EUR. J. ONCOL., vol. 18, n. 1, pp. 15-18, 2013 

# Long-term results after endoscopic dilation of post-operative colo-colonic anastomotic stenoses. Our experience in 42 patients

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**Summary.** *Aim:* The aim of this study is to evaluate long-term complications and patients' quality of life after the endoscopic treatment of benign anastomotic colo-colonic strictures. *Patients and Methods:* From January 2000 to November 2008, 42 patients who had undergone surgery for colorectal cancer were endoscopically treated for a postoperative symptomatic stricture. The dilation were performed using a 20-30 mm pneumatic dilator. The clinical results were classified in relation to the abdominal symptomatology reported by the patients, and were evaluated in the short-term (one week) and long-term (mean follow-up: 36 months) period. *Results:* 15 patients underwent a total of 22 dilating sessions; 9 patients had a single dilating session; 18 patients underwent 5 dilating sessions. Three bowel perforations at the site of dilation, 1 septic complication and a transient mucosal bleeding were registered. Immediate symptomatic relief was achieved in all the cases; the symptoms caused by the strictures disappeared after the first session. Normal defecation was immediately restored after the treatment. Satisfactory good long-term clinical results were achieved in thirty-seven patients (88%). *Conclusions:* This study confirms the assumption that dilation with balloon may be considered the first-line therapeutic approach safe and effective for symptomatic benign anastomotic strictures after colorectal resection surgery for adenocarcinoma. The treatment of benign anastomotic strictures by standard endoscopic dilation is an effective contribution against stricture-related gastrointestinal symptoms. The standard criterion used to define successful anastomoses dilations (10-13 mm in diameter) is sufficient for an optimal result.

**Key words:** colonic cancer, colonic anastomotic stricture, colonoscopy, endoscopic balloon dilation

**«RISULTATI A LUNGO TERMINE DOPO DILATAZIONE ENDOSCOPICA DI STENOSI POST-OPERATORIE DI ANASTOMOSI COLON-COLICHE. NOSTRA ESPERIENZA IN 42 PAZIENTI»**

**Riassunto.** *Obiettivo:* L'obiettivo di questo studio è valutare le complicanze a lungo termine e la qualità di vita dei pazienti dopo trattamento endoscopico delle stenosi benigne in sede di anastomosi colon-colica. *Pazienti e Metodi:* Dal gennaio 2000 al novembre 2008, 42 pazienti che avevano subito un intervento chirurgico per tumore del colon-retto sono stati trattati endoscopicamente per stenosi sintomatica post-operatoria. Le dilatazioni sono state eseguite mediante dilatatore pneumatico di 20-30 mm. I risultati clinici sono stati classificati in relazione alla sintomatologia addominale riportata, e sono stati valutati a breve (una settimana) e lungo termine (follow-up medio: 36 mesi). *Risultati:* 15 pazienti sono stati sottoposti a 22 sessioni di dilatazione, 9 pazienti ad una singola sessione di dilatazione, 18 pazienti a 5. Sono state registrate solo 3 perfo-

razioni intestinali nel sito di dilatazione, 1 complicazione settica e un sanguinamento transitorio della mucosa. Un immediato sollievo sintomatologico è stato raggiunto in tutti i casi; i sintomi causati dalla stenosi sono scomparsi dopo la prima sessione. Subito dopo il trattamento si è ristabilita una normale defecazione. Risultati clinici sufficientemente buoni a lungo termine sono stati raggiunti in 37 pazienti (88%). *Conclusioni:* Questo studio conferma che la dilatazione con pallone pneumatico può essere considerata la prima linea di approccio terapeutico sicuro ed efficace per le stenosi anastomotiche benigne sintomatiche dopo intervento chirurgico di resezione del colon-retto per adenocarcinoma. Il trattamento endoscopico delle stenosi benigne anastomotiche è uno strumento efficace contro i sintomi ostruttivi dovuti alle stenosi. Il criterio standard utilizzato per definire il successo della dilatazione (10-13 mm di diametro) è sufficiente per un risultato ottimale.

**Parole chiave:** cancro del colon, stenosi anastomotiche del colon, colonscopia, dilatazione endoscopica con pallone pneumatico

## Introduction

Benign strictures after an anterior resection with double-stapled anastomosis remain a problem with an incidence rate of 8% (1). This complication is more frequent with stapled compared to handsewn anastomoses (2, 3). This is probably due to an overactive granulomatous inflammatory response caused by the mucosal gaps and areas of necrosis induced by staples (4, 5). Despite this increased risk, the stapling technique remains the gold standard for colorectal recanalization because it is quick and equivalent to manual suturing in terms of mortality, anastomotic leak, cancer recurrence and wound infection.

