ABDOMINAL WOUND DEHISCENCE- HOW COMMON IS IT IN EARLY POST-SURGICAL PERIOD

ABSTRACT:

Objective: To determine the frequency of this complication in two localsurgical setups, and to review and identify risk factors responsible for the calculated rate.

Material and Methods: This descriptive study was carried out in the Department of Surgery, Liaquat University Hospital and Isra University, Jamshoro / Hyderabad from June 2011 to January 2012. The study included patients undergoing emergency or elective abdominal laparotomy. These patients were followed for postoperative complications up to one month. Patients who developed abdominal wound dehiscence were further analyzed to calculate its frequency and associated factors.

Results: During the study period, 98 patients underwent laparotomy with axillary clearance as per inclusion criteria. The age of patients ranged from 19 years to 78 years, with mean age 30.65 years. Out of total 98 patients 58 were males and rest were females. Overall rate of wound dehiscence was 7.14% (7 out of 98). The rate was more in emergency laparotomy (9.09%) as compared to the non-emergency laparotomy procedures. The analysis of data showed that the most common risk factor associated with the wound dehiscence was wound sepsis (29.6%), followed by the chest infection (24.1%), old age (22.2%) and uremia (20%) accordingly.

Most common complication following wound dehiscence was wound sepsis (87.5%) followed by intra abdominal abscesses (50%).

Conclusion: Abdominal wound dehiscence is a morbid complication of the abdominal laparotomy. The preventable contributory factors should be apprehended before surgery to avoid this complication.

Key Words: abdominal wound dehiscence, laparotomy,

INTRODUCTION:

Abdominal wound dehiscence associated with increased morbidity and mortality, remains a major cause of morbidity following any laparotomy. Success of any surgery is directly related with uneventful healing of surgical wounds especially in early post-surgical periods. Wound dehiscence rate is variably reported in literature, but most commonly reported as 1-3 percent in abdominal surgical procedures. Studies emerging from Pakistan are quoting higher rate of abdominal wound dehiscence as compared to the international literature. No single cause is responsible for wound dehiscence and as a rule a combination of systemic and local factors contributes to the development of this complication. Poor nutritional status, long term steroid use, wound infection, diabetes, old age, gender, jaundice, obesity, malignancy, anemia among many factors described in literature causing wound dehiscence.

This study was undertaken with aim to determine the frequency of this complication in localsurgical setup, and to review and identify risk factors responsible for the calculated rate.
MATERIALS & METHOD:
This descriptive non-interventional study was carried out in the Department of Surgery, Liaquat University Hospital and Isra University, Jamshoro / Hyderabad from June 2011 to January 2012. A total of 98 patients admitted in surgical ward through emergency / outdoor clinic from June 2011 to January 2012 were enrolled in this study.

All the patients undergoing laparotomy through vertical incisions were included in the study. Patients undergoing exploration through mini laparotomy, transverse incisions and vertical laparotomy through previous scar were excluded. A predesigned proforma comprising history, physical examination and results of certain investigations was used for data collection. Risk factors like age, jaundice, uremia, diabetes, chronic obstructive pulmonary diseases, hypoalbuminemia, obesity, malignancy, emergency procedure, fecal peritonitis and steroid use were recorded. The investigations done pre-operatively were blood complete picture, urine routine examination, random blood sugar, urea, creatinine, x-ray chest, x-ray plain abdomen (erect) and serum electrolytes. Liver function tests, electrocardiography, ultrasonography and CT scan abdomen were done where required. After taking informed consent complete record of all the patients was maintained and kept confidential.

In all patients laparotomy was done under general anesthesia through midline incision. Trained surgeons with latest recommended protocol closed their abdominal. As a routine, in all cases the linea alba was closed with non-absorbable monofilament, synthetic suture (Prolene No.1). Examination of wound was started from third post-operative day onwards, and included inspection for any redness, oedema or presence of discharge like pus or serosangunious fluid, and the day on which it was seen. Wounds. Antibiotics were started as part of pre-operative treatment in all patients presenting with acute abdomen in emergency ward, and course was prolonged accordingly in each case after operation. A prophylactic dose of antibiotics was given in all elective cases along with extension of antibiotic as required. Data was analyzed by using SPSS version 13 on computer. Descriptive statistics like frequency, percentage, averages etc were computed for data presentation.

RESULTS:
The age of patients ranged from 19 years to 78 years, with mean age 30.65 years. The patients developing wound dehiscence did not belong to a single age group. Out of total 98 patients 58 were males and rest were females.

Overall rate of wound dehiscence was 7.14% (7 out of 98). The rate was more in emergency laparotomy 6/66 (9.09%) as compared to the non-emergency laparotomy procedures 1/32 (3.12%) Table 1.

