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Clinical Analysis of 12 Cases of Colon Cancer Postsurgical Gastric Paralysis

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ABSTRACT

Objective: To explore the causes, diagnosis and treatment of gastric paralysis after radical resection of colon cancer. **Methods:** A retrospective analysis was performed on the clinical data of 12 cases of patients with gastroparesis syndrome after colon cancer surgery in our department from January, 2011 to December, 2013. **Results:** Gastric paralysis after radical resection of colon cancer is caused by multiple factors and its incidence is linked to factors like nervous and mental factors, surgical traumas, post-surgical metabolic disorders and anesthesia drugs and other factors. All patients are healed with non-surgical treatment. **Conclusions:** Comprehensive and conservative treatments are carried out for gastric paralysis after radical resection of colon cancer and satisfactory curative effects can be obtained. Surgical treatment should be chosen carefully and considerately.

Gastroparesis syndrome is a clinic syndrome caused by delayed gastric emptying resulting from non-mechanical obstruction factor, including a series of symptoms like nausea, vomiting and abdominal distention [1-2]. The incident rate of gastric paralysis following stomach surgery is higher, while colon cancer has low postoperative incidence rate, and thus is often overlooked and then leas to delayed treatment, therefore, correct understanding of gastroparesis syndrome, early diagnosis and timely treatment can

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avoid aggravating the condition and has important significance for the improvement of prognostic and postsurgical living conditions of patients. Now a retrospective analysis was performed on the clinical data of 12 cases of patients with complications of gastroparesis syndrome after colon cancer surgery, who received treatment in our department from January, 2011 to December, 2013, and reports are as follows:

1 Clinical data

From January, 2011 to December, 2013, there were 12 cases of occurrence of gastric paralysis after colon cancer surgery conducted in our department, including male 7 cases and female 5 cases, aged 45-76 years, with an average age of 66.5 years, and for right hemicolectomy in 6 cases, transverse colectomy in 3 case, left hemicolectomy in 2 cases, and sigmoidectomy in 1 case. The symptoms of 12 cases of patients occur in the postoperative period after surgery with an average of 8 days. The symptoms in all cases appear after the recovery of gastrointestinal peristalsis function and anal exsufflation, and in 5 cases, abdominal distention and vomiting take place after a liquid diet is started; in 5 cases, the symptoms appear after a semi-liquid diet begins; and the symptoms occur in 2 cases of patients after they eat a lot of food 11 days and 12 days after surgery respectively. The vomitus of all patients includes biliary gastric juice and food. Abdominal distention is alleviated after vomiting, without an occurrence of paroxysmal abdominal pain.

After the symptoms occur, the contrast examination (contrast examination with iohexol) is performed on the upper gastrointestinal track for all cases. The results of contrast examination in 9 cases show that gastrectasia takes place, gastric peristalsis abates and there are no peristalses in the stomach. In 3 cases, it is evident that a small amount of contrast agents slowly passes through the pylorus into the duodenum. Massive contrast agents remain in the stomach of all patients after 6 hours. The patients comply with the standards for diagnosis of gastric paralysis: (1) Patients have passed gas and intestinal peristalsis recovers after surgery, upper middle abdominal bloating and upset and repeated vomiting occur after a liquid diet and a semi-liquid diet, and for the physical examination, a succussion splash in the upper abdomen was present, and the gurgling sound fades or disappears. (2) It is validated by the contrast examination of the upper gastrointestinal track that there are no or obviously weakened peristalses in the stomach, meanwhile the mechanical gastrointestinal obstruction is eliminated, (3) the volume of gastrointestinal drainage is more than 800 ml/day. (4) There are no significant water and electrolyte disorders and disturbances of acid-base balance. (5) Drugs that suppress smooth muscle contractions are not used. (6) There are underlying diseases that cause gastric paralysis, such as diabetes mellitus and connective tissue disorders. [3-4]

2 Methods of treatment

Conservative treatments are performed on all patients, including continuous gastrointestinal decompression, gastric lavage with 1/3 warm hypertonic saline, and maintenance of balance of water, electrolyte, and acid-base etc. All patients are provided with support of total parenteral nutrition and given acid suppression and somatostatin and other therapies. After the symptoms are mitigated, nasal jejunum nutrition tubes are placed in 7 cases of patients under a gastroscope for enteral nutrition therapy, at the same time, drugs promoting gastrointestinal motility, such as domperidone, erythromycin, cisapride, are injected into the nasogastric tube; 8 cases of patients are simultaneously given acupuncture, Traditional Chinese medicine and other therapies.

3 Results

The symptoms of 12 cases of patients in the entire group have been alleviated, with a therapy period of 9 to 42 days and an average of 21 days. The indication of extubation of the nasogastric tube is the symptoms and

signs of patients disappeared, and after the drainage amount of the nasogastric tube is less than 400ml, the recovery of gastric peristalsis is verified in the contrast examination of the gastrointestinal track. When the clamping of nasogastric tube is finished, patient resume a diet gradually, and the nasogastric tube is removed after there is no abdominal distention or vomiting, all patients resume normal diets.

