



## Scientific letter

# Cecal pneumatosis: Is it a contraindication for an endoscopic self expandable stent placement in patients with obstructive colorectal carcinoma?

**Keywords:** Cecal pneumatosis; Obstructive colorectal carcinoma; Colonic stent

Intestinal pneumatosis (IP) is defined as the presence of air within the submucosa and subserosa of the intestinal wall<sup>1</sup>. It is an ominous radiological sign that prompts urgent surgical consultation given that its presence implies ischemia of the intestinal wall, which has a high risk of intestinal perforation. In some exceptional cases it can be due to cystic pneumatosis, a rare cause of primary intestinal pneumatosis. The main causes for IP are mechanical colonic obstruction, inflammatory bowel disease, infectious ailments, chronic obstructive pulmonary disease or pharmacologically induced<sup>2</sup>. Colorectal carcinoma is presently the main cause of colonic obstruction and thus of colonic IP.

Currently emergent surgical intervention is the treatment of choice when IP is present regardless of the high morbidity and mortality rate and the elevated number of stoma formation.

In select cases an endoscopic colonic self-expanding metallic stent (SEMS) placement has proven to be a safe alternative to emergent surgery with less associated complications<sup>3</sup>. Stent placement was usually reserved as a palliative treatment for inoperable tumors. Nowadays its placement is considered a viable option as a bridge to surgery for patients with resectable disease, allowing colonic decompression and further optimization of the patient for future surgical intervention with lower rate of complications<sup>4</sup>.

In this study we evaluate the results of endoscopic SEMS placement in patients with colonic obstruction associated with cecal pneumatosis.

A retrospective descriptive cohort study of patients diagnosed with obstructive colorectal carcinoma associated with cecal pneumatosis by a CT scan, between January 2012 and December 2017 who were treated with endoscopic SEMS.

Cecal viability was defined as the absence of complications after stent placement.

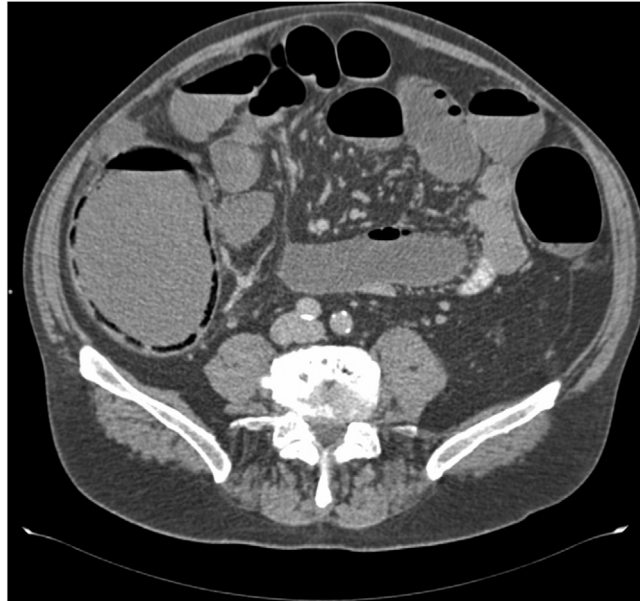
Nine patients with obstructive colorectal carcinoma were treated with endoscopic SEMS, 5 male and 4 female with a mean age of 76 (52–91). At the time of diagnosis all were hemodynamically stable and had no signs of sepsis. The mean cecal diameter was 10.5 cm (8–12.4) (Fig. 1).

Eight patients had regained bowel function within the first 24–48 h after treatment. One patient required emergency surgery due to failed stent and persistent bowel obstruction. Those with functioning stents had an uneventful recovery with a mean stay of nine days (3–16). Six patients were later admitted for elective surgical intervention after being optimized for surgery in a mean period of 24 days (5–51) after stent placement. Two patients were not considered for elective surgery and thus the stent served as a palliative treatment.

The pathophysiology of IP is not completely understood, it is believed that it is due to an interruption of the intestinal barrier secondary to insufficient blood flow making it permeable to gas which diffuses to the submucosa and subserosa of the intestinal wall.

