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PARTIAL CLOSURE OF LAPAROTOMY WOUND TO PREVENT INFECTION AND DEHISCENCE- IN CASES WITH INFECTIVE INTRA-ABDOMINAL PATHOLOGY-A prospective study

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ABSTRACT infection of parietal wound after an infected intra-abdominal pathology such as perforation peritonitis remained a challenge till today. Here one more attempt is made to reduce the infection rate. MATERIAL AND METHOD- A total of 100 cases included in study ;50 in each group. Group A subjected to partial wound closure along with packing and group B wounds were completely closed in traditional way. Comparison made on parameters like- wound infection, resuturing required, hospital stay and wound dehiscence. Results went in favour of par partial closure. CONCLUSION- A very simple and easy to implement idea can lead to dramatic change in dealing with a problem so familiar and nightmarish to every abdominal surgeon. Here underdoing worked wonder rather than overdoing. Results are overwhelming and hopefully the method will become a standard. As the standards are made with minimum simple, easy to master, unexpensive effort which does not tax the patient in any way.

KEYWORDS : partial closure, infection, wound packing.

IntroductionSince the development of surgery as a major factor in treating intra-abdominal conditions associated with gross abdominal cavity infections like – perforation peritonitis; the laparotomy wound infection came along as major post-operative sequelae. Despite astonishing advances in suture material, aseptic surgical techniques and antimicrobial therapy; post-operative wound sepsis continues to occur unabatedly. So, much of efforts made in past viz-delayed primary suturing, subcutaneous vacuum drainage, wound toilet with antibacterials and antiseptics etc. met with varied success.[1] Because of prolonged stay and longer post-operative period; it taxes on patient's health as well as economy. Keeping a wound open for certain period and delayed suturing is also in vogue with a substantial risk of dehiscence.[2]

We here have introduced a new method without any compromise on patient care and economy as well as complicity. It's just little modification of earlier practices. In a way combination of both.

AIMS OF STUDY- This study is aimed at- 1. Preventing wound infection 2. Giving strength to wound by closing the skin partially,3. A resuturing is rarely required and 4. To reduce hospital stay , expenses incurred on treatment and early ambulation and return to work.

MATERIAL AND METHOD

This study is done on 100 patients ; 50 in each group. Group A includes patients whose wounds were closed patially with skin staplers, and Group B includes those whose wounds were closed fully with skin staplers.

Table:1- showing number of cases included in each group

Intra-abdominal pathology	Number of cases Group A	Number of cases Group B
1.Gastric perforation	10	10
2.Duodenal perforation	25	25
3.Enteric perforation	10	10
4.Appendicular perforation	05	05

INCLUSION CRITERIA-1. Patients between the age group of 21 to 60 yrs. 2. Patients with intra-abdominal infection, local or general.

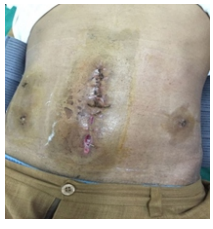
EXCLUSION CRITERIA-1. Patients below the age of 21 yrs or above the age of 60 yrs. 2. Patients with comorbidities like- uncontrolled diabetes, renal disease, hepatic disease, coagulopathy, immuno deficiency, local skin disease and those allergic to povidone-iodine; were not included in study.

MODUS OPERANDI- For group a patients; after dealing with intraabdominal problem, peritoneal toilet is done and sheath along with peritoneum closed with no 1 vicryl interruptedly taking double bite figure 8 cross- stitches. f figf Now wound is irrigated with betadine and saline. Skin approxima ted with staples where one staple is applied for every three staple spaces. The intervening space between two staples is packed with povidone-iodine rung gauze pieces firmly. Dressing inspected every 24 hrs.

fig:1- *showing wound packing at the conclusion of operation*

fig:2- *1st post-op day*

fig:3- *wound at one week*



Gauze pieces removed, wound irrigated with saline and povidone iodine and repacked with gauze pieces firmly. If no signs of infection are there packing stopped on 3rd post-operative day and wound is dressed in simple way. Usually the wound closes on its own between the staple areas. Rarely requiring a couple of staples on 5th post-operative day applied in ward itself.

fig:4- *wound appeared at 2 weeks*

Other supportive treatment remained same in both the groups. In Group B after suturing the sheath and peritoneum in same way as in group A skin closed in usual way with staples. Dressing inspected every 24 hrs and if no signs of infection are there, dressed in usual way.

If there is redness , tenderness of surrounding areas and constituti onal symptoms like fever, malaise etc. alternate staples removed first . if still pus formation is there all staples were removed and wound left open till ready for secondary suturing.

RESULTS

Surprisingly with this simple modification in technique , results are very encouraging. Infection rate was far less in group A as compared to group B where wound was closed in traditional way.

