

Post Laparotomy Wound Dehiscence in a Rural Hospital Set Up

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Abstract

A partial or complete disruption of an abdominal wound closure is noted in wound dehiscence. It can be with or without protrusion and evisceration of abdominal contents. Cutaneous wound healing is hampered because of wound dehiscence. Weakness in musculoaponeurotic layer causes abnormal protrusion of viscus which is referred to as incisional hernia. High index of morbidity and mortality occurs when there is disruption of surgical wound following laparotomy. This also indirectly increases the financial burden of the patient. *Objectives and Aim:* To identify the clinical presentations in post laparotomy sequelae and wound dehiscence and risks associated with the same. To identify the associated diseases. This study to be carried out in elective and emergency operation. *Materials and Methods/Source of Data:* A study of clinical presentations in post laparotomy sequelae was conducted at Department of General Surgery, MVJ Medical College and Research Hospital, situated in rural area, on patients admitted in Department of General Surgery between August 2016 and August 2018, undergoing routine and emergency laparotomies. *Conclusion:* Significant Risk Factors for the Development of Post-Operative Abdominal Wound Dehiscence: Patient factors like elderly age, gender predominance among males, anaemia, nutritional factors, obesity, patients who have underwent emergency procedure. Wound infection and wound dehiscence were noted in midline incisions, improper suture technique and improper aseptic precautions. These can be prevented by

maintaining proper nutritional status and strict asepsis and strict aseptic surgical techniques.

Keywords: Post Laparotomy; Wound Dehiscence.

Introduction

A partial or complete disruption of an abdominal wound closure is noted in wound dehiscence. It can be with or without protrusion and evisceration of abdominal contents. Cutaneous wound healing is hampered because of wound dehiscence. Weakness in musculoaponeurotic layer causes abnormal protrusion of viscus which is referred to as incisional hernia. High index of morbidity and mortality occurs when there is disruption of surgical wound following laparotomy [1]. This also indirectly increases the financial burden of the patient.²

A high mortality and morbidity is noted in wound dehiscence which is a very serious postoperative complication. This increases the financial burden among the patients and the hospitals: 15-20% mortality rate is noted in patients with wound dehiscence. Although several systemic factors are associated with increased risk, their clinical importance is overstated [3]. Because of high mortality, medical and surgical preventive measures are essential in primary perioperative period [4]. This study is aimed to elucidate some factors contributing to disruption of incision.

Material & Methods

Patients admitted in Department of General Surgery between August 2016 and August 2018, undergoing routine and emergency laparotomies who developed abdominal wound dehiscence after Laparotomy were included in study. A detail study of these patients were done as per proforma. On the basis of outcome and

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results, data was statistically analyzed to reach a definitive conclusion regarding predictors leading to postoperative abdominal wound dehiscence.

Inclusion Criteria

Patient admitted in department of general surgery and undergoing routine and emergency laparotomies who develop complication pertaining to abdominal wound dehiscence after Laparotomy.

Exclusion Criteria

- Patients who had undergone laprotomy prior
- Patients who are under the age group of eighteen years.

Results

Age wise distribution of study subjects

18 Years to 37 Years was the age range in which the patients were grouped. Ninety year old patient was included who was the eldest and youngest patient noted was eighteen years 43.68 years was the mean age of the patient. (Table 1).

Table 1: Age wise distribution with respect to wound dehiscence

Age	No. of cases	Percentage
18 - 27	13	22.80
28 - 37	12	21.05
38 - 47	7	12.28
48 - 57	11	19.29
58 - 67	9	15.78
68 - 77	2	3.50
> 77	3	5.26
	57	99.96

Sex Wise Distribution

In this study 80 percent was noted in male patients and 20 percent in female patients. (Table 2).

