate hemicolon cancer. However, this symptom usually indicates that the cancer is in its advanced stages.

Treatment

The treatment depends on the stage of the cancer. When colorectal cancer is caught at an early stage (with little spread), it can be curable. However, when it is detected at later stages when the metastases are present usually, and less likely to be curable. Surgery remains the primary treatment, and chemotherapy and/or radiotherapy may be recommended, depending on the individual patient's stages and other medical factors[12-15]. In our study, all patients received surgery, including right hemicolectomy in 9 cases and ileal colonic anastomosis in 2 cases. While case 8 achieved long-term survival, the other patients all died within 14 months due to metastasis to the liver and mesenteric lymph nodes. Although the case 8 developed recurrent intestinal obstruction and a mass in the right lower quadrant, there was no metastasis to the liver and mesenteric lymph nodes. Right hemicolectomy and subsequent chemotherapy were performed. The patient recovered well from the surgery and is alive and well, which suggested that, even in patients with the symptoms of advanced colon cancer, surgery is still necessary.

Lessons learned

It is important to understand the risks for right hemicolon cancer, the symptoms of right hemicolon cancer and the screening tests that can detect cancerous growths. Through increased surveillance, improved lifestyle, and, probably, the use of dietary chemopreventative agents, we can also reduce the risk of developing this disease[16].

Right hemicolon cancer may begin with no symptoms at all. However, over time, there are a number of warning signs that can occur, such as a change in bowel habits, long-term constipation and diarrhea. Someone with these symptoms should be examined by colonoscopy in a timely fashion and undergo a regular physical examination at least once every 3 months. Most of the patients in this group happened to be medical staff at the hospital, but they did not pay close enough attention to their symptoms. Foregoing visits to the doctor for self-medication strategies, including laxatives or antidiarrheals, resulted in delayed treatment. In case 1, the patient had used aloe capsules for a long time, for constipation. Routine physical examination revealed a mass in the head of the pancreas. After this examination, the patient was finally diagnosed with colon adenocarcinoma. Due to neglect, widespread metastases of right hemicolon cancer led to poor results after surgery.

Abdominal mass and intestinal obstruction are also important signs of right hemicolon cancer. Once such symptoms are identified, physicians should consider the possibility of right hemicolon cancer. Further examination and tests are essential to make a definitive diagnosis. We should also actively prepare for surgical removal of the primary tumor and regional lymph nodes. In case 7, the patient had experienced no symptoms with an abdominal mass for about 2 years. No further treatment or examination had been administered, until intestinal obstruction occurred. Because the tumor invasion was extensive, tumor resection was abandoned and only ileal colonic anastomosis was performed. The patient

ultimately died of systemic failure. The primary reasons for poor prognosis were delays in diagnosis and treatment.

Whether treatment of the patients with right hemicolon cancer depend on the patient's staging and other medical factors. Early cancer that develops within a polyp can often be cured by removal of the polyp at the time of colonoscopy. A more advanced tumor requires that the diseased section of the colon be removed, along with lymph nodes and part of the healthy colon. Next, the two healthy ends are reattached. The surgeon's goal will be for the patient to regain the most normal bowel function possible. In cases of multiple metastases, the surgeons may prefer palliative resection. Based on our years of colon cancer studies, we believe that patients with the symptoms of advanced colon cancer still represent candidates for surgery, and the aggressive surgical management is necessary.

Further studies are necessary to eluci¬date controversies and to enlighten the general medical population regarding the importance of the correct diagnosis and appropriate treatment of right hemicolon cancer.

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