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Clinical study of various comorbidities that lead to abdominal wound dehiscence following emergency laparotomy

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Abstract
Background and Objective: Abdominal Wound dehiscence is described as partial or complete disruption of an abdominal wound closure with or without protrusion and evisceration of abdominal contents. Wound dehiscence carries with it a substantial morbidity and mortality. The need of this study is to identify the important risk factors of abdominal wound dehiscence post emergency laparotomy.
Methods: Total 180 patients undergoing emergency laparotomy were selected. Each case examined clinically and properly and an elaborative study of history based on chief complaints, risk factors, investigations, type of surgery performed and postoperative events and day of onset of wound dehiscence. Examination of wound was started from third postoperative day onwards and was continued till, suture removal and scar formation. All patients were followed up for three months.
Results: The incidence of abdominal wound dehiscence is more common in male patients and in 5-6th decade. Patients with peritonitis due to hollow viscus perforation and intestinal obstruction carried higher risk of abdominal wound dehiscence. Patient with DM were more prone for wound dehiscence. Post-operative abdominal wound dehiscence was more common in patients operated with midline incision. Patients with anaemia (Hb% <10g %), jaundice and BMI less than 18 and more than 25 had higher incidence of wound dehiscence.
Conclusion: Intraperitoneal infection is the most important factor in predicting burst abdomen. Malnutrition, anemia, abdominal distension correctly predict burst in every case. Investigations like Hb%, RBS, RFT, LFT may help to detect predisposing factors. Surgeon factor like midline incisions, aseptic precautions play a key role in post laparotomy wound dehiscence. Wound dehiscence can be prevented by improving nutritional status of patient proper surgical technique and correcting co morbid condition.

Keywords: abdominal wound dehiscence, emergency laparotomy, peritonitis, midline incision, co-morbidities

Introduction

Abdominal wound dehiscence is a known complication of emergency laparotomy in Indian setup. Abdominal Wound dehiscence/burst abdomen is described as partial or complete disruption of an abdominal wound closure with or without protrusion and evisceration of abdominal contents [1]. Wound dehiscence carries with it a substantial morbidity and mortality. In addition there is an increase in the cost of the care both in terms of increased hospital stay, nursing and manpower cost in managing the burst abdomen and its complication. At sixth and eighth day after operation an abdominal wound bursts open and viscera are extruded. Many patients in India have a poor nutritional status and the presentation of patient with peritonitis is often delayed [2]. This makes the problem of wound infection and dehiscence more common and graver in our setting as compared to the west [3].

Aims and objectives

1. To identify comorbidities in patients developing abdominal wound dehiscence.
2. To study the type of incision leading to wound dehiscence.
3. To study the incidence of wound dehiscence in emergency laparotomy.

Materials and methods

Source of data

- In this prospective observational study total 180 patients undergoing emergency laparotomy in Department of General Surgery at K.V.G Medical College and Hospital, Sullia Between December 2018- June 2020 were taken for studies.
- After admission, patients were examined in detail regarding chief complaints, onset, duration, general physical and systemic examination and diagnostic investigations.
- Patients co-morbidities, previous surgeries, addictions were Also taken into consideration.

Inclusion Criteria

- All patients above the age of 18 years undergoing emergency laparotomy in Department of General Surgery at K.V.G Medical college and Hospital.

Exclusion Criteria

1. All patients with incisional hernia.
2. Female patients who developed wound dehiscence after any

gynaecological procedures.