Table 2: Gender wise distribution

Gender	No. of cases	Percentage
Male	46	80.70
Female	11	19.29

Table 3: Comparison of elective and emergency status

Surgery	No. of cases	Percentage
Elective	17	29.82
Emergency	40	70.17

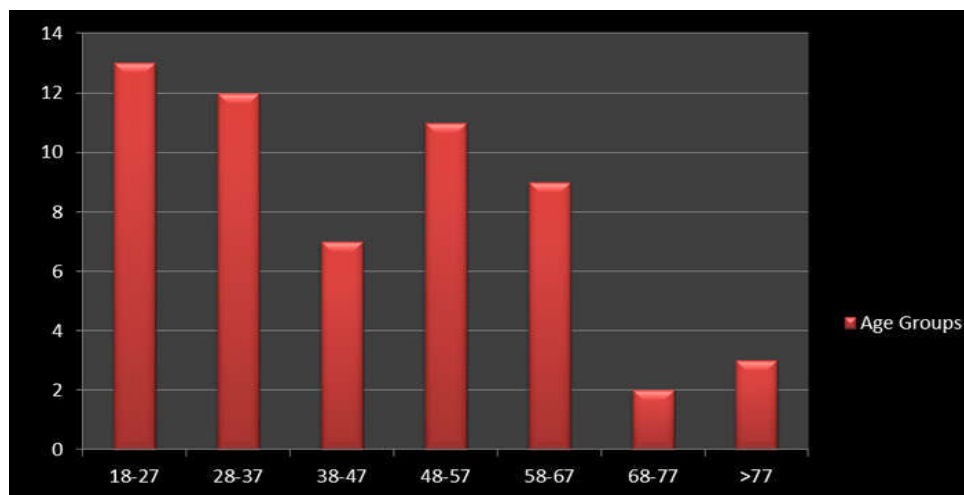
In the present study, (70.17%) were operated as emergency surgery and (29.82%) as elective surgery. (Table 3).

Table 4: Type of surgical wound developing abdominal wound dehiscence

Type of surgical wounds	No. of cases	Percentage
Clean	7	12.28
Clean Contaminated	8	14.03
Contaminated	40	70.17
Dirty	2	3.50

Forty (40) cases i.e. (70.17%) in the study have undergone surgery which is classified as contaminated and 7 of them have undergone clean surgery. (Table 4).

In our study 71.92% were operated with midline incision and 12 cases (21.05%) were operated using Mc Burney's. (Table 5).

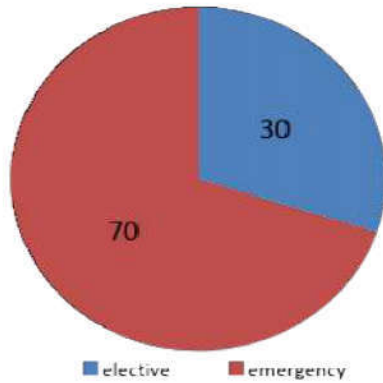


Graph 1: Incidence of abdominal wound dehiscence in different age group

Table 5: Different incisions contributing to wound dehiscence

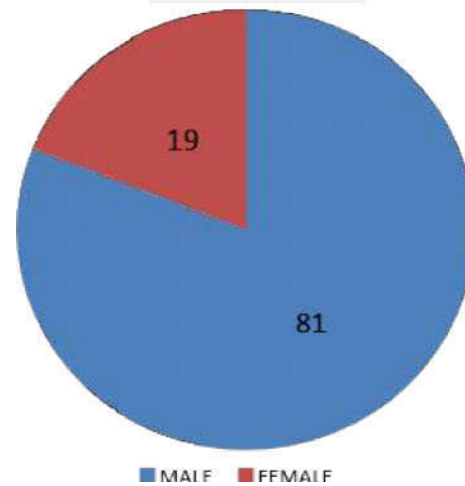
Type of incision	No. of cases	Total
Midline	41	71.92
Kocher's	1	1.75
Roof Top	1	1.75
Pfannenstil	1	1.75
Loin	1	1.75
Mc Burney's	12	21.05
Total	57	

