

Conservative management of minor anastomotic leakage after open elective colorectal surgery



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INTRODUCTION: *The utility of prophylactic drainage in colorectal surgery is controversial. The aim of the present article is to study the role of drainage tubes on the management of minor anastomotic dehiscences.*

PATIENTS AND METHODS: *We retrospectively review clinical reports of 18 consecutive patients with anastomotic dehiscence after open elective colorectal surgery. The mean age was 63 years and the male – female ratio was 5:1. Nine (50%) patients underwent re-operation for fecal peritonitis (group A) while the remaining nine (50%) were managed conservatively (group B). The parameters evaluated in both groups were: time of the anastomotic breakdown, clinical findings, amount of fluid drained the day of the dehiscence, diagnostic means used, length of stay and mortality.*

RESULTS: *Anastomotic leakages were observed medially after 3,6 days from surgery in group A and after 5.6 days in group B. The most frequent clinical manifestations were: fecal material through the tubes (88.9%), pelvic pain (88.9%) and fever (77.8%). Patients in group A had a median faecal fluid flow of 235cc the day of the dehiscence and 130cc those in group B. Imaging was employed only in three cases in group A and in all cases in group B. The length of hospital stay was longer in patients treated surgically: 37 days versus 29 in those treated conservatively.*

CONCLUSIONS: *Minor anastomotic leakages generally occur later than greater ones, they have a milder clinical presentation and can be managed conservatively with the use of drain tubes.*

Key words: Anastomotic leak, Colorectal surgery, Dehiscence, Drainage tubes.

Introduction

The utility of prophylactic drainage in colorectal surgery is nowadays a matter of controversy. Several authors sustain that drainage tubes have a positive impact on the postoperative management of the patient and improves outcomes¹⁻³, while others believe that their use is harmful provoking an increment of dehiscences and other

complications⁴⁻⁶; finally some surgeons report no significant clinical differences with or without drain tubes^{7,8}. The supporters of drain usage advocate primarily the possibility to “spy” what happens inside the abdomen and to early detect eventual hemorrhagic or infective events. Furthermore drain tubes offer the opportunity to perform eventual lavages or medications as well as the possibility to treat conservatively minor leakages avoiding further laparotomies. This last topic is the subject of this study.

Materials and methods

We retrospectively reviewed clinical reports concerning 18 consecutive case of dehiscence after elective open col-

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orectal surgery in our institution between January 2001 and December 2009. The mean age of the patients was 63, and there were 15 males and 3 females (male – female ratio: 5:1). All patients underwent surgery for adenocarcinoma of the rectum and sigmoid colon. The mean distance of the lesions from the anal margin was 13 cm with a minimum of 5 cm and a maximum of 30 cm. In 12 (66.7%) cases a low anterior resection (RARL) with total mesorectal excision (TME) was performed, while a high anterior resection was performed in 6 (33.3%) cases (RARh). A double stapling method was employed in all cases and a CEEA 31™ stapler was used for the creation of the anastomosis. All anastomosis were end to end ones, with a single exception of one end to lateral anastomosis performed during a RARh.

Two prophylactic 24 Fr silicon drain tubes were placed at the end of the procedures: one tube in the proximity of the anastomosis and the other one in the space of Douglas or the recto-vesicle space. Both tubes were exteriorized through separate stab wounds in the lower abdominal quadrants. In three cases of RARL it was also created a protective ileostomy as the patients were classified at high risk for dehiscence.

Nine (50%) among the 18 patients evaluated underwent re-operation for fecal peritonitis (group A) while the remaining nine patients (50%) were managed conservatively (group B). There were no significant epidemiological variations between the two groups of patients. The surgical interventions performed were: five ileostomies, three colostomies and one suture of the dehiscence. Among the re-operated patients only one had an ileostomy performed during the first operation.

The time of the dehiscence, the clinical manifestations, the amount of the drained fluid at the day of the dehiscence, the diagnostic means used, the need for intensive care unit (ICU) treatment, the length of stay and the mortality were the parameters evaluated in both patient groups.

Results

Anastomotic dehiscence was observed medially at the 4th postoperative day (range 1 to 7). In group A dehiscences were observed medially after 3,6 days from surgery, while in group B after 5.6 days.

