

Colonic Stents

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Introduction

Colorectal carcinoma is one of the leading causes of cancer death in the United States, the estimated annual incidence being 150,000 new cases [1]. Acute obstruction occurs in 8-29% of patients with colorectal carcinoma and most of the obstructing cancers are located in the descending and sigmoid colon [2-5]. Colorectal carcinoma is currently the most common cause of acute obstruction [6]. Acute bowel obstruction is a medical and surgical emergency and patients have a poor prognosis because in general, they are elderly, debilitated, dehydrated and present with electrolyte imbalance. The traditional management strategy for acute colonic obstruction has been emergent surgical decompression .

Colonic stent placement is a very attractive non-surgical option for the management of patients with acute colonic obstruction. A self-expanding metallic stent is placed across the stenotic lesion and successful, non-operative colonic decompression may be achieved. This procedure can be performed under fluoroscopic guidance alone, endoscopic guidance alone or a combination of endoscopic and fluoroscopic guidance, depending on the operator's preference. The technique was described by Drs. Mainar and Tejero [7] and is now considered an accepted strategy in the management of patients with acute colonic obstruction [3] and it may even become the standard approach for this condition [8].

INDICATIONS AND CONTRAINDICATIONS.

The most common indication for colonic stent placement is the treatment of acute obstruction secondary to malignant colorectal carcinoma. The placement of colonic stent in these cases may be temporary, as a "bridge" to surgery or permanent as a palliative option [9]. Colonic stents may also be employed in the treatment of acute obstruction secondary to benign conditions such as Crohn's disease, ischemic stenoses, post surgical strictures, diverticulitis and fistulae [6].

The only described contraindication to colonic stent placement is the evidence of intestinal perforation [1, 8, 9].

RESULTS

The technical success rate varies between 90-100% [10-12], the mean procedure time is 75 minutes, with a procedural time range between 28 and 180 minutes [10]. Bowel decompression is seen within 24 hr in approximately 85% of the patients and in 96 hr, 92% of patients have had complete bowel decompression [10]. Most treated lesions are located in the rectosigmoid region and descending colon; The mean distance of the lesion to the anus is 20.1 cm (range 4-75 cm) and the mean lesion length is 46.2 (34-65 mm) [10]. The mean colonic preparation time for an elective surgery is 8.6 days (range: 6-16 days) and the mean postoperative hospital stay is 10.3 days (6-35 days). Elective, uneventful single stage surgery is possible in 75-100% of patients who undergo a successful colonic stent placement [5, 8, 10].

Colonic stents have also been employed as a palliative option in unresectable lesions [5, 13]. In the palliative group, an average of 64%-91% of stents remain patent until patient's demise. Stent obstruction occurs in 29% of patients [5]. The mean survival time is 147-156 days, with a range of 125-169 days [5, 14]. The reported survival rate after palliative colonic stent placement is 55% at 3 months, 44% at 6 months and 25% at 9 months [15].

COMPLICATIONS.

The complication rate is 15%-42%. The most common complications include including mild rectal bleeding, anorectal pain, tenesmus, stent malposition, tumor ingrowth and stent obstruction [11, 15]. Colonic perforation is a potentially severe complication that may require surgery [10, 15], however, it may be asymptomatic and require no specific treatment [15]. Colonic perforation may be related to catheter and wire manipulation during the procedure or may be related to erosion of the colonic wall by the sharp ends of the stent, which may cause colon microperforations [15]. Another cause of colonic perforation is

balloon dilation of a recently deployed stent. For this reason, stent dilation in the colon is not recommended [1, 15, 16].

Stent migration occurs in 7-40% of patients [5, 8, 17].

REFERENCES

1. Lopera JE, Ferral H, Wholey M, Maynar M, Castaneda-Zuniga WR. Treatment of colonic obstructions with metallic stents: indications, technique, and complications. *AJR Am J Roentgenol* **1997**;169:1285-1290
2. Zollikofer C, Jost R, Schoch E, Decurtins M. Gastroduodenal and Colonic Stents: Review Article. *Semin Intervent Radiol* **2001**;18:265-280
3. Baron TH. Expandable metal stents for the treatment of cancerous obstruction of the gastrointestinal tract. *N Engl J Med* **2001**;344:1681-1687
4. Mauro MA, Koehler RE, Baron TH. Advances in gastrointestinal intervention: the treatment of gastroduodenal and colorectal obstructions with metallic stents. *Radiology* **2000**;215:659-669
5. Dauphine CE, Tan P, Beart RW, Jr., Vukasin P, Cohen H, Corman ML. Placement of self-expanding metal stents for acute malignant large-bowel obstruction: a collective review. *Ann Surg Oncol* **2002**;9:574-579
6. Paul L, Pinto I, Gomez H, Fernandez-Lobato R, Moyano E. Metallic stents in the treatment of benign diseases of the colon: preliminary experience in 10 cases. *Radiology* **2002**;223:715-722
7. Tejero E, Mainar A, Fernandez L, Tobio R, De Gregorio MA. New procedure for the treatment of colorectal neoplastic obstructions. *Dis Colon Rectum* **1994**;37:1158-1159
8. Martinez-Santos C, Lobato RF, Fradejas JM, Pinto I, Ortega-Deballon P, Moreno-Azcoita M. Self-expandable stent before elective surgery vs. emergency surgery for the treatment of malignant colorectal obstructions: comparison of primary anastomosis and morbidity rates. *Dis Colon Rectum* **2002**;45:401-406
9. Mainar A, Tejero E, Maynar M, Ferral H, Castaneda-Zuniga W. Colorectal obstruction: treatment with metallic stents. *Radiology* **1996**;198:761-764
10. Mainar A, De Gregorio Ariza MA, Tejero E, et al. Acute colorectal obstruction: treatment with self-expandable metallic stents before scheduled surgery--results of a multicenter study. *Radiology* **1999**;210:65-69
11. de Gregorio MA, Mainar A, Tejero E, et al. Acute colorectal obstruction: stent placement for palliative treatment--results of a multicenter study. *Radiology* **1998**;209:117-120
12. Aviv RI, Shyamalan G, Watkinson A, Tibballs J, Ogunbaye G. Radiological palliation of malignant colonic obstruction. *Clin Radiol* **2002**;57:347-351
13. Xinopoulos D, Dimitroulopoulos D, Tsamakidis K, Apostolikas N, Paraskevas E. Treatment of malignant colonic obstructions with metal stents and laser. *Hepatogastroenterology* **2002**;49:359-362
14. Fernandez Lobato R, Pinto I, Paul L, et al. Self-expanding prostheses as a palliative method in treating advanced colorectal cancer. *Int Surg* **1999**;84:159-162

15. Camunez F, Echenagusia A, Simo G, Turegano F, Vazquez J, Barreiro-Meiro I. Malignant colorectal obstruction treated by means of self-expanding metallic stents: effectiveness before surgery and in palliation. *Radiology* **2000**;216:492-497
16. Canon CL, Baron TH, Morgan DE, Dean PA, Koehler RE. Treatment of colonic obstruction with expandable metal stents: radiologic features. *AJR Am J Roentgenol* **1997**;168:199-205
17. Wholey MH, Levine EA, Ferral H, Castaneda-Zuniga W. Initial clinical experience with colonic stent placement. *Am J Surg* **1998**;175:194-197