

A Clinical Study on Abdominal Wound Dehiscence and Its Management

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Abstract: Wound dehiscence is the most dreaded complications faced by surgeons having incidence ranges from 0.4% to 3.5% in post operative patients. It is of greatest concern because of risk of evisceration, the need for immediate intervention, and the other complications and has mortality rates reported as high as 45%. Various risk factors are responsible for wound dehiscence such as emergency surgery, intraabdominal infection, malnutrition (hypoalbuminaemia, anaemia), advanced age >65yrs, systemic diseases (uremia, diabetes mellitus) etc. This retrospective observational study which was carried out on 50 patients clinically presenting as gaping of abdominal wound and discharge from the surgical site admitted in Department of Surgery, People's College of Medical Sciences & Research Centre Bhopal from November 2013 to October 2016. The details of the patients with regard to date of admission, clinical history regarding the mode of presentation, significant risk factors, Postoperative course, disease diagnosed and day of diagnosis of wound dehiscence were recorded and studied. In this study we concluded that postoperative abdominal wound dehiscence can be prevented by improving the nutritional status of the patient, strict aseptic precautions, avoiding midline incisions and by proper surgical technique.

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I. Introduction

Wound dehiscence is described as partial or complete disruption of an abdominal wound closure with or without protrusion and evisceration of abdominal contents. There are two basic types of wound dehiscence partial or complete, depending on the extent of separation. In partial dehiscence, only the superficial layers or part of the tissue layers reopen. In complete wound dehiscence, all layers of the wound thickness are separated, revealing the underlying tissue and organs. It is among the most dreaded complications faced by surgeons and of greatest concern because of risk of evisceration, the need for immediate intervention, and the possibility of repeat dehiscence, surgical wound infection, and incisional hernia formation. Abdominal wound dehiscence is severe postoperative complication, with mortality rates reported as high as 45%. Incidence as described in literature ranges from 0.4% to 3.5%. Various risk factors are responsible for wound dehiscence such as emergency surgery intraabdominal infection, malnutrition (hypoalbuminaemia, anaemia), advanced age >65yrs, systemic diseases (uremia, diabetes mellitus) etc. Mortality and morbidity in the form of prolonged hospital stay, increased economic burden on health care resources and long term complication of incisional hernia can be reduced by highlighting the risk factors for wound dehiscence, the incidence rate. In our study we identified the risk factors responsible for abdominal wound dehiscence and its incidence in elective and emergency operation and also incidence based on type of incision taken during operation, identify the type of disease involved in causing abdominal wound dehiscence, this all will help us in avoidance or in management of cases of wound dehiscence.

II. Material and Methods

This prospective observational study was carried out on patients clinically presenting as gaping of abdominal wound and discharge from the surgical site admitted in Department of Surgery, People's Hospital Bhopal, attached to People's College of Medical Sciences & Research Centre Bhopal from November 2013 to October 2016. A total of 50 patients with diagnosis of wound dehiscences were in this study.

Study Design: Retrospective observational study

Study Location: This was a tertiary care teaching hospital based study done in Department of Surgery, People's Hospital Bhopal, attached to People's College of Medical Sciences & Research Centre Bhopal Madhya Pradesh

Study Duration: November 2013 to October 2016

Sample size: 50 patients

Inclusion criteria:

1. Patient more than 14 years of age and of either sex.
2. Patients presenting with abdominal wound dehiscence after undergoing Elective or Emergency operation.

Exclusion criteria:

1. Patients less than 14 years of age.
2. All female patients who developed wound dehiscence after any gynaecological procedures.
3. All patients with incisional hernia.
4. All patients who refuse investigation and treatment.

Procedure methodology

After obtaining well informed written consent, all the patients with features suggestive of wound dehiscences were enrolled for the study and the details of the patients with regard to date of admission clinical history regarding the mode of presentation, significant risk factors like, anaemia, malnutrition, obesity, chronic cough, smoking, alcoholism were noted. Investigations, time and type of surgery. Intraoperative findings and classification of surgical wounds noted. Postoperative course, disease diagnosed and day of diagnosis of wound dehiscence were recorded and studied.