The analysis of data showed that the most common risk factor associated with the wound dehiscence was wound sepsis (29.6%), followed by the chest infection (24.1%), old age (22.2%) and uremia (20%) accordingly Table 2.

Most common complication following wound dehiscence was wound sepsis (87.5%) followed by intra abdominal abscesses (50%) table 3.

DISCUSSION:
Wound dehiscence is a nightmare for any surgeon and it is associated with considerable morbidity and mortality. It is reported to be a multifactorial problem and no single factor can be held responsible for its occurrence. In international literature the incidence of this complication is reported between 1-3%, however, in published data from Pakistan its rate seems to be significantly higher (6.6-12.5%)6,7.8. The overall rate of the wound dehiscence in our study was 7.14 %. This is well within the reported range from Pakistan but it is higher in comparison to international rate. In our study the high rate of wound dehiscence can be attributed to various reasons. In our setup the emergency laparotomies are usually performed for acute abdomen cases which are usually presenting late to our tertiary care hospital from far flung peripheral areas where the health care facilities are scarce and usually these patients end up with quacks. These cases usually present late and in deteriorated conditions due to course of acute illness, Most of the patients are already having complications like sepsica
Use of steroids has long been debated as the cause and contributory factor of wound healing. The neovascularization delivers metabolites and fluid and electrolytes derangements. Also, poverty plays a vital role in making patients malnourished and compelling them to seek “cheaper” treatment out side hospitals at local dispensaries. Second factor responsible for this high incidence of wound dehiscence, especially in emergency cases may be the lack of proper sterilization in an emergency scenario. Another important factor, which plays a major role in developing wound dehiscence, is lack of enough experience on part of surgeon. The emergency laparotomies are performed most of the time by surgical residents. Technical errors can lead to the wound dehiscence and these can be avoided by using non absorbable sutures, making secure surgical knots, taking deep tissue bites, using small stitching interval, and with suture length: wound length ratio of more than 4:1. Increased frequency of this complication can also be attributed high frequency of undiscovered or uncontrolled diabetes mellitus which results in wound healing process. Diabetes mellitus can lead to the disaster by altering immune response and nutritional status. It also increases the susceptibility to wound infection. In our study population 16% of the diabetics developed the abdominal wound dehiscence. Risk factors associated with the wound dehiscence were studied (table 1). In our study population we have seen that in patients more than 50 years of age the percentage of this complication was 22.2%. This finding is in concordance with the published results of various studies. Wound dehiscence rate was observed to be 9.09 % in emergency (6/66), and 3.12 % (1/32) in elective procedures in our study population. Various studies have described emergency surgery as a risk factor for wound dehiscence, our findings are almost similar to that reported by Hanif et al, Waqar et al, Aziz et al and Windsdo et al.

Uremia was found to be another important factor in development of the abdominal wound dehiscence. Out of 5 uremic patients of our study population 1 developed (20%)this complication. Most of these uremic patients developed uremia secondary to the sepsis and thus uremia along with sepsis proved to be another additive factor for wound dehiscence. This is in contrast to the observation made by Afzalet al which found uremia not be a significant contributory factor. Use of steroids has long been debated as the cause of wound dehiscence. In our study steroid use was found as a significant risk factor in cases of emergency laparotomy. Our findings are in concordance with findings of Afzalet al. Steroid use leads to immunosuppression which further aggravates the intra-abdominal sepsis already playing the major role in wound failure. The most significant complication and contributory factor in patients having wound dehiscence was wound sepsis. Intra abdominal sepsis itself leads to infection spreading to fascial layers of anterior abdominal wall. The infection exaggerates the normal inflammatory response, the first phase of normal wound healing. This exaggeration results in inflammatory phase to be prolonged and healing never starts. The cellular, molecular and bio-chemical events in uncontrolled inflammation are due to leucocytes-macrophages over activity. There is intense enzymatic activity with breaking and removal of devitalized tissue as well as destruction of proliferating cells and capillaries. The neovascularization delivers metabolites such as amino acids and oxygen for repair but inflammatory cells take their tools and use the nutrients to destroy collagen being laid for repair. Sepsis leads to generalized derangement in metabolic profile of the patient that can manifest in the form of uremia, jaundice, hyper catabolic state with negative nitrogen balance and pulmonary complications with hypoxemia. All the aforementioned complications of sepsis are found to significant contributory factors in wound dehiscence by Afzalet al. The similar findings are reverberated in our study population as well.

CONCLUSION:
Abdominal wound dehiscence seems to a preventable complication associated with abdominal laparotomy. If all the factors associated and aggravating this condition are carefully excluded or dealt accordingly prior to surgery this complication can be avoided in a significant surgical cohort of patients. This will eventually lead to decrease in morbidity, mortality and complication associated with this condition.

REFERENCES