Table-2: *showing infection rate in both the groups*

Intra-abdominal pathology	Group A	Group B	Difference
1.Gastric perforation	01(10%)	03(30%)	20%
2. duodenal perforation	03(12%)	22(88%)	76%
3. Enteric perforation	01(10%)	10(100%)	90%
4.Appendicular perforation	01(20%)	05(100%)	80%

As shown in above table a vast difference in infection rate found. In gastric perforation the difference is not much(20%) because the gastric contents are comparatively sterile.3,4 A big gap of (76%) found in duodenal cases. In enteric and appendicular cases all wounds got infected in group B while only (10%) and (20%) wounds got infected in enteric and appendicular cases respectively in group A. Hospital stay was markedly increased in group B as the open infected wounds needed daily wound care till clearance of infection and later secondary suturing under observation.

Table:3- *additional observations of resuturing, hospital stay and wound dehiscence*

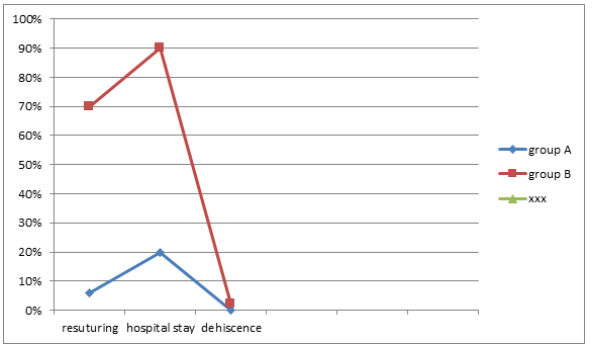
Additional observations	Group A(50)	Group B(50)
1. Resuturing needed	03(06%)	35(70%)
2. Hospital stay(<10 days)	45(90%)	10(20%)
3. Dehiscence	00	01(02%)

As far as resuturing of wound was concerned only (06%) cases needed it in group A while a huge number(70%) needed resuturing of wounds in group B.5 About (80%) cases needed a hospital stay of more than 10 days. Wound dehiscence was seen only in one case in group B making this observation as insignificant in both groups.

DISCUSSION

Sometimes an idea so simple and so easy strikes to one's mind that it can be implemented with little extra effort and without extra cost or inconvenience to patient.[6,7] In this study 100 cases were selected with equal number of same problems and age group. Each group included 50 cases fractioned with equal number like – gastric perforation group, duodenal perforation group, enteric perforation group and appendicular perforation groups. Same number of patients included in each group. Despite this a marked difference in results are seen on parameters like –wound infection, resuturing and hospital stay. Wound dehiscence was also one of parameter which did not show any significant alteration(n=01) in group B).8 A marked reduction in wound infection(n=01/10,n=o3/25,n=o1/10 and n=01/05 respectively gastric, duodenal, enteric and appendic ular cases) ;so inherent to these cases [9,10] proved byfar the most significant and pleasant surprise. A difference of 20%,76%,90% and 80% noted respectively. In many studies carried out on the subject showed a reduction in wound rates around 40%,[11,12,24,25] though the chemotherapeutic advancement can be a contributory factor but the antibiotics were used same and in same doses. The most significant factors seem drainage of wound at the outset and local antiseptic treatment.[13] Both these factors were restricted in group B as the wound was completely closed. Other factors like hospital stay and resuturing are the ramifications of this factor only.

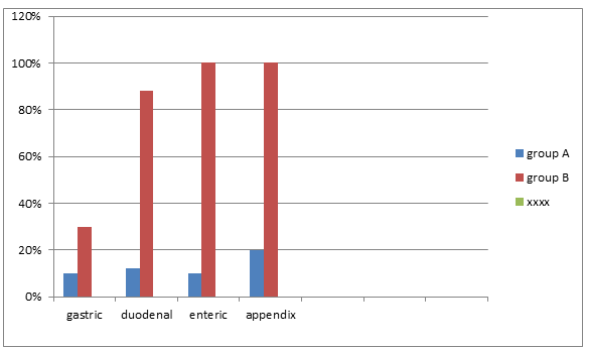
Chart:1- *depicting hospital stay, resuturing and dehiscence.*



Resuturing[14,23] needed only in 06%(n=03) cases in group A while 70%(n=35) cases needed resuturing of wound at appropriate time.90%(n=45) needed a hospital stay of more than 10 days in group B while only 20%(n=10) stayed in hospital beyond 10 days.[15]The absence of infection and resuturing contributed to this difference.

Wound dehiscence(20%;n=01) seen in only one case of appendicula r perforation. Only 5 cases of appendicular perforation was there a higher rate can not be authoritatively asserted, though it shows tendency of problem in group B with higher infection rate.[16,17,21,22]

Chart:2- *showing contrast of infection rate of both groups*



CONCLUSION

Surgical wound infection after surgery for intra-abdominal infected pathology commonest being perforation is fairly common.[1,20] Several methods devised in past in the form of leaving wound open for few days and resuturing, total closure with subcutaneous suction drain etc, with merits and demerits[18,19] of their own. This method seems in-between method with extremely encouraging outcome. Though reproduction of results is a matter of time and hopefully this simple modification will catch the attention of big research houses for better conclusions.

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