The most frequent clinical manifestations of dehiscence were: fecal material in the drain tubes (88.9%), pelvic pain (88.9%), fever (77.8%) and signs of diffuse peritonitis (27.8%). The distribution of these parameters among the two groups are illustrated in Table I. There were no asymptomatic patients in group A, while among those in group B there were identified two cases of total absence of symptoms. In these cases the dehiscence was hypothesized in the basis of the faecal material drained and confirmed by imaging. In two cases in group B, faecal material through the tubes lacked and the leak

was suspected and subsequently confirmed by imaging on the basis of the clinical status of the patients.

As regards the quantity of the fluids drained, patients in group A had a median faecal fluid flow of 235cc the day of the dehiscence, while patients in group B 130cc. Only in three cases in group A imaging techniques (ultrasonography or contrast enema radiography) were employed to confirm the dehiscence, while in group B imaging was employed in all cases not only for diagnosis but even for follow up.

The length of stay was longer in patients re-treated surgically: 37 days versus 29 in the patients treated conservatively. Among patients of the group A four were admitted in an ICU after re-operation and one died. There were no deaths or patients admitted in ICU in the group B.

Discussion

Anastomotic breakdown is one of the most important complications in open colorectal surgery, representing a significant cause of morbidity and mortality. The incidence of clinically or radiologically diagnosed anastomotic leakage ranges from 1% to 23% even if generally assessed between 2.9% and 12% and appears to be related with several risk factors such as male gender, obesity, distal position of the anastomosis, positive air test and others⁵. Once an anastomotic dehiscence occurs there are two principal therapeutic options: surgical correction of the anastomotic defect or stoma creation previous abdominal “toilette” and conservative management with self-hilling. This last option is favorable for the obvious advantages for the patient and is based on the possibility to keep the pelvis and abdomen as clean as possible draining out any detrimental material.

Drainage of body cavities is a medical procedure practiced since the times of Hippocrates and particularly diffused in the last century in surgical practice⁹. It was Sims in the late 19th century the first modern surgeon who introduced prophylactic drains after gynecologic operations⁹. The use of drain tubes is widely used in gastrointestinal surgery, particularly in rectal surgery, but some recent publications question their “prophylactic”

TABLE I - Clinical presentation and complications of anastomotic dehiscence among patients of group A and B.

Clinical parameter	Group A	Group B
Faecal material through the tubes	(9) 100%	(7) 77.8%
Fever	(9) 100%	(5) 55.6%
Pelvic pain	(9) 100%	(7) 77.8%
Diffuse peritonitis signs	(5) 55.6%	(0) 0%
Surgical wound infection	(1) 11.1%	(0) 0%
Cardio-respiratory complications	(3) 33.3%	(2) 22,2%

role meant as measure which reduces the incidence of anastomotic dehiscences. Furthermore, other publications describe the presence of a drain tube as an independent risk factor for anastomotic leakage, and thus as harmful rather than prophylactic⁴⁻⁶.

A larger consensus exists as regards the use of drain tubes in the emergency setting, in cases in which technical difficulties occurred during surgery and finally for therapeutic purposes, once the dehiscence has occurred¹⁰. The possibility to discharge faecal and purulent fluids from the pelvis, offers a chance for conservative treatment in some cases, avoiding the necessity for a laparotomy¹¹. In our experience 50% of the patients with anastomotic dehiscence avoided re-operation thanks to the routine employment of drainage tubes.

As regards the clinical presentation of the anastomotic dehiscences, it appears clear that the presence of faecal material through the tubes is the most important event. It was observed in all cases in our experience and a quantitative difference was registered between patients who need re-operation and patients who can be treated conservatively, measuring the amounting of faecal fluid at the day of the anastomotic breakdown. This is probably due to a different anastomotic damage and indicates that in cases of minor leaks the possibility for a conservative approach is to be considered. This is not possible if drainage tubes are not employed routinely.

The fluids discharged through the tubes could bring to an important peritonitis if remained inside the pelvis and abdomen. Gradual cleaning up of faecal and purulent collections, control of hydro-electrolytic balance, antibiotic and antithrombotic medications, avoidance and control of other synchronous complications permitted to cure these patients avoiding re-laparotomy. For this reason we believe that the right term to use should be "protective" drainage rather than "prophylactic", because the major beneficial effect demonstrated is the possibility to manage conservatively minor anastomotic leaks.

