

RESEARCH COMMUNICATION

Colorectal Stenting for Management of Acute Malignant Bowel Obstruction in Advanced Colorectal Cancer in Iran

Fatemi Reza^{1*}, Mohammad Alizadeh AmirH², Derakhshan Faramarz², Mousavi Shahrokh¹, Zahmatkesh Mehrdad¹, Sepideh Shivarani¹, Fatemeh Nemati Malek², Elham Maserat¹, MR Zali²

Abstract

Introduction: Enteral stenting is used increasingly as a palliative treatment of gastrointestinal malignant or non malignant obstructions. This aim of this study was to evaluate the role of endoscopic stent implantation for palliation of acute colorectal cancer obstruction in critical patients. **Methods:** This study was performed prospectively with 8 patients suffering clinical manifestations of acute bowel obstruction with severe co-morbid diseases that caused them to be inoperable. They were treated by semi-elective stent insertion after primary resuscitation. Gentle dilation of stricture with balloon or buginage was performed under fluoroscopy and colonoscopy in gastrointestinal ward without complete preparation. Then an uncovered self-expanding metal stent was inserted over guide wire in the location of the tumor. **Results:** Endoscopic stent implantation could be successfully performed in six patients. In early days after stent insertion; general condition of patients gradually improved, and symptoms of acute obstruction was relieved. In two of the cases stent was inserted with difficulty due to very tortuous and complex strictures. Complications of stenting in this study were very rare. Displacement of stent after successful insertion was not seen . Of our studied patients, two died after 2 months, one after 4 months and three of them after 7-8 months. The cause of death in these patients was advanced metastatic lesion in liver, lung, bone and severe underlying disease such as heart failure. **Conclusion:** Endoscopic stent implantation seems to be an effective and safe palliative approach for management of emergency conditions of acute colonic obstruction in inoperable patients with advanced colorectal cancer.

Key Words: Colorectal cancer - self expanding metal stents - constriction

Asian Pacific J Cancer Prev, 10, 739-741

Introduction

Enteral stenting has been used in treatment of obstructive malignant GI cancer. The role of stenting in palliation of advanced colorectal cancer in patients with inoperable or nonresectable local disease during an elective condition is yet a challenging aspect in treatment of colorectal cancer.

In our study the outcome and results of stenting in incurable colon cancer patients with acute obstruction was investigated.

Materials & Methods

In a prospective study, eight patients with acute colonic obstruction secondary to advanced colorectal cancer, who had been referred to the emergency room of our hospital from Feb 2005 to March 2007, were included. These

patients were inoperable due to underlying diseases and were referred from surgical ward to our endoscopy ward for palliative procedure to relief bowel obstruction. Three of the patients were female and five male, ages ranging from 58 to 82 years. Socioeconomic status was good in six and low in two patients. Obesity was seen in four patients. 3 patients were heavy smokers, and one patient had been suffering from chronic ulcerative colitis. Two patients had multiple metastatic lesions in liver and lung, others had end stage colorectal cancer, and isolated liver metastasis was also seen in one patient.

Our patients had co morbid conditions. Two patients had history of severe chronic heart failure, one chronic renal failure and three were suffering from advanced ischemic heart disease. Tumor sites were variable in our patients. In two cases the lesions were in rectosigmoid flexure, two were in rectum. In three patients the tumor was located in left side of colon and in one case in splenic

¹Research Center of Gastroenterology & Liver Disease, Semnan University of Medical Sciences, Fatemeh Hospital, ²Research Center of Gastroenterology & Liver Disease of Shahid Beheshtee University, Taleghani Hospital, Tehran, Iran *For Correspondence: Nedafat20@yahoo.com

flexure.

The important symptoms were as following: 5 patients were unable to defecate and gas pass, severe abdominal pain was seen in two patients, abdominal distention in five, and severe rectal bleeding in two, nausea and vomiting was seen in one patient and 2 patients had severe toxicity.

All patients were admitted in ICU ward due to critical conditions. Cardiopulmonary monitoring was done and all patients were stabilized and fully hydrated. They received wide spectrum antibiotics such as imipenem; third generation of cephalosporins, in addition to metronidazol. Colorectal stenting was performed 2 to 10 hours after admission. Mild colorectal enema was performed as colonic preparation.

In the gastrointestinal endoscopy ward, under direct colonoscopy guide and fluoroscopic view, initially a guide wire was passed from the location of tumor obstruction and then through the mild dilated area, where appropriate buginage was performed. Secondly a self expanding metal stent (Niti stent) was inserted in stricture location under fluoroscopic guidance; then the stent was released and expanded. The sizes of stents were 4 cm in length and 20mm in diameter in rectal and recto-sigmoid tumors and 6cm in length in descending colon. Stenting procedures were performed without general anesthesia; but a mild sedative and analgesic drug was prescribed. At the end of the procedure all patients were returned to ICU.

