



Clinical Study of Abdominal Wound Dehiscence

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ABSTRACT

Wound Dehiscence is premature "bursting" open of a wound along surgical suture. Our study is the study of Significant risk factors for the development of post operative Wound dehiscence.

Methodology : Patient factors like older age group, male sex, anaemia, malnutrition, obesity, peritonitis due to bowel perforation, intestinal obstruction, those who undergone operation in emergency and those who have undergone perforation closure, resection and anastomosis and associated medical conditions like jaundice, renal failure, uremia, diabetes, other immunosuppressive conditions are studied. Surgeon factors like midline incisions, improper suture technique and improper aseptic precautions which may lead to wound infection and then wound dehiscence.

Results wound dehiscence is significantly affected by above mentioned factors can be prevented by improving the nutritional status of the patient, strict aseptic precautions, avoiding midline incisions, improving patients respiratory pathology to avoid postoperative cough and by proper surgical technique.

KEYWORDS :

INTRODUCTION

Wound Dehiscence is the premature "bursting" open of a wound along surgical suture. It is a surgical complication that results from poor wound healing. Risk factors in general are age, diabetes, obesity, poor knotting or grabbing of stitches, and trauma to the wound after surgery. Sometimes a pink (serosanguinous) fluid may leak out. Despite advances in perioperative care and suture materials, incidence and mortality rates in regard to abdominal wound dehiscence have not significantly changed over the past decades. This may be attributable to increasing incidences of risk factors within patient populations outweighing the benefits of technical achievements.

Incisional hernia is abnormal protrusion of a viscus through the musculoaponeurotic layer of surgical scar, i.e. which lies under a well healed skin incision. Wound dehiscence is a very serious postoperative complication associated with high mortality and morbidity. It has significant impact on health care cost, both for patients and hospitals. Wound dehiscence is associated with a mortality rate of 15-20%. Although several systemic factors are associated with increased risk, their clinical importance is overstated. Because of high mortality, medical and surgical preventive measures are essential in primary peri-operative period. Good knowledge of risk factors is mandatory for prophylaxis. In this study and aimed to elucidate some factors contributing to disruption of incision.

METHODOLOGY

The clinical study of post operative abdominal wound dehiscence was conducted at MGM Hospital, Warangal during the period of NOV. 2012 to Sept. 2016.

Inclusion criteria :

- Patients of age > 10 years and of either sex who have developed abdominal wound dehiscence.
- Patients who have developed abdominal evisceration
- All patients who have developed wound dehiscence after any abdominal incisions.
- Patients who have undergone either emergency or elective abdominal operations and developed wound dehiscence.

Exclusion criteria :

- All patients with wound dehiscence who are less than 10 years of age.
- All patients with incisional Hernia.
- All patients with wound dehiscence on sites other than the abdo-

men..

- All patients who have developed wound dehiscence after second surgery.

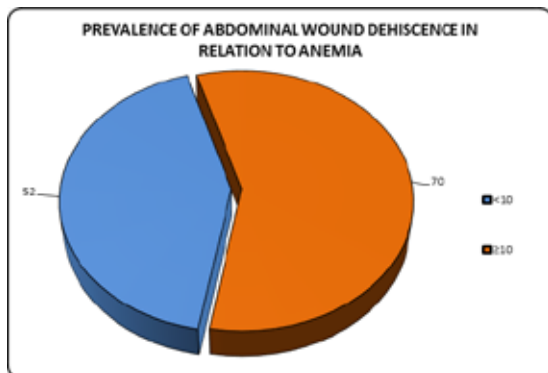
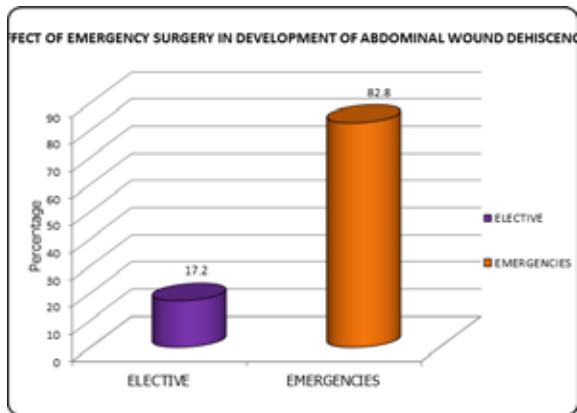
An elaborative study of these cases with regard to date of admission clinical history regarding the mode of presentation, significant risk factors, investigations, time of surgery and type of surgery and postoperatively, study of diagnosis and day of diagnosis of wound dehiscence is done till the patient is discharged from the hospital.