3. All patients with wound dehiscence on sites other than the abdomen.

Results

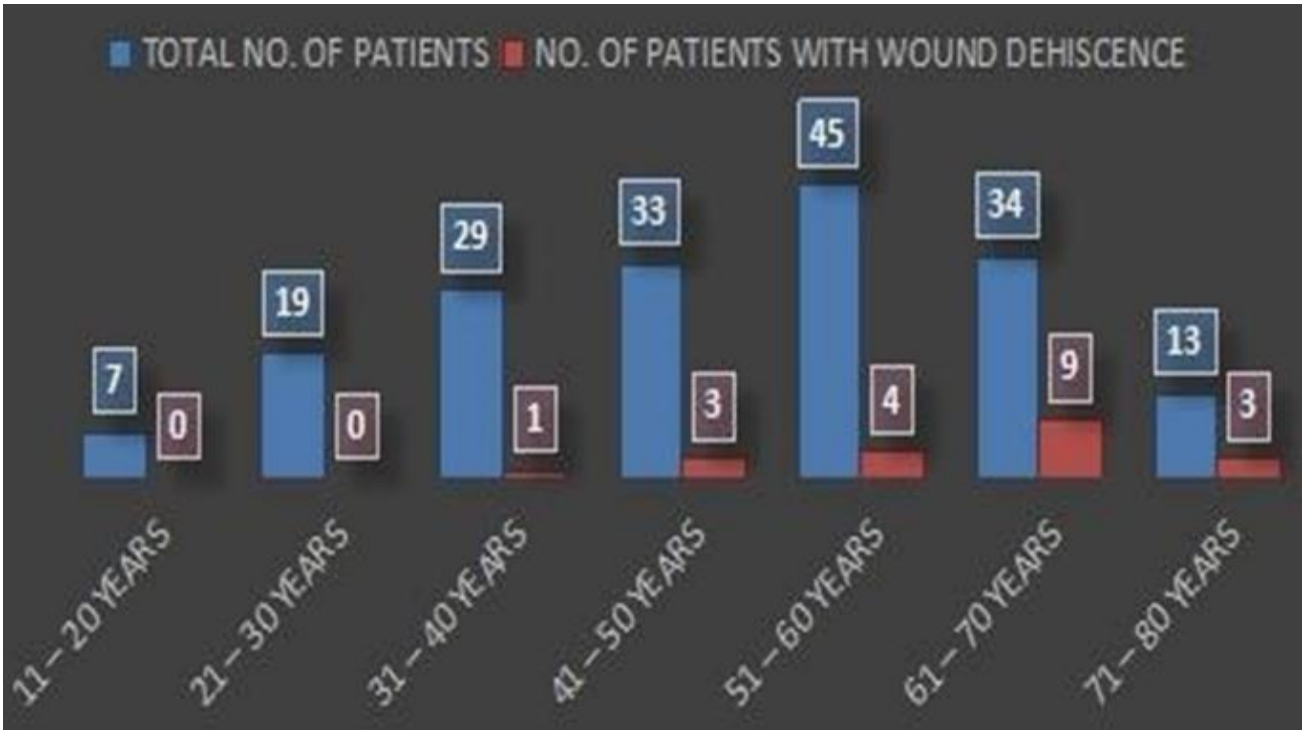

Fig 1: Distribution of Wound Dehiscence Patients Based on Age

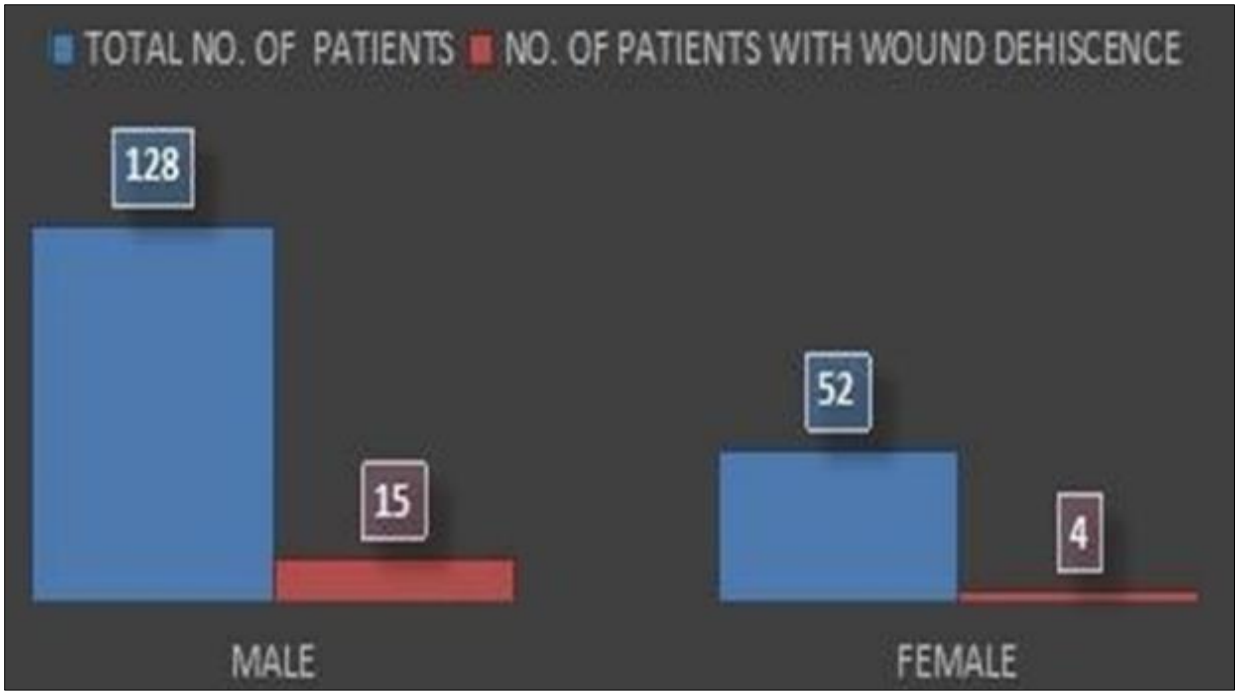

Fig 2: Distribution of Wound Dehiscent Patients Based on Gender

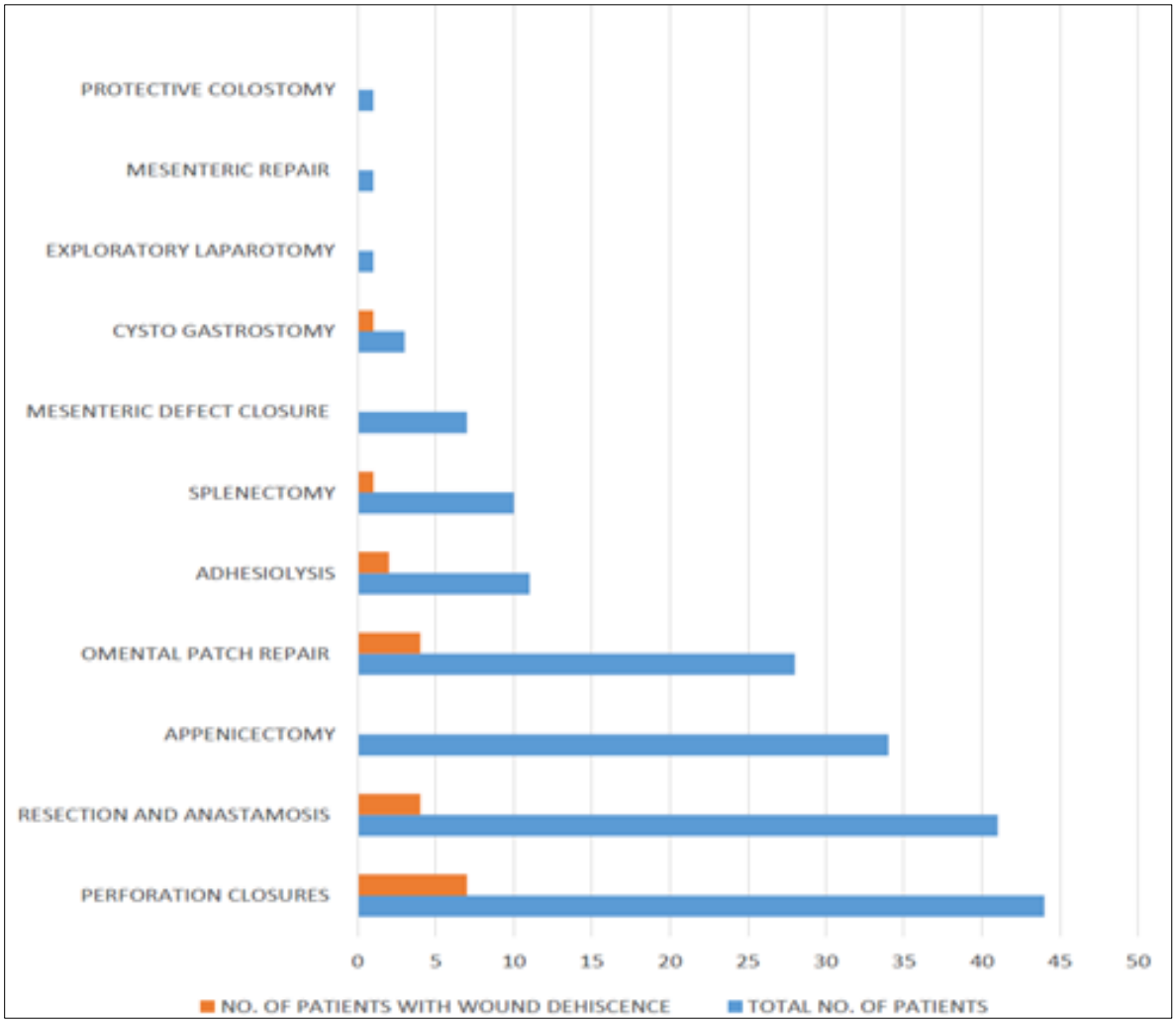

Fig 3: Distribution of Wound Dehiscent Cases on The Basis of the Surgery

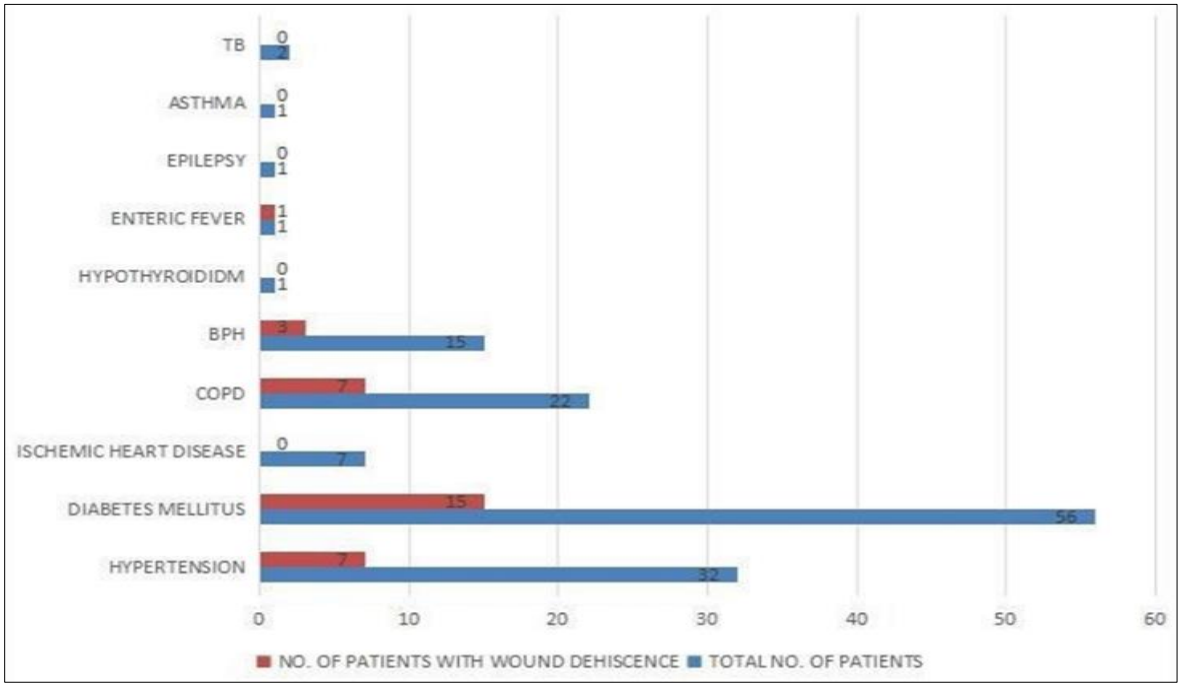

Fig 4: Relationship of Wound Dehiscence with Comorbidities

