

Packing the Closed Incision after Open Colon Resection Can Decrease the Risk of Wound Infection. A Pilot Study

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Abstract

Using wound packing in closed incisions after colon resection reduced the surgical site infection rate from 14.3% to 2.2%, a 84.7% reduction in surgical site infection. The sample included 47 patients with average age of 65.6 and 48.9% were classified as obese.


Background

 Wound infection is a significant cause of postoperative morbidity in patients undergoing colon resection. The incidence of wound infection after colon resection is 3-30%¹. Data collected through the National Surgical Quality Improvement Project (NSQIP) at our hospital demonstrated a wound infection rate of 14.3% after colon resection (Control Group SSI Rate). Surgical skin infection (SSI) has significant effect on patient recovery, quality of life, as well as impact on budget. SSI delays adjuvant chemo and is an additional financial burden on hospitals and insurance companies. Wound infection, in complicated cases in patients with multiple comorbidities, is a significant burden and might be a contributing factor not only for morbidity but for mortality.



 Besides short-term complications patients also suffer from long term consequences from SSI such as increased risk for ventral incisional hernia which often require repeated surgeries.

 Excessive fluid collection as well as other factors which cause decrease efficiency of immune system will lead to wound infection.

Therefore, it is critical to let any potentially infected fluid drain outside the body. A recent paper demonstrated a decrease in superficial wound infections when incisions are probed with a swab for the first 5 days after surgery.³

 Major risk factors for wound infection include, contaminated incision, steroid use, urgent surgery, anemia, blood transfusion, stoma creation, BMI>30, DM.

Purpose

-  The purpose of our study was to prove that packing of closed incision after variety of colorectal resections is safe and can decrease the rate of wound infection.
-  There is no study to our knowledge which evaluated executing very simple technique such as placement of continuous packing in incision closed in usual fashion.

Methods

In the last 6 months, 47 consecutive patients underwent open colon resections for colorectal cancer, IBD, diverticulitis and other entities were analyzed. No antibiotics were given orally during bowel prep. Preoperative antibiotics were used in all patients. Before incision closure the wound was irrigated with normal saline and meticulous hemostasis was obtained. The incision was closed with skin staples placed 1.5-2cm apart. Plain packing ¼ inch gauze was softly packed to the bottom of the wound, approximately one inch apart using a single long strip of gauze to facilitate removal and eliminate the possibility of retained wicks. Every outside loop

was to be 2-4 centimeters long. Plain gauze and ABD pads were used to cover the incision in order to absorb any fluid. (Picture 1).

Packing was removed from the incision two days after surgery (Picture 2 and 3) An additional dressing was applied as needed in case of residual drainage from the incision. (Picture 2).

Results

- 46 patients were identified.
- Average age was 65.6 (27 – 87).
- Average BMI 29 (20 – 54), 23 (48.9%) were classified as obese.
- 32 patients (69.6%) had elective procedures and 15 patients (30.4%) emergent or semi emergent.
- 1 patient in 46 had a superficial SSI and there were no cases of deep tissue infections.
- One patient was removed from study due to failure to follow study protocol.
- Preoperative anemia occurred in 8 (17.0%).
- 10 patients (21.3 %) had DM, 4 patients (8.5 %) were on steroids, 1 was on immunosuppressants.
- 10 patients (21.3%) received blood transfusion during perioperative period.
- A stoma was created in 25 patients (53.2%).
- 7 patients (14.9%) wounds were contaminated.
- 4 patients (8.5%) require partial opening of incision.
- 1 patient had continuous serous drainage without cellulitis.
- 1 patient developed bleeding from the skin edge and was cauterized with silver nitrate.



Picture 1.
Post-op dressing



Picture 2.
Packing on POD#2





Picture 3.
Packing removed



Picture 4.
Wound infection

Conclusion

-  Wound infection rate was 2.2% in spite of very high proportion of patients with major risk factors and contaminated wounds. Wound packing reduced the wound infection rate from 14.3% in Control Group to 2.2%, a 84.7% reduction in surgical site infection.
-  Closed packing of the surgical incision after open colon surgery is safe and can decrease the incidence of surgical site infection. This novel technique should be evaluated in a randomized study.

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