abdominal wound dehiscence



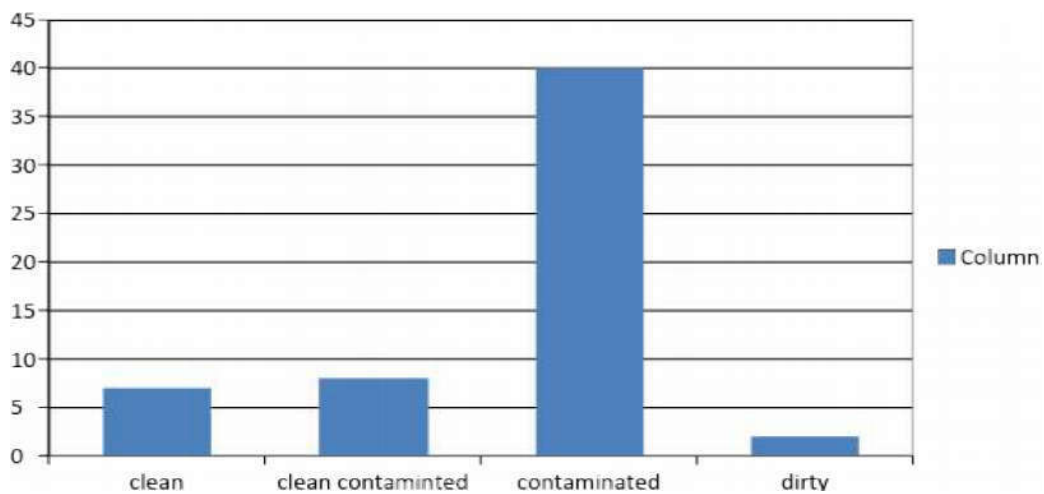
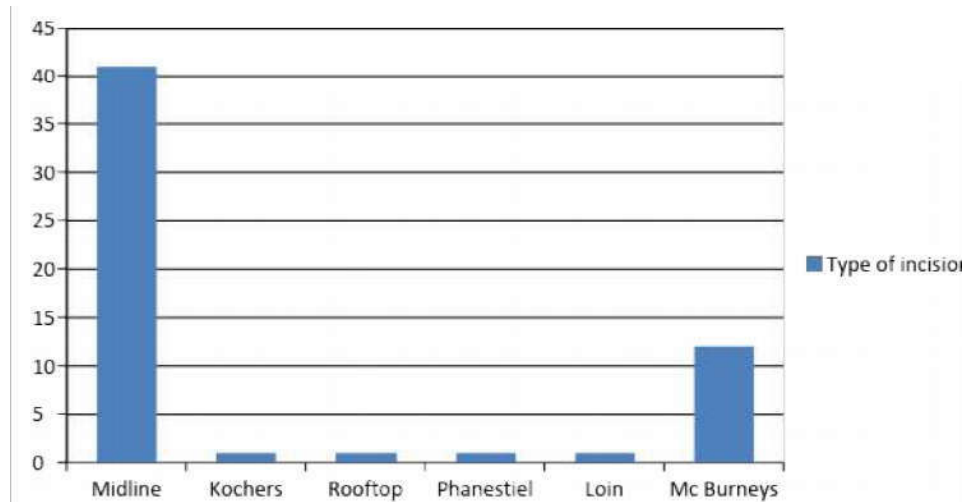
Graph 3: Comparison of elective and emergency status in abdominal wound dehiscence

GENDER



Graph 2: Gender Wise Distribution

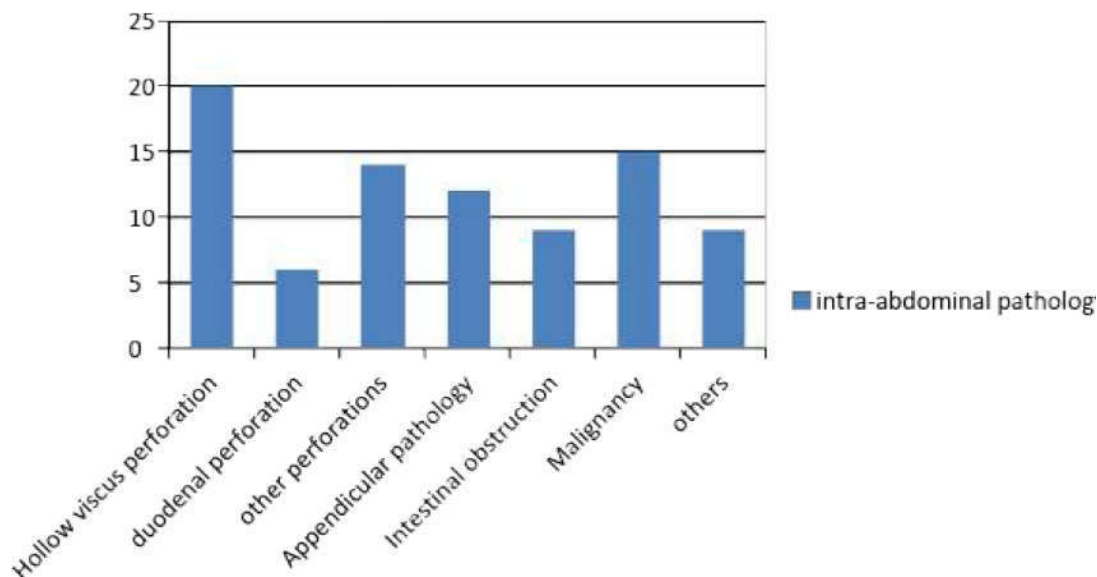
Graph 4: Type of surgical wound developing abdominal wound dehiscence