4 Discussion

At present, the pathogenesis and causes of colon cancer postsurgical gastric paralysis remain unclear. It is generally believed that its pathogenesis is caused by multiple factors, including: (1) traumas resulting from surgical operation, for 6 cases of patients receiving patients receiving a radical resection for right-sided colon cancer and 3 cases of patients receiving a radical resection for transverse colon cancer in this group, gastric subpyloric lymph nodes are swept up, and the nerve tissue surrounding the stomach pylorus is inevitably damaged in the surgery, thus affecting gastric emptying. (2) With changes in physiological dissection, the body's anatomical structure is unavoidably changed after radical resection of colon cancer is performed on patients. The changes of anatomical structure will break through existing mechanisms of gastrointestinal peristalsis. The dissection and separation in the surgery in the pyloric part of stomach and the descending portion of duodenum cause local tissue edema, which also impact normal gastric peristalsis. (3) Nervous and mental and nervous factors caused by the postoperative stress. Some studies suggest that [5], the abdominal surgery activates inhibitory sympathetic nervous systems, and the activated sympathetic fibers, on one hand, suppress gastric peristalsis by suppressing excitatory neurons of the gastrointestinal plexus, on the other hand, release catecholamine through sympathetic nerve endings, which are combined with α and β receptors on the gastric smooth muscle cell membranes, thus suppressing smooth muscle contractions. This may be the main reason gastric paralysis occurs. (4) The hyperglycemic state caused by postoperative stress. Postoperative stress can reduce the sensitivity of insulin receptors, increase the number of glucagon, and make insulin relatively insufficient, meanwhile, gluconeogenesis is enhanced and veins are replenished with more glucose after surgery, which both will result in high blood glucose in patients, and high blood glucose can suppress gastric motility. (5) Postoperative use of analgesics. Recent researches suggest that, [6] painkillers like tramadol has the role of suppressing gastrointestinal peristalsis, Morphine can stimulate the chemoreceptor and vestibular apparatus, giving rise to symptoms like nausea and vomiting. In a word, the occurrence of gastric paralysis might be comprehensively caused by multiple factors, and there possibly be individual differences in its pathogenesis.

Currently, there are no uniform standards for the diagnosis of gastric paralysis. Stanciu[7] reported, Determination of gastric emptying with 99 Tc marker is the gold standard for the diagnosis of gastric paralysis, and the most important identification and diagnosis is to eliminate mechanical intestinal obstruction. Clinically, it is possible to diagnose postoperative gastric paralysis by combining the contrast examination of the upper gastrointestinal track through clinical manifestations. The contrast examination of the upper gastrointestinal track is performed on this group of patients with iodides, the conditions of gastric peristalsis and emptying are dynamically observed, and clinical manifestation is combined, diagnosis is not difficult, but needs to be distinguished from mechanical intestinal obstruction, the stomach's own disease, as well as gastric emptying caused by diseases like diabetes mellitus and connective tissue disorders.

Gastric paralysis belongs to functional lesion, without mechanical gastrointestinal obstruction; therefore, the principle of therapy is focused on conservative therapy, and therapeutic measures include: (1) Eliminate the

metal factors of patients, explicitly introduce the conditions to the patients and their family, provide the patients and their family with certain knowledge of treatment protocols and treatment expectations, strive for active and coordinated therapy, and encourage patients to carry out off-bed activities to promote the recovery of gastrointestinal functions; (2) Prohibit drinking water, perform continuous gastrointestinal decompression, maintain smooth drainage, alleviate gastric tension, and let the stomach get enough rest;(3) sufficient nutrition-supported therapy, w which clinically and mainly are Total Parenteral Nutrition (TPN) and Enteral Nutrition (EN). In the early of therapy after the diagnosis of gastric paralysis, the use of TPN is recommended. TPN not only can offer full nutrition requirements, but also can suppress gastrointestinal fluid secretion and make the gastrointestinal track get sleep, which is beneficial to the recovery of parietal motility. But long-term use of TPN has disadvantages. It is costly and leads to gradually increasing late complications. NP complies with the physiology of gastrointestinal absorption, contributes to maintaining gastrointestinal functions, and avoids changes of intestinal mucosal barrier and alteration of intestinal flora, with low cost and high patient compliance. But remember, EN should be provided from the small intestine. 7 patients in this group of cases are supplied with EN by placing a nasal jejunum nutrition tube under a gastroscope after gastrointestinal decompression, which not only reduce medical cost, but also lower complications. (4) Use of somatostatin and drugs that inhibit gastric acid secretion. Once gastric paralysis, we recommend starting to use gastric acid-suppressive drugs and somatostatin, like Omeprazole and Octreotide, which can effectively reduce gastrointestinal fluid secretion. (5) Promote the use of gastric prokinetic drugs. Now the clinically common drugs are Domperidone, Cisapride, and Erythromycin etc., which can used as appropriate according to the development of conditions. (6) Therapy with Traditional Chinese Medicine. Acupuncture of tsusanli can be adopted, and perfusion therapy with nine compounds oral liquid, Simo decoction etc., has a certain curative effect too. The author argues that, patience is also important in the treatment process. The period for the treatment of one of cases of patients is up to 42 days. When doctors and patients were about to give up the conservative therapy, the gastric functions of the patient recovered. Therefore, we suggest that, once the diagnosis is definite, conservative therapy should be conducted as much as possible and surgical treatment should be chosen carefully and considerately.

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