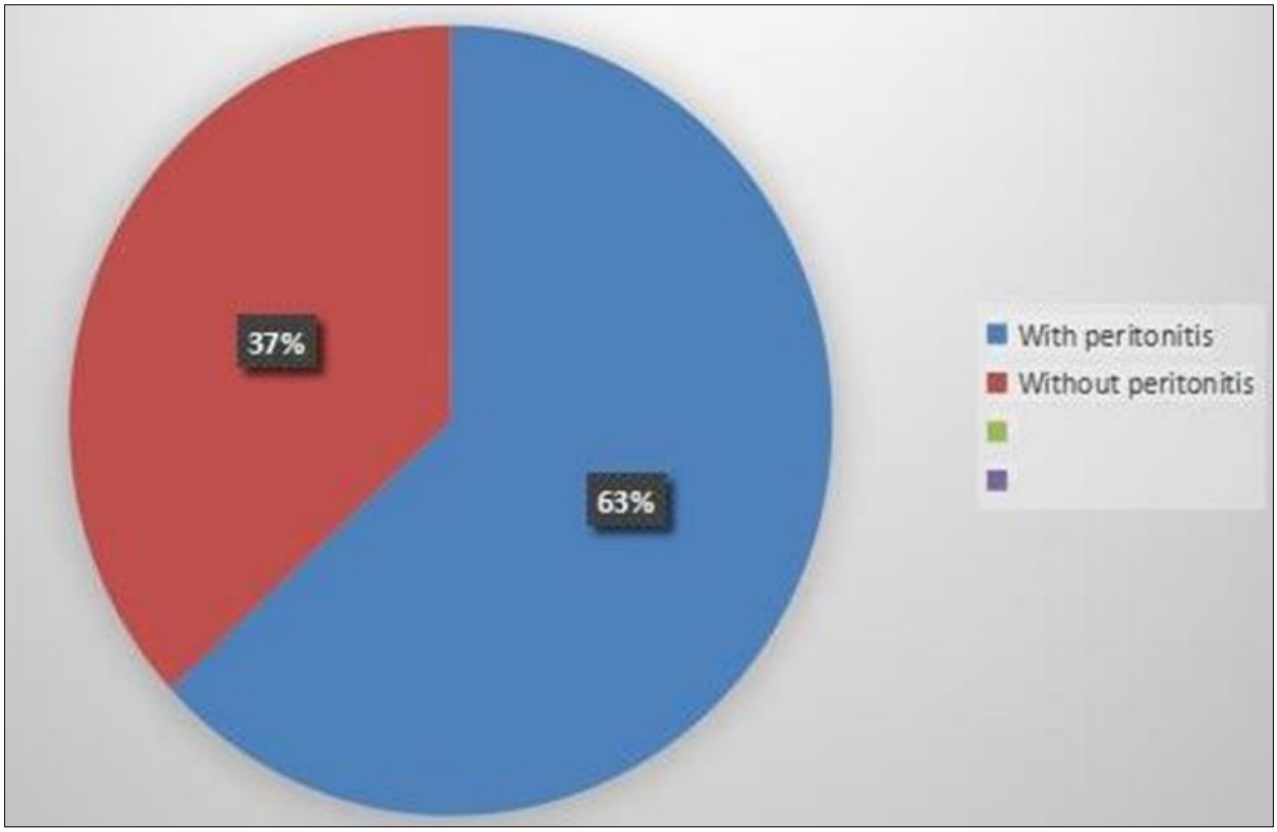

Fig 5: Patient presenting with peritonitis

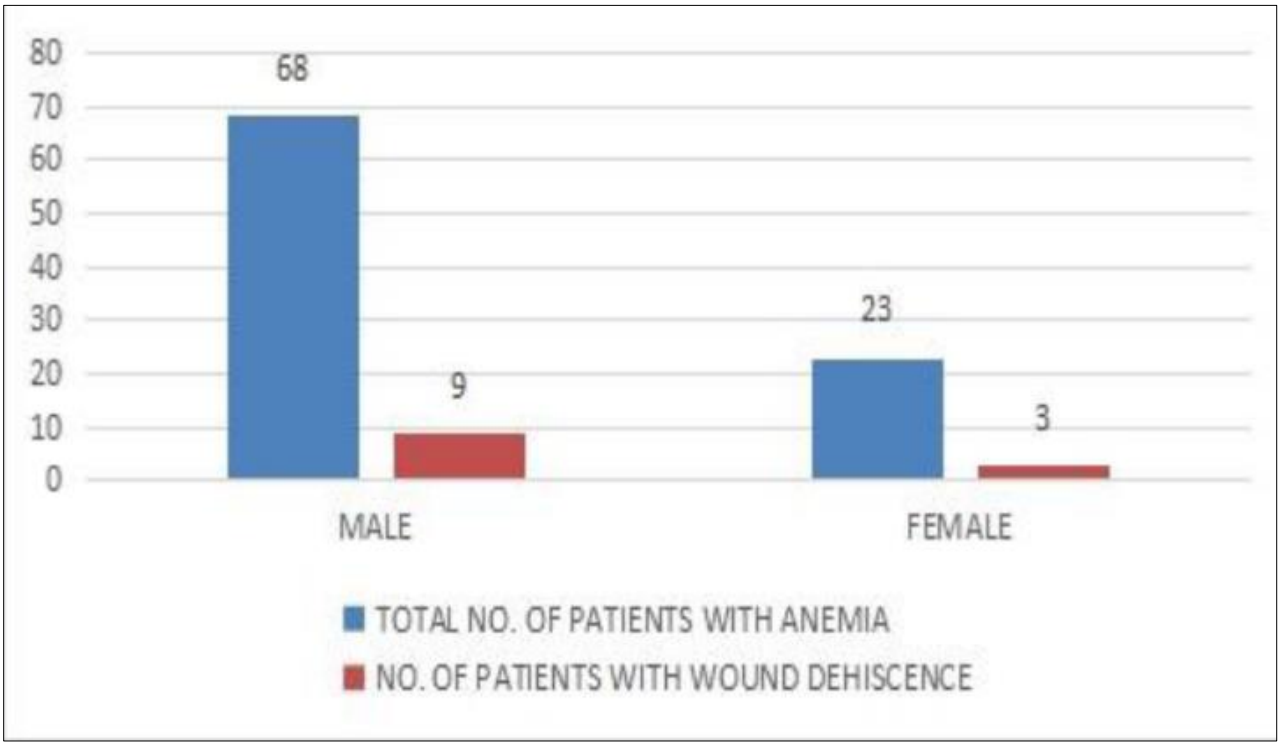

Fig 6: Relationship of Wound Dehiscence with Anemia in Patients

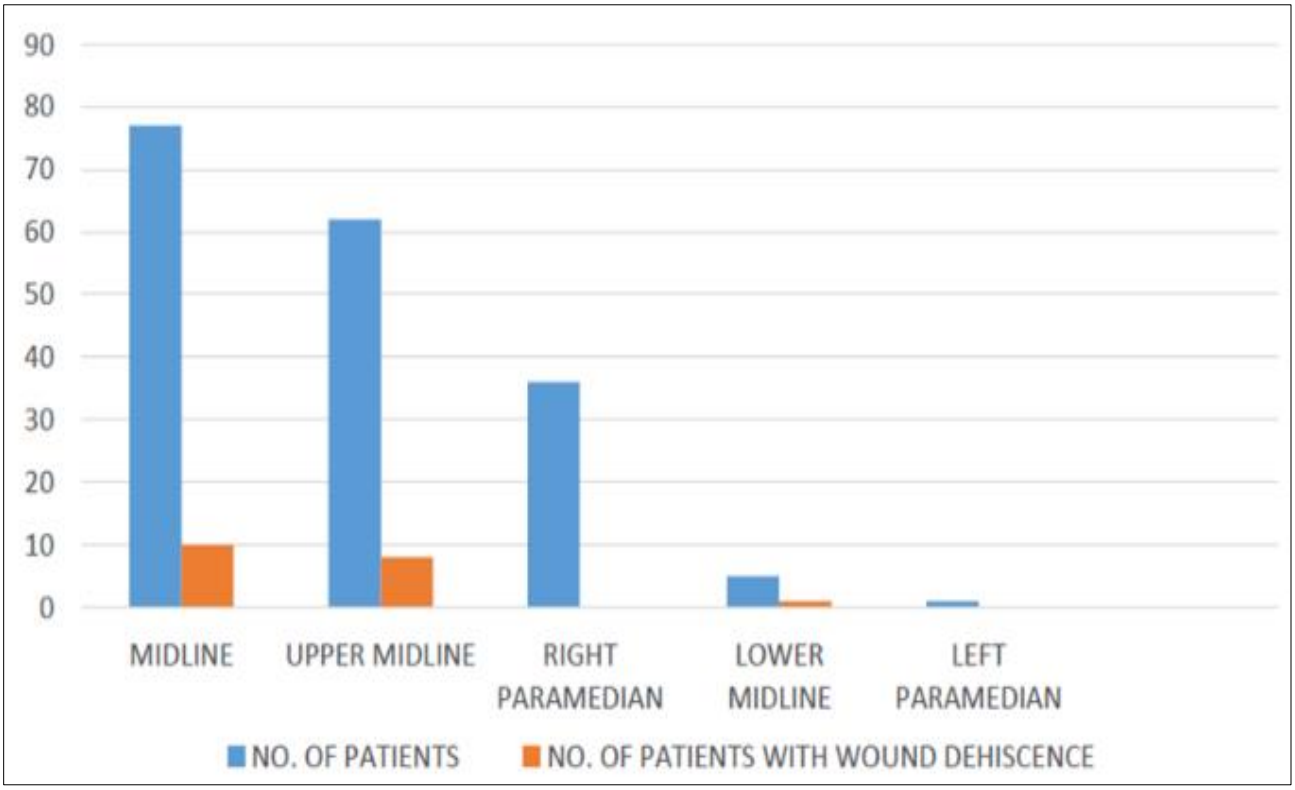

Fig 7: Relationship of Incision Performed and Wound Dehiscence

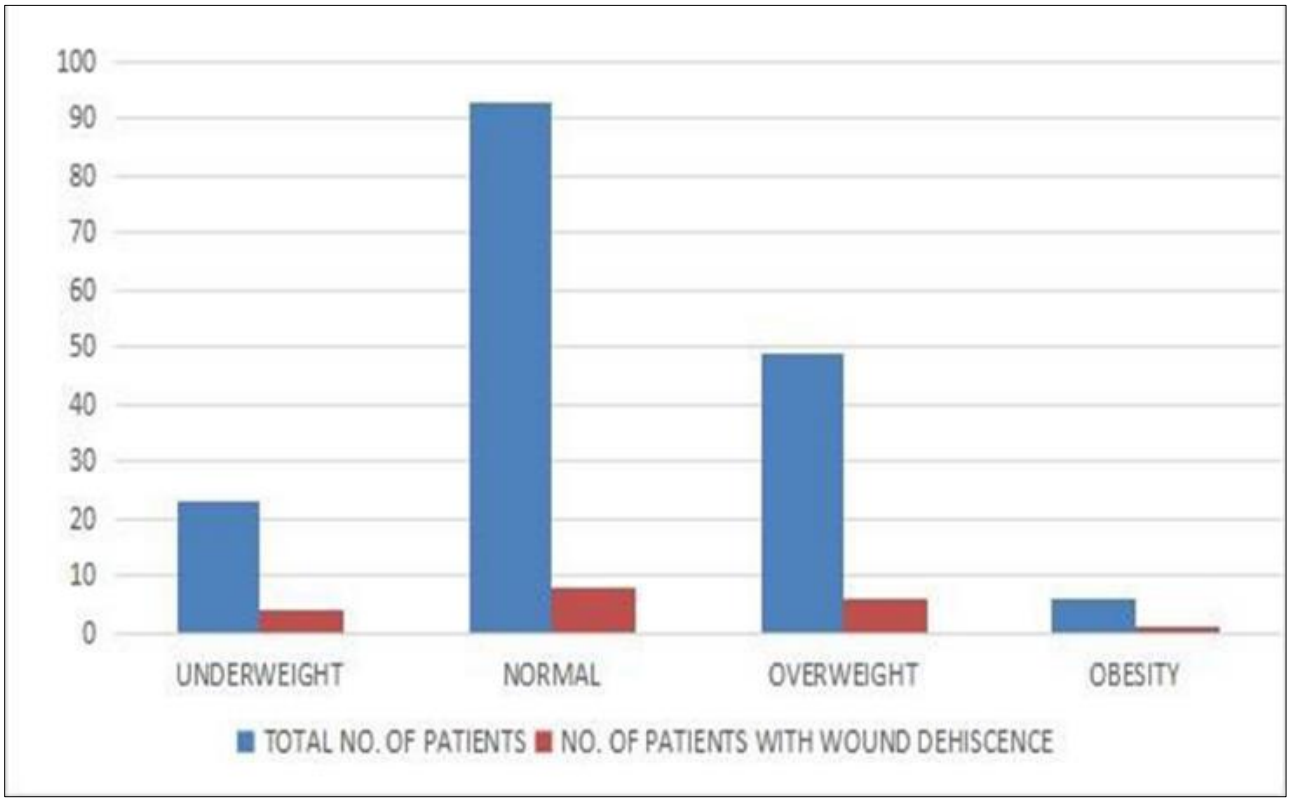

Fig 8: Relationship of Wound Dehiscence with Nutritional Status of the Patient

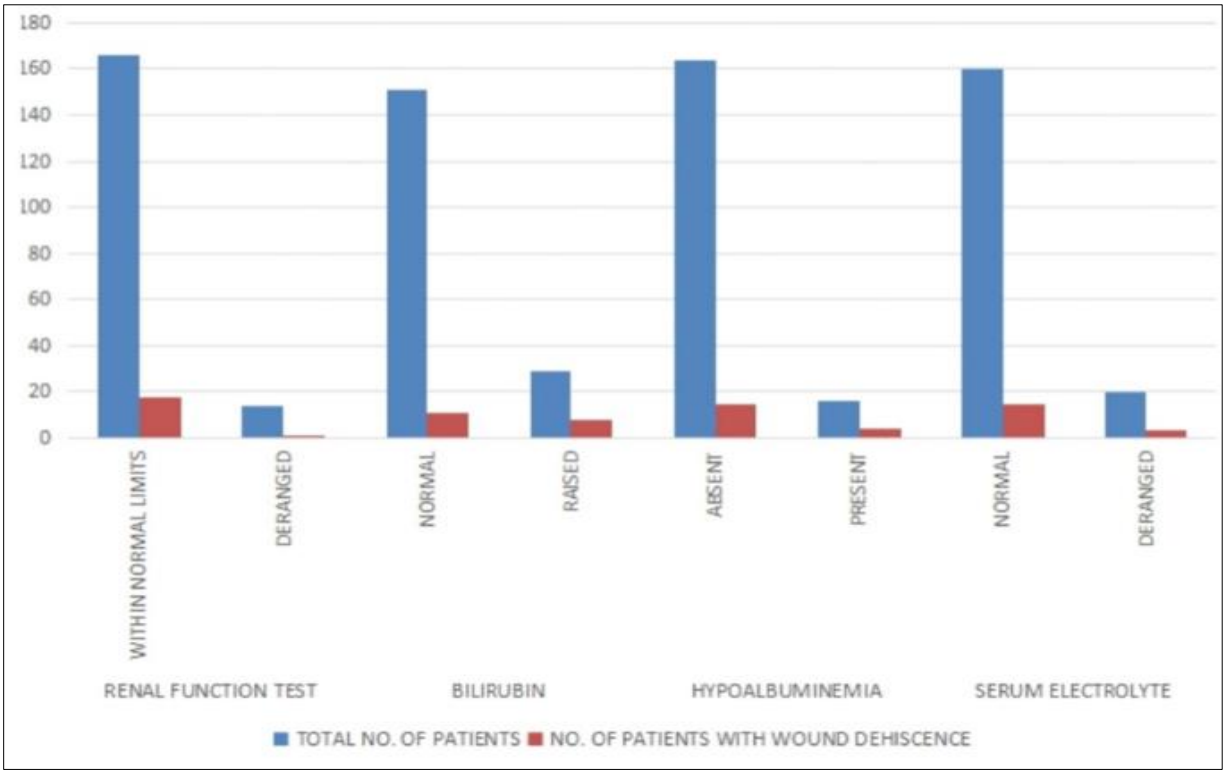

Fig 9: Relationship of Wound Dehiscence with Certain Laboratory Parameters