In history, details regarding presenting complaints, duration, associated diseases, significant risk factors like, anaemia, malnutrition, obesity, chronic cough, smoking, alcoholism were noted.

Details regarding the clinical diagnosis, whether the operation was conducted in emergency or electively, type of incision taken were noted. Intraoperative findings noted and classification of surgical wounds done accordingly. The type of surgical procedure done was recorded.

RESULTS

- Patients in the age group of 31-40 years and 50-60 years found to have highest incidence of abdominal wound dehiscence. Mean age of the patients affected was 45.8 years.
- Incidence of abdominal wound dehiscence is more common in patients with peritonitis due to hollow viscus perforation and intestinal obstruction.
- Patients with surgical wound classified as contaminated developed wound dehiscence more commonly.
- Incidence of abdominal wound dehiscence is more common in patients who are operated in emergency than elective (4.8:1). ($p < 0.001$)
- Surgical procedures which included perforation closure carried higher incidence of wound dehiscence.
- Patients operated with midline incision carried higher risk for wound dehiscence than those operated with paramedian incisions. ($p = 0.007$)
- Incidence of abdominal wound dehiscence is more common in patients having their BMI >25 than those having their BMI ≤ 22 .
- Incidence of abdominal wound dehiscence is more common in patients with anaemia (Hb% < 10g%)



% and more than 10gm% (p = 0.27, NS).

VARIOUS ABDOMINAL PROCEDURES LEADING TO ABDOMINAL WOUND DEHISCENCE

Procedure	No. of cases
Appendectomy	10
Perforation closure	68
Resection and anastomosis	42
Others	2
Total	122

FREQUENCY OF ABDOMINAL WOUND DEHISCENCE ACCORDING TO BODY MASS INDEX

BMI	No. of cases
>25	82
≤ 25	40



EVISCERATION OF BOWEL



TENSION SUTURING IN CASE OF BURST ABDOMEN

DISCUSSION

In this clinical study of abdominal wound dehiscence, all patients who developed abdominal wound dehiscence after operation in MGM Hospital, Warangal were studied. A total of 122 cases were included.

In a study conducted between 2007, 3500 abdominal laparotomies where performed in department of surgery of Mesologgi General Hospital and Urban Community Teaching Hospital of 150 beds, showed the incidence of abdominal wound dehiscence more commonly male gender 60%. In our study males predominated the picture with the ratio of 2.6 :1. This male predominance may be due to the higher incidence of peptic ulcer perforation and intestinal obstruction in male sex.

A study conducted that hospita universitirio Dr. Joseph, Trueta, Spain on 12,622 patients who underwent laparotomy showed the mean age of patients with wound dehiscence was 70 years.³¹ In a study conducted between 2007, 3500 abdominal laparotomies where performed in department of surgery of Mesologgi General Hospital and Urban Community Teaching Hospital of 150 beds, showed the mean age of 69.5 years. In our study the mean age of patients shown to be 45.8 years as the incidence of appendicular perforation and duodenal ulcer perforation is more common in this age group.

