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General Surgery

A STUDY OF BURST ABDOMEN: ITS CAUSES AND MANAGEMENT

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ABSTRACT **Background:** Burst abdomen (abdominal wound dehiscence) is a severe post-operative complication. Burst abdomen is defined as post-operative separation of abdominal musculo-aponeurotic layers. The study aims to find etiological factors of burst abdomen in hospitalised patients, evaluate current management methods and to compare conservative and operative approach with respect to complication and outcomes.

Methods: All cases presenting with abdominal wound dehiscence after surgery were included. An elaborate clinical history was taken in view of the significant risk factors, the types of surgery performed, type of disease involved and management methods and their outcome. A total of 30 cases were included in this prospective study. Data was analyzed using appropriate software.

Results: The results concluded that male patients have a higher incidence of laparotomy wound dehiscence and in 5th decade. Patients presenting with peritonitis secondary to gastro-duodenal perforation are more prone to burst abdomen.

Conclusions: Burst abdomen is a serious sequel of impaired wound healing. Presence of anaemia, hypoproteinaemiafavours high incidence of burst abdomen. Delayed suturing, of burst abdomen has a lower frequency of complications. Adherence to proper technique and sincere efforts to minimize the impact of the predisposing factors play a much larger role in both treatment and prevention of this condition.

KEYWORDS : Abdominal wound dehiscence, Burst abdomen

1. INTRODUCTION

Burst abdomen (abdominal wound dehiscence) is a severe post-operative complication. Incidence asdescribed in literature ranges from 0.4% to 3.5%[1] Burst abdomen is defined as post-operative separation of abdominal musculo-aponeurotic layers, which is recognised within days after surgery and requires some form of intervention. Various risk factors are responsible for wound dehiscence such as emergency surgery, intra-abdominal infection, malnutrition (hypoalbuminemia, anaemia), advanced age,systemic diseases (uraemia, diabetes mellitus) etc[2]. Good knowledge of these risk factors is mandatory for prophylaxis[3]. Patient identified as being high risk may benefit from close observation and early intervention.

The study aims to find etiological factors of burst abdomen in hospitalised patients, evaluate current management methods and to compare conservative and operative approach with respect to complication and outcomes.

2. METHODS

This is a prospective study carried out from August 2018 to August 2020 in the Department of General Surgery, L.G. Hospital, Maninagar, Ahmedabad, Gujarat, India.

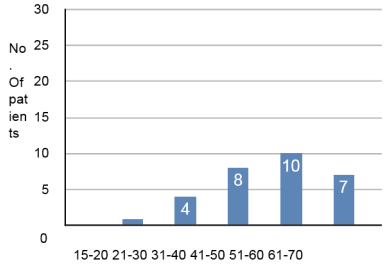
Total 30 patients who underwent both emergency or elective abdominal procedure and developed post- operative dehiscence during the study period were included. The inclusion criteria used were patients above 18 years of age of either sex, who gave consent for investigations and treatment. Exclusion criteria being primarily operated outside or patient who had undergone previous laparotomy for any condition (or had an incisional hernia or burst abdomen).

A comprehensive history and thorough physical examination with any other relevant history were recorded. Statistical analysis was processed using Excel software programs. Observations are represented as bar diagrams and pie charts.

RESULTS

Age

The youngest patient was 21 years old and the oldest patient was 70 years old. The highest incidence of burst abdomen in the present study was between 51 and 60 years of age, the average age being approximately 49 years. The patients in this study were in the range of 49±13.5 (standard deviation) years.



Age group of study participants (in years)

Figure.1Age and number of study participants with burst abdomen

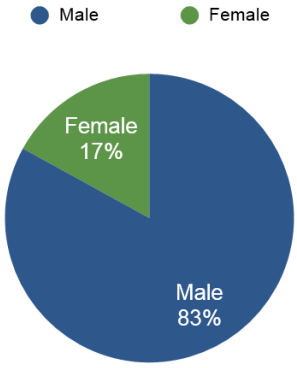


Figure.2 Sex Distribution In Cases Of Burst Abdomen

Sex distribution

In present study, 25 patients (83.3%) of the patients were male and the remaining 5 (16.7 %) were females. The male: female ratio was approximately 5:1.

Preoperative predisposing causes

The study showed that the majority of patients had intra- abdominal sepsis (24 patients) and anaemia (22 patients) as preoperative predisposing factors. Many patients had more than one predisposing factor.