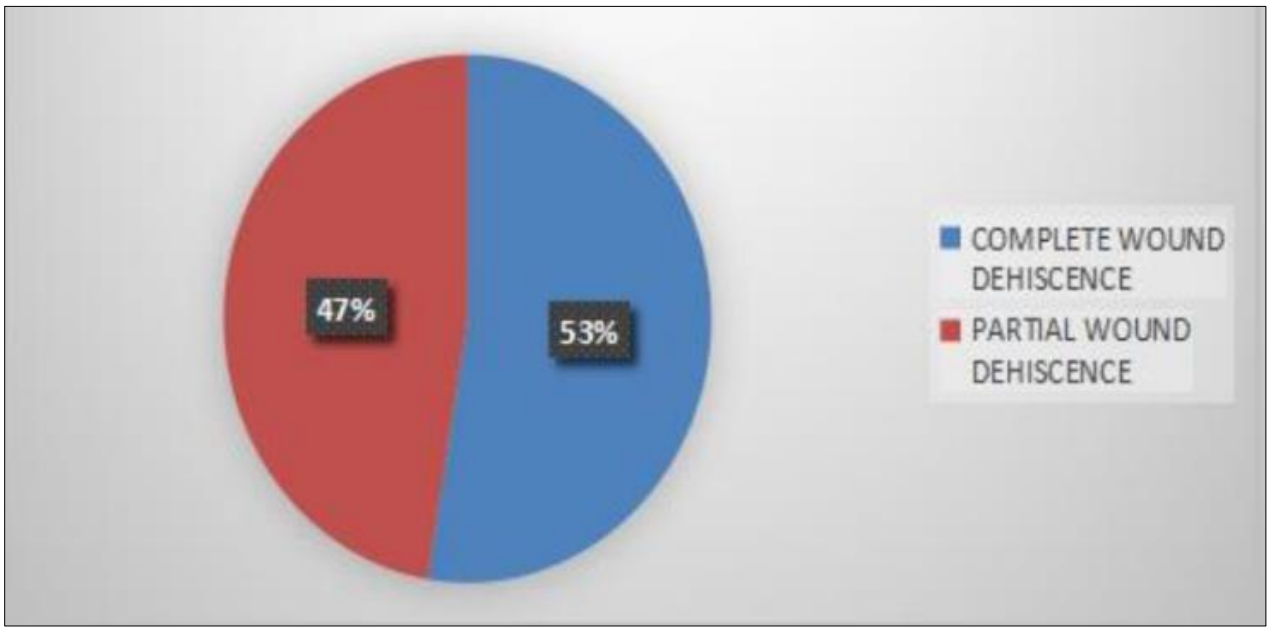

Fig 10: Type of Wound Dehiscence

Table 1: Mortality and survivals

Total no of Patients with wound dehiscence	Survivals	Mortality
19	18 (94.73)	1(5.26%)

Discussion

- Male to female ratio was 5:1.3
- Patients in age group 61-70 were found to be having highest incidence of abdominal wound dehiscence. Mean age of the patient was 65.5 years [4].
- Incidence of Abdominal wound dehiscence is more in hollow viscus perforation with peritonitis mainly gastric or duodenal ulcer perforation [5].