Results

From eight patients, stent insertion was applied and expansion was done successfully in six cases. In two remaining cases severe tumor structure, one in the splenic flexure and one in the recto sigmoid flexure caused failure of stent insertion. Retained stool and colonic fluid was defecated under pressure.

The patients' general condition was satisfactory in the next 72 hours after the procedure. Symptoms such as nausea, vomiting and sever abdominal pain resolved rapidly but abdominal distention was reduced gradually in 48 hours after the procedure in patients with no sever underlying disorder. Prolonged abdominal distention was seen in patients with CHF and CRF (two patients) and heavy smokers (in one case), which remained for 10 days to 3 weeks, because of hypo motility and paralysis caused by severe underlying disease. Severe rectal bleeding continued in two patients for three days after stent insertion but was resolved 5-6 days after blood transfusion (2-3 units of packed RBC) and hydration.

Early complications after stenting was mild abdominal pain and discomfort in location of stent in two patients that subsided after 48 hours and mild rectal bleeding in four patients for 2-3 days.

Patients were followed clinically and with endoscopy weekly after stent insertion for the first month, then monthly for seven months. Late complications were very rare. Stent kinking and near obstruction was seen in one case that tumor was located in sigmoid flexure, in one month from stent insertion. In none of the cases stent

displacement and migration was seen. Stents potency was followed monthly. During the period of tumor over growing the lumen of colon remained patent in all of the patients until they died.

Quality of life and activity of patients were good and acceptable. In two cases that stenting failed, the patients died 1-2 months after admission. In the stent group one of the patients with history of CRF died in 4 months. Patient with CHF died in 5 months and other patients died in 7-8 months after stenting.

The causes of mortality in these patients usually were advanced underlying diseases such as CHF and multiple metastatic lesions that caused the deterioration of patient condition.

Discussion

Our patients didn't benefit from a curative treatment, but this non invasive method extended their survival for more than 7-8 months with an acceptable living quality. Extended survival with an acceptable quality of life, presents this method as a palliative non surgical treatment for advanced colorectal cancer obstructions.

Patients with complete colonic obstruction, who require emergency surgery, will have a higher morbidity and mortality rate comparing to patients undergoing colorectal cancer surgery in elective conditions (Leitman et al., 1992; Scott et al., 1995). Morbidity and mortality of patients requiring an emergency surgery were 12 to 39 percent respectively, comparing with 3.5 to 23 percent for patients who were treated on an elective basis (Gandrup et al., 1992). In other reports, more than one-half of patients undergoing emergency surgery for colon cancer required a stoma (Pothuri et al., 2004).

Management of obstructing colorectal cancer has two major advantages: Palliation of advanced disease and preoperative decompression. Placement of a stent can convert a surgical procedure from an emergent one into an elective process of tumor resection, primary anastomosis and colostomy. This will permit colonic washout and proximal colon examination (to exclude synchronous lesions) and optimization of the patient's medical status (Targownik et al., 2004). A cost-effect analysis concluded that colonic stent insertion followed by elective surgery was more effective and less costly than emergency surgery (Baron et al., 2002). Stenting may also have a role in patients with obstruction from other pelvic tumors (e.g. ovarian cancer) (Repici et al., 2000).

It is helpful to obtain a water-soluble or barium enema examination or a rectal contrast CT scan prior to colonic stent placement to assess the anatomy, stricture length, and degree of obstruction (Dohmoto et al., 1997). In patients with subtotal obstruction in the distal colon a few cleansing enemas are sufficient, whereas in those with more proximal lesions a cautious standard colonoscopy bowel prep should be given (Seymour et al., 2002). Prophylactic antibiotics should be considered in completely obstructed patients who have a markedly dilated colon because the introduction of air during the procedure may lead to micro perforation and bacteremia. Initially, a gentle attempt should be made to transverse

the lesion with the colonoscope. If the endoscope cannot pass easily through the obstruction, a guide wire (flexible tip, stiff shaft, 0.035 inch) can elapse through the stricture under fluoroscopic guide.

Balloon dilation of the stricture should possibly be avoided since it is usually unnecessary, and can increase the risk of perforation (García-Cano et al., 2006). As an alternative, a therapeutic endoscope can be back loaded over the guide wire to the level of the obstruction and the stent can be deployed. The stent should be deployed with at least 1 cm exposure from the distal and proximal site of obstruction. After deployment if either end of the stent is not flared or fully expanded to produce a waist, the stent may be too short to traverse the stricture. In such cases, a second or third stent can be used end-to-end with the first to completely traverse the stricture (Sebastian et al., 2004).

Regarding dietary recommendations, following stenting, stools should ideally be maintained at a soft consistency to avoid fecal impaction at the stent. This can usually be accomplished by advising patients to consume a low residue diet and to take mineral oil supplements regularly. Mineral oil can be taken orally in doses of 15 to 45cc per day (Cascales-Sanchez et al., 1997).