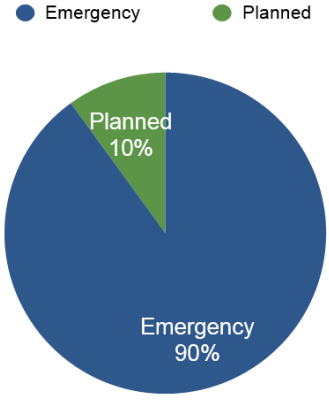


Figure.3 Incidence Of Burst Abdomen In Planned And Emergency Cases

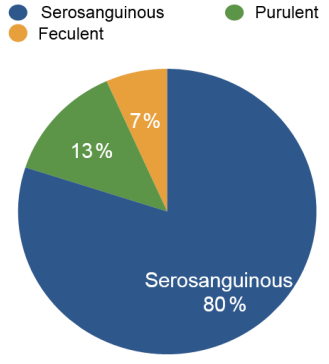


Figure.4 Post-operative Wound Discharge

Planned or emergency surgery

The incidence of burst abdomen was much higher in patients operated as emergency surgery (27/30) as compared to planned surgery (3/30).

Intra-abdominal pathology and its origin

Indication of laparotomy being perforation peritonitis are most commonly being gastro duodenal perforation (29.26%) and Ileal perforation (19.51%) other indication.

Type of closure

Mass closure was the standard technique used in all the cases in the series, the technique involves incorporating all of the layers of the abdominal wall (except skin) as one structure. Continuous sutures with No.1 Polyamide were used in 20 patients, in other 10 patients, abdomen was closed with simple interrupted Polyamide sutures.

Time of disruption

The majority of burst abdomen occurred between 7th and 10th post-operative day, with the highest incidence on the 7th post-operative day.

Post-operative wound discharge

In present study, 24 patients out of 30 had serosanguinous discharge from the wound. 4 patients out of 30 had purulent discharge. 2 patients experienced feculent discharge from wound site.

Partial or complete burst

In present study, 18 patients out of 30 (60%) had complete burst involving the whole length of the wound while 12 patients out of 30 (40%) had partial burst.

Culture of discharge

Gram-negative organisms were the ones most commonly grown from culture of the wound discharge

Table.1 Mode Of Treatment Given To The Patients Of Burst Abdomen

Group	Treatment given	Percentage	No. of cases
I	Immediate resuturing with tension suture	15.49%	5
II	Immediate resuturing without tension suture	21.95%	7
III	Delayed secondary suturing	47.56%	14
IV	Conservative management	14.63%	4

Table.2 Predisposing Factors Observed In Present Study, Out Of 30 Cases

Predisposing factors	No. Of cases
Intra abdominal sepsis	24
Anemia	22
Hypoproteinemia	18
Chest disease	16
Diabetes	9
Uraemia	10
Jaundice	6

Table.3 Frequency Of Pathologies Among Patients

Indication	Percentage	Cases
Gastro duodenal perforation	29.26%	9
Ileal perforation	19.51%	6
Intestinal obstruction	18.29%	5
Malignancy	14.63%	4
Large bowel perforation	7.31%	2
Koch's abdomen	2.43%	1
Stab injury	4.87%	1
Blunt trauma abdomen	3.65%	2

Table.4 Comparison Of Outcome In The Four Management Groups

	GROUP I	GROUP II	GROUP III	GROUP IV	PERCENTAGE	No. of cases
Full recovery	4	2	8	0	46.67%	14
Incisional hernia	1	0	4	3	26.67%	8
Re-burst	0	0	3	0	10%	3
Death	1	2	3	2	26.67%	8

5. CONCLUSIONS

Burst abdomen is a serious sequel of impaired wound healing. Presence of anaemia, hypoproteinaemiafavours high incidence of burst abdomen. Gram negative bacteria are most common organism involved in abdominal wound dehiscence. When operative and conservative treatment was compared, it was found that retention suture placement helped to decrease the frequency of complications when immediate resuturing was performed. The conservative approach had a higher morbidity. Hence delayed suturing, which had a lower frequency of complications in this study, may serve as a "middle path" between the two options. Burst abdomen remains a dreaded post-operative complication. Newer materials and devices continue to be developed and may simplify the treatment of burst abdomen, but adherence to proper technique and sincere efforts to minimize the impact of the predisposing factors play a much larger role in both treatment and prevention of this condition.

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