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Original article

Self-Expanding Metallic Stent as a Bridge to Surgery in the Treatment of Left Colon Cancer Obstruction: Cost–Benefit Analysis and Oncologic Results☆

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ABSTRACT

Introduction: The use of a self-expanding metallic stent as a bridge to surgery in acute malignant left colonic obstruction has been suggested as an alternative treatment to emergency surgery. The aim of the present study was to compare the morbi-mortality, cost–benefit and long-term oncological outcomes of both therapeutic options.

Methods: This is a prospective, comparative, controlled, non-randomized study (2005–2010) performed in a specialized unit. The study included 82 patients with left colon cancer obstruction treated by stent as a bridge to surgery (n=27) or emergency surgery (n=55) operated with local curative intention. The main outcome measures (postoperative morbi-mortaliy, cost–benefit, stoma rate and long-term oncological outcomes) were compared based on an ''intention-to-treat'' analysis.

Results: There were no significant statistical differences between the two groups in terms of preoperative data and tumor characteristics. The technically successful stenting rate was 88.9% (11.1% perforation during stent placement) and clinical success was 81.4%. No difference was observed in postoperative morbi-mortality rates. The primary anastomosis rate was higher in the bridge to surgery group compared to the emergency surgery group (77.8% vs 56.4%; P=.05). The mean costs in the emergency surgery group resulted to be €1391.9 more expensive per patient than in the bridge to surgery group. There was no significant statistical difference in oncological long-term outcomes.

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Conclusions: The use of self-expanding metallic stents as a bridge to surgery is a safe option in the urgent treatment of obstructive left colon cancer, with similar short and long-term results compared to direct surgery, inferior mean costs and a higher rate of primary anastomosis.

Stents metálicos autoexpandibles como puente a la cirugía en el tratamiento del cáncer de colon izquierdo en oclusión. Análisis coste-beneficio y resultados oncológicos

Palabras clave:
Cáncer de colon
Obstrucción intestinal
Stent metálico autoexpandible
Stent como puente a la cirugía
Cirugía de urgencia
Recidiva
Supervivencia
Coste-beneficio
Estomas evitados

RESUMEN

Introducción: El uso de un stent metálico autoexpandible como puente a la cirugía del cáncer de colon izquierdo en oclusión se ha señalado como tratamiento alternativo a la cirugía de urgencia. El objetivo del presente estudio fue comparar la morbimortalidad, el coste-beneficio y los resultados oncológicos a largo plazo de ambas opciones terapéuticas.

Métodos: Se trata de un estudio prospectivo, comparativo, controlado y no aleatorizado (2005-2010) realizado en una unidad especializada. El estudio agrupó a 82 pacientes con cáncer de colon izquierdo en oclusión tratados mediante stent como puente a la cirugía (n = 27) o cirugía de urgencia (n = 55), intervenidos con intención curativa local. Las principales variables del estudio (morbimortalidad postoperatoria, coste-beneficio, tasa de estomas y resultados oncológicos a largo plazo) fueron comparados sobre la base de un análisis «con intención de tratar».

Resultados: No se encontraron diferencias estadísticamente significativas entre los dos grupos en términos de datos preoperatorios y características tumorales. La tasa de éxito técnico en la colocación de la endoprótesis fue del 88,9% (con un 11,1% de perforaciones derivadas del stent), y el éxito clínico fue del 81,4%. No se observó diferencia alguna en cuanto a los índices de morbimortalidad postoperatoria. La tasa de anastomosis primaria fue superior en el grupo «stent como puente a la cirugía», en comparación al grupo «cirugía de urgencia» (77,8% frente a 56,4%; p = 0,05). Los costes medios por paciente en el grupo «cirugía de urgencia» resultaron ser más elevados (+1.391,9 €) que en el grupo «stent como puente a la cirugía». No se produjeron diferencias estadísticamente significativas en cuanto a resulados oncológicos a largo plazo.

Conclusiones: El uso de stents metálicos autoexpandibles como puente a la cirugía constituye una opción segura para el tratamiento urgente del cáncer de colon izquierdo en oclusión, con resultados oncológicos similares a largo plazo en comparación a la cirugía de urgencia, con menor coste económico y una tasa superior de anastomosis primarias, evitando numerosos estomas.

Introduction

Approximately 7–29% of malignant colorectal neoplasms present as a bowel obstruction with 70% of them occurring in the left colon. It is the main reason for emergency surgery in colon cancer.[1–3] Despite medical and surgical advances, this emergency surgery continues to have a high morbidity (30–60%) and mortality (10–30%) compared to elective surgery (mortality rate less than 5%).[4–8] This difference could be for two reasons: first of all, in emergency surgery the patient is not adequately prepared and optimized in terms of hydration, nutritional status, electrolyte balance, etc. Moreover, emergency surgery is often performed by general surgeons rather than colorectal specialists, with a resulting ''surgeon-dependent'' negative effect.[9] Furthermore, in these cases the colon is often distended and not prepared, meaning primary anastomosis is not possible and a terminal stoma is necessary. Patients will therefore require further surgery to close the stoma and restore bowel continuity. However, in many cases this second intervention is not performed due to the patient preference or the high morbimortality and the advanced age of these patients.[12] In other cases, the state of the colon is so poor that the patient requires a more extensive resection, such as subtotal or total colectomy, with a subsequent poor quality of life.

Another and very important issue is the increased risk of anastomotic dehiscence in emergency surgery, with an obstructed colon and non-specialist colorectal surgeons. The long-term oncological and quality of life impact are well-established.[8–11] However, Frago et al. have shown good results following emergency surgical resection, but only in selected cases performed by specialist colorectal surgeons.[13]

In 1991, Dohmoto introduced the use of a self-expanding metallic stent (SEMS) as a palliative treatment for malignant