Graph 5: Frequency of abdominal wound dehiscence in relation to type of incision

Table 6: Distribution of patients with abdominal wound dehiscence according to underlying intra abdominal pathology

Diagnosis	No. of Cases
Hollow viscus perforation (A+B) Excluding Appendicular pathology	20
A-Duodenal perforation (DP)	6
B-Other Perforations [GP-6(Ca-3), IP-8]	14
Appendicular pathology (AA-10,AP-2)	12
Intestinal obstruction (SABO-4,CACO-3,AIO-1,SV-1)	9
Malignancy (GP-3,CACO-3,CACE-3,CAST-1,CARE-1,PHWD-1,SABO-1,GBPOL-1,CAP-1)	15
Others (RLS-1,BTA-2,PUH-4,PHWD-1)	9
Total- (It is more than 57 because few patients belong to more than one group.)	85

**Graph 6:** Distribution of patients with abdominal wound Dehiscence according to underlying intra abdominal Pathology

Total 57 patients have 85 diseases, as few patients have diseases belonging to more than one group, eg: malignancy with obstruction, malignancy with perforation. (Table 6).

Discussion

Clinical presentations in post laparotomy sequelae was studied, all patients who developed abdominal wound dehiscence after operation in MVJ Medical College and Research Hospital were studied. A total of 57 cases were included.

3500 abdominal laparotomies were performed in Department of Surgery of Mesologgi General Hospital showed high male predominance [5] which was in accordance to our study, males predominated the picture with the ratio of 4.18:1. This male predominance may be due to the higher incidence of hollow viscus perforation and intestinal obstruction in male sex (78%). 70 years was noted as the mean age in a study conducted at Hospital University Rio, Dr. Joseph Trueta, Spain on 12,622 patients who underwent laparotomy who had wound dehiscence [6]. In our

study, the mean age of patients shown to be 43.68 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, showed that infections and wound dehiscence were commonly noted in patients undergoing emergency surgeries which was in accordance with our study [7]. Our study showed that abdominal wound dehiscence is more commonly in patients operated for peritonitis due to hollow viscus perforation. In a study conducted in 2007, 3500 abdominal laparotomies were performed in department of surgery of Mesologgi General Hospital and Urban Community Teaching Hospital showed that 60% of the patients operated who developed wound dehiscence were operated in emergency. In our study, 70.17% of patients who underwent emergency surgery developed abdominal wound dehiscence ($p < 0.0001$).

Vertical incision carries more risk in terms of wound dehiscence which was observed in a Study

conducted in Department of Surgical Gastroenterology, University of Copenhagen, Hvidovre Hospital in 2017 .41 patients who underwent surgery with midline incision had wound dehiscence in our study .

Four percent mortality was noted in a study carried out at Oulu university Hospital, among 48 patients who developed wound dehiscence,65% patients had nutritional risk factors [8].

In our study, haemoglobin < 10 g% was noted in about 43.8% of patients. The other risk factors study included, old age, preoperative malnutrition. Another variable which was noted is Operating surgeon's experience

In a study conducted by Khan et al., Chronic liver Disease with Ascites, Chemotherapy, hiccups were noted as risk factors, which were not present in any of the patients in our study [9].

Limitations of this Study

Small sample size which leads to smaller representation

Conclusion

Significant Risk Factors for the Development of Post-Operative Abdominal Wound Dehiscence: Patient factors like elderly age , gender predominance among males, anaemia, nutritional factors , obesity, patients who have undergone emergency procedure. wound infection and wound dehiscence were noted in midline incisions, improper suture technique and improper aseptic precautions .These can be prevented by maintaining proper nutritional status and strict asepsis and strict aseptic surgical techniques.

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