Study conducted on 107 patients with abdominal wound dehiscence over a period of 7 years in Department of Surgery, Case Western, Reserve University, Cleveland Veterans Affairs' Medical Center USA showed that patients with intraabdominal infection were more likely to have undergone an emergency operations (p < 0.02), an operation on colon (p < 0.005), or an operation with higher wound classification (p < 0.02) and wound dehiscence is more common emergency operation and operations with higher wound classification. Our study showed that abdominal wound dehiscence is more commonly in patients operated for peritonitis due to hollow viscus perforation and in which wounds were classified as contaminated. 51 patients studied were operated for hollow viscus perforation among which 26 patients had Duodenal ulcer perforation, and 25 patients had either gastric perforation, ileal perforation, jejunal perforation or meckel's diverticular perforation, 30 patients had appendicular pathology either perforation or appendicitis and 23 patients had small bowel obstruction

and 8 patients had underlying malignancy. For the patients with bowel perforation which were classified mostly into contaminated surgical wounds, the procedure performed was peritoneal lavage with perforation closure. Patients with appendicular perforation underwent appendectomy with peritoneal toilet. Most patients diagnosed with small bowel obstruction underwent resection and anastomosis. Few underwent adhesiolysis and for large bowel obstruction colostomy was done.

Study conducted at Pakistan Institute of medical science showed that 71.4% of the patients who developed abdominal wound dehiscence had undergone surgery in emergency. In a study conducted between 2007, 3500 abdominal laparotomies were performed in department of surgery of Mesolaggi General Hospital and Urban Community Teaching Hospital of 150 beds showed that 60% of the patients operated who developed wound dehiscence were operated in emergency. In our study 87% of patients who underwent emergency surgery developed abdominal wound dehiscence ($p < 0.001$).

Study conducted in Department of Surgical Gastroenterology, University of Copenhagen, Hvidovre Hospital in 2001 shows that the incidence of abdominal wound dehiscence and burst abdomen is more common in patients with vertical incision than in those with transverse incision ($p = 0.0001$). In our study out of 122 patients 77 patients underwent surgery with midline incisions and 39 patients with right paramedian incisions, i.e. 98% of patients with vertical incisions ($p < 0.007$) had wound dehiscence.

In a study carried out at Oula university Hospital, among 48 patients who developed wound dehiscence, 2 patients (4%) died. The mean hospital stay was 25-30 days. There were 31 (65%) patients with pre-operative hypoalbuminemia, other risk factors included anemia, malnutrition, chronic lung disease and emergency procedure. In our study out of 122 patients, the mean hospital stay was 15 - 25 days. About 70 patients showed haemoglobin $< 10\text{gm}\%$. Other risk factors in the study included, hypoalbuminemia, malnutrition, chronic lung diseases, old age, malignancy, obesity, emergency procedure and peritonitis with dirty surgical wounds. 3 patients (i.e. 2%) died, one was due to mesenteric vascular ischemia and other was due to carcinoma sigmoid colon.

A study at Department of Surgery Sundsvall County Hospital, Sweden concluded overweight ($\text{BMI} > 25$) as a risk factor for wound infection but these effects may be eliminated if patients are sutured with a suture length to wound length ratio of 4 – 4.9. Our study 21 patients were over weight, ($\text{BMI} > 25$), 82 patients were having their $\text{BMI} > 25$ and 40 patients were having their $\text{BMI} 25$ and below ($p < 0.001, S$).

Study conducted at long Island Jewish Medical Centre showed the average post-operative day of abdominal wound dehiscence to be 11.1 postoperatively. In our study, patients developed wound dehiscence on an average 9.3 days post-operatively. Other risk factors for the development of abdominal wound dehiscence include chronic cough, wound infection, poor surgical technique.

CONCLUSION

- Significant risk factors for the development of post operative abdominal wound dehiscence are :

Patient factors like older age group, male sex, anaemia, malnutrition, obesity, patients with peritonitis due to bowel perforation, intestinal obstruction, those who undergone operation in emergency and those who have undergone perforation closure, resection and anastomosis and associated medical conditions like jaundice, renal failure, uremia, diabetes, other immunosuppressive conditions.

Surgeon factors like midline incisions, improper suture technique and improper aseptic precautions which may lead to wound infection and then wound dehiscence.

- Postoperative abdominal wound dehiscence can be prevented by improving the nutritional status of the patient, strict aseptic precautions, avoiding midline incisions, improving patients respiratory pathology to avoid postoperative cough and by proper surgical technique.

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