- Risk of abdominal wound dehiscence increases in anemic patients (Hb% < 10g %).
- Incidence of wound dehiscence is also more high in diabetic patients as compared to hypertensive patient. Risk fold increases when patient has both DM and HTN [6].
- Wound dehiscence is also more commonly seen in hyperbilirubemia and hypoalbuminemia in patients who are chronic alcoholic or may be due to viral hepatitis [7].
- Patients operated with midline incision carried higher risk for wound dehiscence than those operated with paramedian incisions [8].
- Incidence of abdominal wound dehiscence is more common in patients having their BMK18 than those having their BMI>25.

Conclusion

- Significant risk factors in abdominal wound dehiscence are old age, anemia, hypoprotinaemia, malnutrition, obesity, deranged liver function tests [9].
- Other important factor like peritonitis following hollow viscus perforation and in them patients who presented late in the emergency were at high risk of postoperative wound dehiscence [10].
- Post operatively patients with chronic obstructive pulmonary disease have more tendency to develop post laparotomy wound dehiscence due to repeated coughing which raises intraabdominal pressure leading to burst abdomen as in compared to BPH [11]
- Surgeons factors like Midline incisions which a surgeon may find easy and rapid to open and close the peritoneal cavity, gain maximum access, almost blood less, no injury to muscles and nerves, can extend upwards and downwards, and if at all need for colostomy or ileostomy if required can be easily approached. All these factors can lead to wound dehiscence.
- Post-operative wound dehiscence can be prevented if proper history of the patient regarding patients comorbidities, previous surgeries, drug history to rule out possible causes which can lead to wound dehiscence [12].
- Surgeon can start early treatment like nutritional support, blood transfusion if requires, electrolytes, improving patients respiratory pathology to overcome markers of abdominal wound dehiscence [13].

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