

## Suturing and stapling were equally effective for large-bowel anastomosis

Docherty JG, McGregor JR, Akyol AM, Murray GD, Galloway DJ, and on behalf of the West of Scotland and Highland Anastomosis Study Group. *Comparison of manually constructed and stapled anastomoses in colorectal surgery.* *Ann Surg.* 1995 Feb;221:176-84.

### Objective

To compare surgical stapling with manual suturing of colorectal anastomoses in patients having elective or emergency large-bowel resection.

### Design

Randomised controlled trial.

### Setting

5 surgical units in Scotland.

### Patients

732 patients who had had any form of elective or emergency colorectal resection or reconstruction between 1985 and 1989 were eligible. 80 patients were considered to be mandatory candidates for 1 anastomotic technique over the other; these patients were not randomly assigned but were followed up and analysed separately. Types of anastomotic sur-

gery done were ileocolic ( $n = 255$ ), colocolic ( $n = 141$ ), colorectal ( $n = 224$ ), and colostomy closure ( $n = 32$ ).

### Intervention

652 patients were assigned to have either stapled anastomoses ( $n = 331$ ) or sutured anastomoses ( $n = 321$ ) after large-bowel surgery.

### Main Outcome Measures

Clinical leak rate (dehiscence of the anastomosis or presence of fecal material, colocutaneous fistula, or systemic sepsis), wound infection rate, and surgery-related mortality. Subgroup analyses examined radiological leak rate among patients receiving left colon and colorectal anastomoses and local tumour recurrence rate and cancer-specific mortality rate among patients having resection of malignant tumours.

### Main Results

Analysis was by intention to treat. The sutured and stapled groups did not differ for clinical anastomotic leakage (4.4% vs. 4.5%;  $P = 0.93$ ), wound infection (10.9% vs. 13.5%;  $P = 0.30$ ), or surgery-related mortality (4.0% vs.

4.5%). Among the 224 patients with colorectal anastomoses, patients with stapled anastomoses had a lower rate of radiological leakage than patients with sutured anastomoses (5.2% vs. 14.4%;  $P < 0.05$ ). Of the 306 patients who had malignant lesion resection for cancer, life-table analysis showed that those with staples had a trend toward lower tumour recurrence and cancer-specific mortality that did not reach statistical significance. When tumour stage was controlled for in multiple regression analysis, the advantage of stapling became significant ( $P = 0.03$ ).

### Conclusions

In patients having large-bowel surgery, suturing or stapling of anastomoses was equally effective. In patients who had colorectal anastomoses, radiological leakage rates were lower when staples were used.

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### Commentary

Stapled and sutured anastomoses in colonic surgery are clinically equivalent. This is the opinion of most abdominal surgeons and appears to be the major finding in the article by Docherty and colleagues. The finding of significantly more radiological leaks in the sutured group is interesting but not necessarily clinically relevant unless the authors are correct in their suggestion that anastomotic leakage and tumour recurrence may be associated. The incidence of late anastomotic stricture in the 2 groups was not reported but is of interest in light of a recent controlled trial showing a higher frequency of this late complication with stapled anastomoses (1). The finding of possible in-

creased survival in patients with cancer who had stapled anastomoses compared with those who had sutured anastomoses was not conclusively determined in this study because it was not primarily designed as a cancer trial and did not report other important determinants of survival, such as the use of adjuvant therapy.

Surgical staplers have become a routine element of an abdominal surgeon's arsenal. They are indispensable for low-colorectal anastomoses; in particular, the double-staple technique of ultra-low anastomosis has allowed restorative resections to be done in low-lying tumours that were not possible in the prestapling era. This study reassures the surgeon that the use

of stapling devices does not systematically disadvantage patients and may have long-term benefits in some patients. Any possible advantage of stapled anastomoses in patients with cancer will have to be shown in trials specifically designed for that purpose.

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### Reference

1. Fingerhut A, Elhadad A, Hay JM, Lacaine F, Flamant Y. Infraperitoneal colorectal anastomosis: handsewn versus circular staples. A controlled clinical trial. French Associations for Surgical Research. *Surgery.* 1994;116:484-90.