

Title: Prophylactic closed-incision negative-pressure wound therapy is associated with decreased surgical site infection in high-risk colorectal surgery laparotomy wounds

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What is known about this subject?

Surgical site infection is a common and costly complication of colorectal surgery that continues to attract much attention. The role of the microbiome, mechanical bowel cleansing and antibiotic prophylaxis in reduction of SSI are currently the subject of much research. Negative wound pressure therapy (NPWT) is also seen as a potential beneficial adjunct to traditional wound dressing, particularly in high risk patients such as those with a high BMI or smokers.

What this study adds?

Design

This paper published in January's Colorectal Disease is a single centre, retrospective study from the USA of 315 patients (238 matched control versus 77 NPWT).

Primary endpoints

Composite measure of superficial SSI, deep SSI or dehiscence as derived from NSQUIP data.

Secondary endpoints

Length of stay, organ space infections and unplanned readmission rate.

Results

The overall SSI rate for the entire cohort was 13% (41/315), this was significantly lower in the NPWT group when compared to the control group (6.5% vs 15.1%, $p=0.05$). Time to diagnosis of SSI was significantly longer in the NPWT group at 18.4 vs 12.7 days ($p=0.05$). Readmission rates were also significantly reduced in the NPWT groups (8% vs 16%, $p=0.05$), all other secondary outcomes were similar. On multivariate analysis NPWT was found to be independently associated with reduced SSI (OR: 0.26).

Conclusions

The results of this retrospective study suggest that NPWT therapy is associated with a significantly reduced SSI rate, this effect was seen to be even greater when patients were matched for SSI risk (6.1% vs 25.3%).

Implications for colorectal practice?

There are clearly limitations with a retrospective study design using a database such as NSQUIP, particularly in studies of wound complications. However this study highlights how common SSI and their consequences are. It demonstrates that there may be benefit of this intervention to reduce SSI. In the UK the role of negative wound pressure dressings in the emergency setting will be explored in the recently opened multicentre SUNRISE study. In the elective setting, the upcoming ROSSINI 2 will explore a number of SSI reduction strategies using a novel multi arm trial design. We would all encourage all colorectal surgeons to participate in these important studies which aim to address such a common and important complication of colorectal surgery.