A comparative study skin sutures versus skin staplers in emergency abdominal surgeries in Chengalpattu medical college

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INTRODUCTION

Development of surgical skills and handling of instrument has led to the understanding of an operative intervention. Emergency operations and insertion of foreign bodies are undertaken when one is confronted with acute sepsis – adhesives and staples are substituted for sutures, balloons challenge the bypass and lasers the scalpel.

Surgical site infections is the most common nosocomial infections reported in hospital patients.

Upto 2.5% of patients undergoing clean extra abdominal operations and upto 20% of intraabdominal operations will develop surgical site infections.

Infection is the most significant factor affecting wound healing.

The technique of closure of skin that penetrates the epidermis and dermis only serves to auto inoculate the wound of the patient, driving surface flora deep into subcutaneous tissue.

AIM OF THE STUDY

1. To compare wound infection/ discharge
2. To compare wound dehiscence
3. To compare wound cosmesis
4. To compare post-operative pain
5. To compare time consumption

METHODOLOGY

In emergency operation theatres Patients who underwent abdominal surgeries in Chengalpattu Medical College hospital. Patients were randomly assigned to skin sutures/staplers for wound closure and 50 cases were studied in each group (total – 100 cases).

GROUP A: Skin closure Suture

The skin was approximated usually with vertical mattress sutures using nonabsorbable sutures at a distance of 1cm from each other.

GROUP B: Stapler

The edge of the wound was everted and lined up using toothed forceps. The stapler is then placed at 1cm from each other

The wound was closed by skin staples or sutures which was evaluated after 1 week, 3 weeks and 6 weeks interval for infection, swelling, discharge, overlapping of edges, separation of edges, wound dehiscence and scar.

INCLUSION CRITERIA:

Patients undergoing emergency abdominal procedures will be included in this study.

EXCLUSION CRITERIA:

The following will be excluded from the study.

Traumatic wounds

Incisions which require to be closed under tension

Patients with diabetes mellitus

Patients with HIV

Age less than 12 years

Patients undergoing obstetrics and gynecologic procedures

OBJECTIVES:

The objective of the study was to eventually the efficacy of using skin stapler or skin suture in abdominal surgeries

- Age distribution
- Average time for skin closure
- Wound cosmesis score
- Visual Analogue Scale for post-operative pain
- Average time for suture / stapler removal
- Emergency

- Complications

Wound appearance was scored as follows :
- overlapping borders - 0 – yes, 1 - no
- contour irregularities - 0 – yes, 1 – no
- wound dehiscence - 0 – yes, 1 – no
- good overall appearance - 0 –poor, 1 - acceptable
  Score of 4 – optimal cosmetic appearance

DISCUSSION:

Even though the sutures are inexpensive, they typically consume a longer duration and the risk of needle stick injury to the surgeon and the operating staff was high. The problems encountered while suturing the wound are

1. Needle stick injuries
2. Hematoma formation due to injury to the blood vessels in the skin
3. Onset of stitch abscess

In this prospective clinical study, 100 patients underwent surgeries in the abdomen. Out of this 100, underwent skin closure with skin staplers while the remaining 50 had skin closure with non-absorbable sutures. The comparison between these 2 groups was done by certain parameters like

1. Post -operative wound complications
2. Wound cosmesis
3. Post -operative pain
4. Time consumption

Wound complications:

This includes

1. Discharge/infection
2. Granuloma
3. Seroma
4. Wound gaping

Wounds closed by staples exhibit a superior resistance to infection than skin wounds closed with sutures
The sutures and staplers, after they were removed, was also sent for culture and sensitivity but there was no growth in both of these.
In our study, only 1 patient [2%] in suture group developed granuloma and no granuloma in stapled group. The P value was 0.992 and was not statistically significant.
In the present study, only 1 patient [2%] in stapled group had hypertrophic/ugly scar and 9 patients [18%] of sutured group had an ugly scar. The P value was 0.037[<0.05] and was statistically significant.
In this study, 3 patients [6%] in stapled group had seroma and 14 patients [28%] in sutured group had seroma. The P value was found to be 0.0027[<0.05] and was statistically significant.
In this comparative study, 1 patient [2%] in stapled group and 2 patients [4%] in sutured group had wound gaping. The P value was 0.986[>0.05] and hence not statistically significant.
In this study, 40 patients [80%] in stapled group and 7 patients [14%] in sutured group had no complications.

CONCLUSION

Cosmesis an important factor in todays modern era. A cosmetic scar gives patient satisfaction and a mental ease to the operating surgeon.
In our prospective comparative clinical study of skin staplers versus skin sutures in elective and emergency abdominal surgery, our inference was :

1. Wound infection / discharge was less with staplers.
2. Wound cosmesis was better with staplers.
3. Post operative pain was less with staplers.
4. Time consumed for skin closure with staplers was 5 times less than that of those closed with sutures.
5. Incidence of seroma was less with staplers.

Hence, we conclude that skin staplers are superior to sutures for better wound cosmesis, in reducing the post-operative pain, wound infection, seroma formation and very much significant in saving time for skin closure. Hence this study recommends the use of skin staplers.

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