Usually, a coloanal or colorectal anastomosis may be conservatively treated with digital and bougie (Hegar) dilation or balloon dilation, respectively. If the rectal ampulla is preserved and the colorectal stricture is high, operative resection with creation of a new anastomosis might be indicated if balloon dilation is impossible or fails. To date, endoscopic balloon dilation has become the preferred first-line treatment for benign anastomotic colorectal strictures (6), probably because this therapy is easy to perform at the time of diagnosis during ambulatory endoscopy, and it may avoid reoperation, with the inherent risk of colostomy (6, 7). The morbidity associated with endoscopic dilation is low, and clinical success at 6-24 months has been reported in 90% of cases (6). This article has the purpose to expose 8 years of experience with benign colorectal stenoses endoscopic treatment, focusing on complications and patients' quality of life after three years.

## Patients and Methods

From January 2000 to December 2008, 42 patients who developed a postoperative symptomatic stricture after being treated for colorectal cancer, were considered for this retrospective study.

Eleven patients had undergone a left hemicolectomy and 31 an anterior resection. Stricture symptoms presented after a mean period of 7.7 months postoperatively. The strictures had a mean diameter of 5.5 mm (ranging approximately from 3 to 8 mm). Dilations were performed using 20-30 mm pneumatic dilators. In the balloon a sterile saline solution was injected to obtain a homogeneous dilatation of the device.

Clinical results were classified in relationship with the abdominal symptomatology reported by the patients, and followed-up after one week and 36 months respectively. A mean satisfaction index was assessed using a 10-point scale (1 = extremely dissatisfied, 10 = very satisfied). An anastomotic diameter > 12-13 mm was considered to define a successful endoscopic dilation.

## Results

Fifteen of 42 patients underwent a total of 22 dilating sessions; 5 out of them suffered from recur-

rence at the suture line. Nine patients had a single dilating session. Eighteen patients underwent 5 dilating sessions.

Only 5 complicated cases (12%) were registered: three bowel perforation at the site of dilation and one septic complication, which required bowel resection, and one transient mucosal bleeding. Immediate symptomatic relief was achieved in all the cases with a mean satisfaction index of 9. The symptoms caused by the strictures disappeared after the first session. Normal defecation was immediately restored after the treatment. Satisfactory good long-term clinical results were achieved in thirty-seven patients (88%) with a mean score of 7 after 36 months.

## Discussion

The endoscopic dilation has been proved to be a valid therapeutic alternative to surgery for colonic strictures,(8) avoiding or delaying surgery (6, 7, 9). According to many studies (3, 8, 10-13), through-the-scope balloon technique has showed good results in terms of symptomatic relief and patients' canalization with a success rate comparable to that resulting from the above mentioned works. Pain and, in general, gastrointestinal symptoms, are subjective parameters which it is not convenient to investigate from an objective point of view. A satisfaction index based only on patient personal opinion should be considered a good method to describe the reality of the facts. The study took into consideration three years of follow-up, that could be considered enough to evaluate the real value of the technique. After 36 months we registered only a small drop of the mean satisfaction index which passed from 9 after one week to 7, demonstrating a moderate, almost not significant, worsening of the clinical conditions of the considered population. These results are encouraging because they reinforce the role of endoscopy in the treatment of postoperative benign colic anastomotic strictures, especially considering the possibility for the patient to avoid further surgical interventions or uncomfortable colostomies. About 10% of complicated cases could be also considered a very good result, especially considering the fact that only 4 patients underwent a subsequent surgical intervention.

## Conclusions

Endoscopic dilation with a balloon has been proved to be safe and simple to perform, and allows to obtain good short-term clinical results. This study confirms the assumption that dilation with balloon may be considered the first-line therapeutic approach safe and effective for symptomatic benign anastomotic strictures after colorectal resection surgery for adenocarcinoma, therefore avoiding reintervention. The treatment of benign anastomotic strictures by standard endoscopic dilation is an effective contribution against stricture-related gastrointestinal symptoms. The standard criterion used to define successful anastomoses dilations (10-13 mm in diameter) is sufficient for an optimal and diffuse result.

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Received: 5.11.2012
Accepted: 18.2.2013
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