In our series, median clinical success was achieved in 91 percent, and clinical success leading to surgery accomplishment was 72 percent. Similar conclusions were reached in an earlier systematic review that included 58 publications involving a total of 598 stent insertions (Law et al., 2003). In individual studies with long-term follow-up, palliative treatment of advanced colorectal cancer obstruction had a durable outcome of longer than six months in at least 75 percent of patients; Although reintervention (either with additional stents or with laser therapy) for tumor growth into the stent may be required in some cases. In the mean time between stent placement and surgery was 8.6 days. A fourth study compared outcomes in 31 patients undergoing emergency surgery for obstructing primary colon cancer with 30 patients who were treated with a metal stent (Khot et al., 2002). Significantly fewer patients in the stent group required intensive care or ultimately required a stoma. Furthermore, number of admission days in hospital was significantly shorter.

SEMS designed for use within the colon are uncovering. However, covered esophageal stents have been used in the colon to deal with tumor ingrowth problems and to close fistulas (Cwikiel and Andrén-Sandberg, 2003). In a series of 10 patients with benign diseases of the colon, metallic stents were placed in two cases of diverticulitis complicated by pelvic abscess, four cases of colonic fistula following surgery and four cases of post surgical anastomotic stricture (Binkert et al., 1998). Of the four cases with colonic fistula, two were resolved with stent placement. The stents temporarily relieved the symptoms of obstruction in the group of patients with post-surgical stenoses.

In conclusion, endoscopic stent implantation seems to be an effective and safe palliative approach for management of emergency conditions of acute colonic obstruction in patients with inoperable advanced

colorectal cancer. Enteral stenting can be performed as an elective palliative method for inoperable and unresected colorectal tumors; however it is not used in acute obstructive colon cancer in critical patients. We recommend colon stenting as an effective and safe method of treatment for patients with acute colonic obstruction that can be performed in gastrointestinal endoscopic wards.

References

- Baron TH, Rey JF, Spinelli P (2002). Expandable metal stent placement for malignant colorectal obstruction. *Endoscopy*, **34**, 823-30.
- Binkert CA, Lederhann H, Jost R, et al (1998). Acute colonic obstruction: clinical aspects and cost-effectiveness of preoperative and palliative treatment with self-expanding metallic stents--a preliminary report. *Radiology*, **206**, 199-204.
- Cascales-Sanchez P, Garcia-Olmo D, Julia-Molla E. Long-term expandable stent as a definitive treatment for benign rectal stenosis. *Br J Surg*, 1997 **84**, 840-1.
- Cwikiel W, Andrén-Sandberg A. Malignant stricture with colovesical fistula: stent insertion in the colon. *Radiology*. 1993 , **186**, 563-4.
- Dohmoto M, Hünerbein M, Schlag PM. Application of rectal stents for palliation of obstructing rectosigmoid cancer. *Surg Endosc*. 1997 Jul;**11**(7):758-61.
- Gandrup P, Lund L, Balslev I. Surgical treatment of acute malignant large bowel obstruction. *Eur J Surg*, 1992 **158**, 427-30.
- García-Cano J, González-Huix F, Juzgado D, et al (2006). Use of self-expanding metal stents to treat malignant colorectal obstruction in general endoscopic practice (with videos). *Gastrointest Endosc*, **64**, 921-4.
- Khot UP, Lang AW, Murali K, Parker MC (2002). Systematic review of the efficacy and safety of colorectal stents. *Br J Surg*, **89**, 1096-102.
- Law WL, Choi HK, Chu KW (2003). Comparison of stenting with emergency surgery as palliative treatment for obstructing primary left-sided colorectal cancer. *Br J Surg*, **90**, 1429-33.
- Leitman IM, Sullivan JD, Brams D, DeCosse JJ (1992). Multivariate analysis of morbidity and mortality from the initial surgical management of obstructing carcinoma of the colon. *Surg Gynecol Obstet*, **174**, 513-8.
- Pothuri B, Guirguis A, Gerdes H, Barakat RR, Chi DS (2004). The use of colorectal stents for palliation of large-bowel obstruction due to recurrent gynecologic cancer. *Gynecol Oncol*, **95**, 513-7.
- Repici A, Reggion D, De Angelis C, et al. Covered metal stents for management of inoperable malignant colorectal strictures. *Gastrointest Endosc*, **52**, 735-40.
- Scott NA, Jeacock J, Kingston RD (1995). Risk factors in patients presenting as an emergency with colorectal cancer. *Br J Surg*, **82**, 321-3.
- Sebastian S, Johnston S, Geoghegan T, Torreggiani W, Buckley M (2004). Pooled analysis of the efficacy and safety of self-expanding metal stenting in malignant colorectal obstruction. *Am J Gastroenterol*, **99**, 2051-7.
- Seymour K, Johnson R, Marsh R, Corson J (2002). Palliative stenting of malignant large bowel obstruction. *Colorectal Dis*, **4**, 240-5.

Targownik LE, Spiegel BM, Sack J, et al (2004). Colonic stent vs. emergency surgery for management of acute left-sided malignant colonic obstruction: a decision analysis. *Gastrointest Endosc*, **60**, 865-74.