Some authors question the role of drainage tubes in early detection of anastomotic leaks. Urbach et al report only 1 case of faecal material flow among 20 patients with anastomotic dehiscence⁷. In our experience, as in other series¹², the use of two passive silicon 24F tubes with particular attention during positioning as described before, we obtained the 88.9% of early leakage detection. Maybe this difference is a matter of technical errors or inappropriate material employment. Others sustain that the fluid may drain in the abdominal cavity and not be captured by the tubes^{2,13}. This is possible, but early mobilization of the patient is important in that concern, in order to obtain gravitational redistribution of the fluids towards the Douglas or recto-vesicle space where at least one tube is placed.

Several authors advocate the placement of ultrasound or CT-guided drainage tubes to treat such leaks^{14,15}. This approach is certainly feasible but is weighted by several defects as it is a risky procedure which has to be per-

formed by an experienced radiologist, it presumes the disposition of a CT scanner which is not always possible in peripheral hospitals and finally precludes the diagnostic use of the tube which is placed once the dehiscence is detected.

Considered singularly, the amount of the drainage flow is not enough for decide the appropriate management of the leakage, and other elements have to be evaluated. The time of the dehiscence has to be considered: larger leakages occur generally earlier than smaller ones and represent often the consequence of a technical anastomotic defect. We found a two days difference considering the mean postoperative time of anastomotic breakdown between group A and B. Furthermore, clinical manifestations, such as fever, pelvic or abdominal pain and signs of diffuse peritonitis have to be also considered and when necessary re-operation must be planned. Imaging techniques may be useful, but generally the clinical presentation is diriment. It has been advocated that the presence of drainage tubes has a positive role even in patients with larger leakages, in whom surgical re-intervention cannot be avoided, offering the possibility to evacuate part of the irritant pelvic collection.

Furthermore, a conservative treatment appears to be opportune not only for the patient, but also for the health care system, because of the reduction of surgical procedures and of the shorter length of hospital stay. When possible, a patient can be discharged with a drainage tube in place and managed as outpatient. In our experience, the mean hospital stay was 8 days shorter for patients treated this way, in comparison with those treated surgically.

Conclusions

An anastomotic leakage can be treated with a second intervention or conservatively when drainage tubes are employed routinely. The choice of the proper strategy depends on the amount of the faecal material discharged and thus on the entity of the anastomotic damage, on the clinical presentation and on data acquired by imaging evaluation when necessary. Our data suggest that "protective" drain tubes are very important in order to permit early diagnosis and conservative treatment in patients with minor anastomotic leakages after colorectal surgery and to reduce the number of re-laparotomies.

Riassunto

L'utilità dei drenaggi nella chirurgia colo-rettale è tutt'oggi controversa. Alcuni autori li considerano indispensabili, altri non li usano ed altri ancora li considerano dannosi. Lo scopo di questo studio è di valutare l'utilità dei drenaggi pelvici nella gestione delle deiscenze anastomotiche minori in chirurgia colo-rettale. A tale

scopo, abbiamo esaminato retrospettivamente i dati clinici di 18 pazienti consecutivi con deiscenza anastomotica, in seguito a chirurgia colo-rettale elettiva, effettuata nel nostro Istituto dal 2001 al 2009. L'età media era di 63 anni e il rapporto maschi femmine uguale a 5:1. Dodici interventi erano eseguiti per tumori del retto basso e sei per tumori del sigma o del retto alto. Nove (50%) pazienti sono stati rioperati (gruppo A), mentre i restanti 9 (50%) sono stati trattati conservativamente (gruppo B), mantenendo in sede i drenaggi pelvici. Abbiamo innanzi tutto osservato alcune differenze importanti nella presentazione e nell'evoluzione clinica tra i due gruppi. L'insorgenza della deiscenza è stata verificata dopo 3.6 giorni dall'intervento nel gruppo A e dopo 5.6 giorni nel gruppo B. La quantità media di materiale fecale drenato il giorno stesso della deiscenza era rispettivamente 230 e 130cc. La febbre, il dolore pelvico e l'addome acuto erano più frequenti nel gruppo A, mentre nel gruppo B due pazienti erano asintomatici. La durata della degenza risultò più lunga di 8 giorni nei pazienti rioperati rispetto a quelli trattati conservativamente. Questi dati suggeriscono che il posizionamento di drenaggi pelvici è utile in chirurgia colo-rettale perché permette di evitare reinterventi in casi di deiscenze minori, che si presentano con un quadro clinico attenuato rispetto a rotture anastomotiche maggiori nelle quali il ricorso alla chirurgia è inevitabile. Oltre agli ovvi benefici per il paziente trattato conservativamente, ne conseguono altri per il sistema sanitario dal momento che si riducono i reinterventi e le giornate di degenza.

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