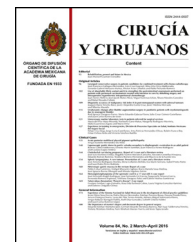




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ORIGINAL ARTICLE

Colorectal anastomosis using a compression device[☆]



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KEYWORDS

Compression
anastomosis (NiTi);
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resection of the
rectum

Abstract

Background: The most severe complication following an intestinal anastomosis is the dehiscence with the consequent development of sepsis, fistulas, stenosis, and death. For this reason the compression anastomosis (NiTi) system was developed, with the aim of reducing these complications.

Material and methods: A retrospective study was conducted, from 1 June 2012 to 30 August 2014, on total of 14 patients operated on the Humanitas Hospital Medical Group Coyoacán, the ASMED, and Clínica Médica Sur. The subjects were predominantly male 65%, a mean age of 58 years, with range 30–79 years.

Results: A total of 14 patients were included. The indication for surgery was complicated diverticular disease Hinchey II–III (36%), and the procedures performed were: 6 (43%) left hemicolectomy with primary end to end compression anastomosis, 2 (14%) major complications (dehiscence wall and anastomosis), 1 (7%) minor complication (infection of the soft tissues). There was a mean 98 ml (range 20–300 ml) of intraoperative bleeding, with start of oral feeding on the second day, a mean hospital stay of 4 days (range 2–10), one patient with ileo-rectal anastomosis dehiscence presented on the 4th post-operative day, and performing anastomosis with stapling device and loop ileostomy. Stenosis developed in 7% during follow-up and was resolved with a new anastomosis stapler.

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PALABRAS CLAVE

Anastomosis por compresión (NiTi); Hemicolectomía izquierda; Resección anterior baja de recto

Conclusions: The NiTi device is an additional alternative for colorectal anastomosis, mainly in low anastomosis, obtaining good results in this study without major complications.

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Anastomosis colorrectales por compresión utilizando el dispositivo NiTi**Resumen**

Antecedentes: La complicación más grave posterior a anastomosis colorrectal es la dehiscencia, debido al desarrollo de sepsis, fístulas, estenosis y, en casos severos, la muerte; para reducir dichas complicaciones, se creó el sistema de anastomosis por compresión NiTi.

Material y métodos: Se realizó un estudio retrospectivo del 1 de junio de 2012 al 30 de agosto de 2014. Un total de 14 pacientes fueron intervenidos en el Hospital Humanitas Medical Group Coyoacán, así como en la Clínica Asmed y en Médica Sur. Predominó en la muestra estudiada el sexo masculino (65%), con una edad media de 58 años (rango, 30-79 años).

Resultados: Se incluyeron un total de 14 pacientes. La indicación de cirugía fue enfermedad diverticular complicada Hinchey II-III (36%), los procedimientos realizados fueron: hemicolectomía izquierda con anastomosis primaria por compresión termino-terminal (43%), con 2 complicaciones mayores (14%) (dehiscencia de pared y de anastomosis) y una complicación menor (7%) (infección de tejidos blandos). El sangrado transoperatorio promedio fue de 98 ml (rango 20-300 ml); inicio de vía oral al segundo día; la estancia hospitalaria promedio fue de 4 días (rango, 2-10). Un paciente con anastomosis del íleo-recto presentó dehiscencia al 4.º día del postoperatorio, realizando anastomosis con dispositivo de grapeo e ileostomía en asa. Durante el seguimiento se desarrolló una estenosis del 7%, resolviéndose con una nueva anastomosis con engrapadora.

Conclusiones: El dispositivo NiTi es una alternativa adicional para la realización de anastomosis colorrectales, principalmente en anastomosis bajas. En este estudio se muestran buenos resultados, sin incremento de complicaciones.

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Background

At present, the need for sphincter saving procedures for diseases of both inflammatory and malignant aetiology requires ultra-low anastomoses with greater risk of leakage. With a view to improving the success rate of these anastomoses, we analysed the factors which might influence and increase the inflammatory process and with it, the rates of bleeding, leakage, dehiscence and stenosis. It is essential to maintain the universal principals for the creation of an anastomosis: avoid tension, preserve good irrigation, appropriate intestinal calibre, absence of septic processes and presence of foreign bodies, as is the case with mechanical anastomoses.

According to Hardy et al.,¹ in 1980 Knight and Griffen created the first rectal anastomosis by double stapling, which had significant impact especially on colorectal surgery. In recent years, there have been many changes in mechanical suturing apparatus; in 1985 Hardy et al.¹ developed a biofragmentable anastomosis ring (Valtrac BAR, Covidien, Mansfield, MA, USA), reporting it as a safe and reproducible procedure for both elective and emergency surgery.²⁻⁶ More recently, a compression anastomosis ring has been developed, ColonRing (NiTi Surgical Solutions Ltd.), comprising

a nickel-titanium alloy (Nitinol). Because this device works through compression and not staples, trauma to the bowel wall is reduced and thus the risk of bleeding and stenosis is also reduced. Furthermore, the ring is eliminated between the seventh and tenth day postoperatively through defecation.

The aim of this article is to analyse the efficacy and safety of colorectal compression anastomoses using the NiTi device.

Material and methods

A retrospective study was undertaken during the period between 1 June 2012 and 30 August 2014, on a total of 15 patients operated in the Humanitas Medical Group (HMG) of Coyoacán, *Clínica asMED* and *Hospital Médica Sur*, all of which are in Mexico City. One patient was excluded from the final data analysis due to a technical fault in firing the device, a total of 14 patients were studied and signed informed consent forms. Authorisation was requested and granted by the management of HMG Coyoacán since they had the greatest number of patients included in this study.

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