Emergent surgical intervention is the treatment of choice in patients with an obstructive colorectal carcinoma with a high morbidity and mortality rate, when compared to elective surgery which has a low morbidity and mortality rate 0.9 % and 6% respectively<sup>5</sup>. Emergency surgery is also associated with a higher rate of permanent stomas and its negative impact on quality of life.

The use of endoscopic SEMS as a palliative treatment of obstructive colorectal carcinoma has increased over the years<sup>6</sup>. Later on, this treatment option has been proposed as



**Fig. 1**

a “bridge” treatment prior to elective surgery. This approach provides an opportunity to optimize the patient prior to a surgical intervention and improve the outcomes and decrease the rate of permanent stomas<sup>4</sup>. A systematic review demonstrated that SEMS had a success rate of 92%, with a lower length of stay (LOS), stoma formation, and adverse events<sup>7</sup>.

There is controversy surrounding the oncological outcomes of stent placement prior to surgical intervention, given that it has been associated with a higher rate of local recurrence due to tumor manipulation and possible local perforation<sup>8</sup>. Based on the current literature the use of SEMS as a first treatment option should be reserved for patients with metastatic disease, and ASA > 3 without metastatic disease, thus providing a window of opportunity to ameliorate the patient’s condition for an eventual elective surgery 5–10 days after stent placement<sup>9</sup>.

A few case reports can be found in the current literature, describing the use of endoscopic SEMS in patients with IP.

Signs and symptoms of intestinal ischemia like leukocytosis, elevated serum lactate, renal failure, and elderly patients should be promptly identified and in these cases, surgery shouldn’t be delayed<sup>10</sup>. Adequate selection of patients, candidates for a conservative treatment, should be undertaken to prevent unfavorable outcomes and improve morbidity and mortality rates.

In our series, despite the presence cecal pneumatosis in radiology studies, it can be assumed that there was no intestinal ischemia given that the patients had uneventful recoveries after SEMS placement.

As a conclusion, cecal pneumatosis doesn’t always imply the presence of transmural ischemia in patients with an intestinal obstruction due to colorectal carcinoma. Endoscopic

SEMS placement is a safe procedure as a bridge to surgery thus preventing the possible complications associated with an emergent surgical intervention.

### Conflicts of interests

The authors declare no conflict of interest.

### REFERENCES

1. Pear BL. Pneumatosis intestinalis: a review. *Radiology*. 1998;207(1):13–9.
2. Ho LM, Paulson EK, Thompson WM. Pneumatosis intestinalis is in the adult: benign to life-threatening causes. *AJR Am J Roentgenol*. 2007;188(6):1604–13.
3. Saida Y, Sumiyama Y, Nagao J, Uramatsu M. Long-term prognosis of preoperative “bridge to surgery” expandable metallic stent insertion for obstructive colorectal cancer: comparison with emergency operation. *Dis Colon Rectum*. 2003;46(10):44–9.
4. Huang X, Lv B, Zhang S, Meng L. Preoperative colonic stents versus emergency surgery for acute left-sided malignant colonic obstruction: a meta-analysis. *J Gastrointest Surg*. 2014;18(3):584–91.
5. Smothers L, Hynan L, Fleming J, Turnage R, Simmang C, Anthony T. Emergency surgery for colon carcinoma. *Dis Colon Rectum*. 2003;46(1):24–30.
6. Lee HJ, Hong SP, Cheon JH, Kim TI, Min BS, Kim NK, et al. Long-term outcome of palliative therapy for malignant colorectal obstruction in patients with unresectable metastatic colorectal cancers: endoscopic stenting versus surgery. *Gastrointest Endosc*. 2011;73(3):535–42.

