Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
01 JUN 2010	**N/A**	**-**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Effect of stitch length on complications	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
Hardin M., Oh J. S., White C. E., Cohn S. M.,	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
United States Army Institute of Sutgical Research, JBSA Fort Sam Houston, TX	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a REPORT	b ABSTRACT	c THIS PAGE			
unclassified	**unclassified**	**unclassified**	**UU**	**2**	

Author Contributions: *Study concept and design:* Millbourn, Cengiz, and Israelsson. *Acquisition of data:* Millbourn, Cengiz, and Israelsson. *Analysis and interpretation of data:* Millbourn, Cengiz, and Israelsson. *Drafting of the manuscript:* Millbourn and Israelsson. *Critical revision of the manuscript for important intellectual content:* Millbourn, Cengiz, and Israelsson. *Statistical analysis:* Cengiz and Israelsson. *Administrative, technical, and material support:* Millbourn. *Study supervision:* Cengiz and Israelsson.
Financial Disclosure: None reported.

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Effect of Stitch Length on Complications

We very much enjoyed the recent article in the *Archives* by Millbourn and colleagues[1] evaluating the effect of stitch length following closure of midline incisions on the incidence of wound infection and incisional hernia. These authors systematically challenged the surgical dogma of obtaining large fascial bites when closing abdominal wounds.[2] This study used a novel experimental design with 2 different needle sizes in the treatment groups, ensuring surgeon compliance while maintaining the essential greater than 4 ratio of suture length to incision length.[3]

We were unable to discern a few methodological issues. First, a power analysis showed a difference of 6% in the rate of wound infection; however, the expected baseline wound infection rate in the study population was not clearly stated. Also, although the 2 treatment groups appear similar based on the demographic variables presented, it would be helpful to review other important parameters (such as smoking, chronic obstructive pulmonary disease, and emergent surgery) that have been shown to be independently associated with surgical site infection or incisional hernia. Finally, because the suture to wound length ratio is associated with the incidence of incisional hernia, can the authors delineate the percentage of patients in each group with a suture to wound length ratio of less than 4?

It is remarkable how a simple change in technique resulted in such a significant decrease in complications. The authors should be commended for this landmark trial, which challenges the sacred cow of "mass closure" for abdominal incisions.

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Financial Disclosure: None reported.

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In reply

The surgical dogma of placing stitches at least 10 mm from the wound edge is now challenged in both experimental and clinical studies.[1] Our trial shows that in midline incisions closed with a running, single-layer suture, the lowest rate of wound complications is when a suture length to wound length ratio of at least 4 is obtained with small tissue bites incorporating the aponeurosis only.[2]

Hardin et al ask about the baseline of wound infection in the power analysis. In previous clinical studies, the rate of wound infection has been 9%.[3] Randomizing patients to closure with either a short or a long stitch, we expected a higher rate of infection with a long stitch. As we estimated the rate to be 12% with a long stitch and 6% with a short stitch, a power of 80% was achieved with 352 patients in each study group.

Smoking, chronic obstructive pulmonary disease, and emergent surgery are interesting parameters but were nevertheless not included in this trial. With a large randomized trial continued over several years, we considered it improbable that these factors would differ between groups.

Wounds were closed with a ratio of less than 4 in 35 of 356 patients (9.8%) in the short stitch group and in 11 of 381 patients (2.9%) in the long stitch group. This might be expected, as it takes more work to achieve a high ratio with small tissue bites. This trial was analyzed as intention to treat, and thus the rate of incisional hernia was somewhat higher with a short stitch than it would have been if wounds that were closed with an inadequate ratio had been excluded.

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Financial Disclosure: None reported.

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Stenting or Not Stenting Before Operating Malignant Colonic Obstruction? That Is the Question

We read with interest the article by Cheung et al[1] published in the December 2009 issue of the *Archives*. First, we congratulate them for the completion of their randomized trial comparing stents with emergency surgery for obstructing left-sided colon cancer, because we all know how difficult it is to conduct such a trial in an emergency setting while comparing 2 very different approaches. Their results regarding the success rate of stents are impressive, though we in France have not had the same experience. Our results of stenting are far less favorable than those of the authors. We have conducted a quite similar randomized trial (I.P. et al, unpublished data, 2010), including 60 patients on an intent-to-treat basis (30 in each group), with stoma for any reason as the main end point. A total of 17 patients (57%) sustained a stoma after emergent open surgery compared with 13 (43%) patients after stenting and subsequent surgery ($P=.30$). Most stoma (n=12) in the stenting group were placed because of failure or complications of the procedure. Hence, in our experience, stenting did not meet its goal by avoiding the stoma in nearly half of our patients.

A recent systematic review on this topic showed that the validity of results are limited because of the small sample sizes of the included studies, and additional comparative studies will add to the certainty of the conclusions that can be drawn.[2] The awaited studies are there (I.P. et al, unpublished data, 2010),[1] but unfortunately with conflicting results (obtained during the same period, 2002-2006). This situation highlights the need for further evidence-based evaluation of stenting as a bridge to surgery aiming to avoid the need for a stoma. So, to the question asked by Ludwig and Ridolfi[3] commenting on the aforementioned article,[1] we would answer that yes, this question deserves a further randomized trial or at least a further systematic quantitative review. On the other hand, besides morbidity and stoma rates, this further evaluation should answer the question of possible tumor dissemination following stenting,[4] because in our experience (I.P. et al, unpublished data, 2010), besides the clinical perforations, 8 resected colonic specimens showed silent perforations by the prosthesis, raising the question of oncologic outcomes.

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Financial Disclosure: None reported.

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In reply

We greatly appreciate Slim and colleagues' interest in our article.[1] We also congratulate them on their multicenter randomized controlled trial. They rightly pointed out that there may be possible tumor dissemination following colonic stenting in theory, but there are no oncological consequences reported in the literature so far.[2] On the other hand, systemic reviews have demonstrated the safety and efficacy of endoluminal stenting for patients with colorectal cancer, with low stent-related mortality of less than 1%. The median perforation and stent migration rates were only 4% and 11%,[3] respectively.[4] In our earlier reported series, in which colonic stenting was used in 68 patients with distal colorectal tumors from February 2002 to August 2008—including emergency stenting in 53 patients with acute intestinal obstruction, palliative stenting for endoscopically obstructed cancer in 12 patients, as well as preemptive stenting in 3 patients with locally advanced stenotic rectal cancer intended for neoadjuvant chemoirradiation—the technical success and clinical success rates were 81% and 65%, respectively.[5] Our experience showed that colonic stenting is a useful adjunct in the management of distal colorectal cancer. Apart from being an alternative measure for palliation, it is an effective and noninvasive way for relieving obstruction in patients with obstructed tumors, allowing them to undergo subsequent 1-stage laparoscopic tumor resection. It is also useful in patients with locally advanced rectal cancer, in whom neo-