III. Results

Table 1: Incidence of Abdominal Wound Dehiscence in Different Age Groups

Sno.	Age (years)	Frequency	Percentage
1	21-30	4	8
2	31-40	11	22
3	41-50	11	22
4	51-60	13	26
5	61-70	9	18
6	>70	2	4
	Total	50	100

Majority of patients belonged to the age group between 51-60 years, youngest patient was 22 year old and oldest patient was 84 years. The mean age of patients affected was 47.62yrs.
Male : Female ratio was 1.63

Table 2: – Comorbid condition at the time of admission

Sno.	Comorbid Condition	Number	Percentage
1	Diabetes mellitus	16	32
2	Hypertension	19	38
3	Pulmonary disease	12	24
4	Malnutrition	18	36
5	Anemia	24	48
6	Drug history	1	2
7	Chronic renal failure	2	4
8	Malignancy	4	8
9	Intra abdominal infection	30	60
10	Radiation	0	0

Diabetes mellitus, Hypertension and Anaemia etc are important risk factors for wound dehiscence.
Results

Table 3: Effect of type of Surgery in Development of Abdominal Wound Dehiscence

Sno.	Type of surgery	Frequency	Percentage
1	Elective	8	16
2	Emergency	42	84
	Total	50	100

Study suggest wound dehiscences is more common in patient having emergency surgeries

Table 4: Frequency of abdominal wound dehiscence in relation to type of incision

Sno.	Incision	Frequency	Percentage
1	Upper midline	14	28
2	Midline	25	50
3	Lower midline	11	22
Total		50	100

Maximum patient were operated with mid line incision followed by upper midline incision, and lower midline incision

Table 5: Distribution of patients with abdominal wound dehiscence according to underlying intraabdominal pathology

Sno.	Intraabdominal pathology	Frequency	percentage
1	Appendicular perforation	7	14
2	Blunt trauma abdomen	3	6
3	duodenal ulcer perforation	15	30
4	Intestinal Perforation	11	22
5	Intestinal obstruction	11	22
6	Others	3	6
Total		50	100

Out of 50 cases 26 pts had peritonitis secondary to hollow viscus perforation and 11 are diagnosed with intestinal obstruction.

Table 6: Incidence of wound dehiscence in relation to Altered biochemical parameters

Sno.	Investigation	Frequency	Percentage
1	Hyperbilirubinemia (total bilirubin >1.5mg/dl)	6	12
2	Hypoproteinemia (albumin<2.9gm/dl)	21	42
3	Raised liver enzyme	4	8
4	Anemia (Hb level <10gm/dl)	24	48
5	Hypokalemia	20	40
6	Hyponatremia	15	30
7	Blood urea (>40mg/dl)	31	62
8	Serumcreatinine (>1.2mg/dl)	31	62

Maximum incidence of wound dehiscenes seen in anemia followed by hypoproteinemia and hypokalemia

Table 7: Duration of Stay in Hospital

Sno.	Duration of stay (days)	Frequency	Percentage
1	15 - 25	22	44
2	26-35	23	46
3	36-45	4	8
4	>45	1	2
Total		50	100

Average stay was 23.2 which increases economic burden both on hospital and patients.

Table8: Type of management of wound dehiscenes done

Sno.	Management	Frequency	Percentage
1	Conservative (secondary intention)	20	40
2	Secondary suturing	27	54
3	Tension suturing	3	6
Total		50	100

Secondary suturing was the most common procedure followed for management of patients with wound dehiscence.

Table 9– Showing outcomes in wound infection

Sno.	Outcome	Frequency	Percentage
1	Mortality	3	6
2	Survive	47	94
Total		50	100

Mortality was mainly due to post operative complication like septicaemia and respiratory tract infection.

IV. Discussion

In this study mean age of presentation was 47.62 yrs, since incidence of perforation and intestinal obstruction was common in this age group whereas in study by S H Waqar¹ et al and John Spiliotis et al² it was 39.67yrs and 69.5 years. In this study males predominated the picture with the ratio of 1.6:1. This male predominance may be due to the higher incidence of peptic ulcer perforation and intestinal obstruction in male sex and in study carried out by John Spiliotis et al² and Gabriele H.van Ramshorstet al³ it was 3:2 and 3:1. In this study 84% of patients who underwent emergency surgery developed abdominal wound dehiscence but in study by Afzal S et al⁴ it was 90%. In this study mean post operative day to develop wound dehiscence was 9th day and is similar to study by John Spiliotis et al² and Gabriele H.van Ramshorstet al³

In this study 48% of patients had anaemia,38% had hypertension, 36 % had malnutrition, 32% had diabetes mellitus and sepsis being a major determinant of condition with 60% of the cases similar to study by Afzal S et al⁴ and John Spiliotis et al² which also signifies that above mention factors plays a crucial role in developing wound dehiscences, Our study showed that abdominal wound dehiscence is more commonly in patients of hollow viscus perforation i.e. in 52% patients and mainly in those who undergone emergency surgery similar to what observed by GranamDJ and Stevenson JT et al⁵. In a Study conducted by Grantcharov TP, Rosenberg J. Et al⁶ shows that the incidence of abdominalwound dehiscence and burst abdomen is more common in patients with vertical incision than in those with transverse incision, in our study also 50% of patients who underwent surgery with midline incisions and 28% of patients with upper midline incisions were suffered from wound dehiscence

V. Conclusion

In our study we concluded that 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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