7. Watt AM, Faragher IG, Griffin TT, Rieger NA, Maddern GJ. Self-expanding metallic stents for relieving malignant colorectal obstruction: a systematic review. *Ann Surg.* 2007;246(1):24-30.
8. Ho KS, Quah HM, Lim JF, Tang CL, Eu KW. Endoscopic stenting and elective surgery versus emergency surgery for left-sided malignant colonic obstruction: a prospective randomized trial. *Int J Colorectal Dis.* 2012;27(3):355-62.
9. De Ceglie A, Filiberti R, Baron TH, Ceppi M, Conio M. A meta-analysis of endoscopic stenting as bridge to surgery versus emergency surgery for left-sided colorectal cancer obstruction. *Crit Rev Oncol Hematol.* 2013;88(2):387-403.
10. DuBose JJ, Lissauer M, Maung AA, Piper GL, O'Callaghan TA, Luo-Owen X, et al. Pneumatosis Intestinalis Predictive Evaluation Study (PIPES): a multicenter epidemiologic study of the Eastern Association for the Surgery of Trauma. *J Trauma Acute Care Surg.* 2013;75(1):15-23.

Pau Plá Sánchez, Joaquín Muñoz Rodríguez, Rosaura Bennazar Nin, Javier López Monclús, Artés Caselles

General and Digestive Surgery Department, Puerta de Hierro - Majadahonda University Hospital, Spain

\*Corresponding author at: Calle Donoso Cortés 80C 6º 14, 28015, Madrid, Spain.

E-mail address: [paups88@gmail.com](mailto:paups88@gmail.com) (P. Plá Sánchez).

<http://dx.doi.org/10.1016/j.cireng.2022.06.028>  
2173-5077/

© 2022 Published by Elsevier España, S.L.U. on behalf of AEC.

## The sentinel lymph node as a viable alternative to axillary lymph node dissection after neoadjuvant breast cancer chemotherapy. A diagnostic accuracy analysis<sup>☆</sup>



### Análisis diagnóstico de la biopsia de ganglio centinela como alternativa a la linfadenectomía axilar tras quimioterapia neoadyuvante en cáncer de mama

The axillary lymph node dissection (ALND) histologic analysis remains the most accurate method for assessing lymph node metastases. However, sentinel lymph node biopsy (SLNB) has been proved as a valid technique in the case of patients with node negative clinically and radiologically avoiding ALND<sup>1-3</sup>.

Currently the neoadjuvant chemotherapy (NAC) can lead to pathological complete response (pCR) in up to 41% of patients<sup>4,5</sup>. However, the feasibility of performing a SLNB following NAC in patients initially presenting with biopsy proven node positive breast cancer remains on controversy. Several trials evaluated the use of SLNB to assess axillary response after NAC and potentially changed practice patterns<sup>6-9</sup>.

This study aims to evaluate SLNB as a safe diagnostic test for assessing the presence of residual metastatic disease after NAC, avoiding ALND in negative selective SLNB patients by the measurement of the false negative rate (FNR) and the receiver operating curve (ROC) analysis.

From January 2014 to December 2019 a cohort of 85 female patients with an invasive breast cancer positive-node (T0-4, N1-2) with a median age of 51 years (29-74 years) were included.

Our study excluded patients with distant metastases. The study was performed in a single tertiary cancer centre.

According to American Joint Committee Cancer (AJCC) classification a higher percentage of T2 (48 patients) followed by T3 (28 patients) was identified while N1 was mainly determined (66 patients) (Table 1). The histological subtype analysis showed ductal invasive carcinoma in every patient (Table 1). The immunohistochemical markers and consequently molecular subtype were determined and showed a higher percentage of luminal A subtype (29 patients) followed by luminal B subtype (21 patients), triple negative (23 patients) and HER2+ (9 patients) (Table 1). Clinical evaluation of the neoadjuvant chemotherapy response was determined by MR; complete response was registered in 37 patients, partial response in 35 patients, a stable disease in 5 patients and no response in 3 patients (Table 1). In relation to NAC approach, 41 patients received Cyclophosphamide + Adriamycin + Fluorouracil regimen plus Paclitaxel (39 patients) or Paclitaxel + Carboplatin (2 patients) while 44 patients received Adriamycin + Fluorouracil regimen plus Paclitaxel

<sup>☆</sup> Please cite this article as: Merayo Álvarez M, Alonso Martínez B, Calvo Rodríguez D, Ortiz del Olmo D, Llana Folgueras MA. Análisis diagnóstico de la biopsia de ganglio centinela como alternativa a la linfadenectomía axilar tras quimioterapia neoadyuvante en cáncer de mama. *Cir Esp.* 2022.