

Description of Post-Laparotomy Patients with Wound Dehiscence From 1st January 2019 – 31th December 2019 at Dr. Mohammad Hoesin General Hospital

Octiara Gisca Amilia¹, M. Hafidh Komar^{2*}

¹ Residence of Surgical, Faculty of Medicine, Universitas Sriwijaya, Palembang, Indonesia

² Lecture Staff, Faculty of Medicine, Universitas Sriwijaya/Digestive Surgeon of Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia

*Corresponding Author Email: drhafied@gmail.com

Abstract

Introduction: Wound dehiscence is a postoperative condition that can occur several days after surgery and requires special intervention. Various risk factors such as patients-related and surgery-related may influence the incidence of wound dehiscence. A good understanding of these risk factors is necessary to prevent the complication and decrease mortality and morbidity. This study aims to see the characteristics of patients affected by abdominal laparotomy who are treated with wound dehiscence at Dr. Mohammad Hoesin General Hospital Palembang.

Methods: This research was a cross-sectional, retrospective descriptive study. Using secondary data from the medical records of Mohammad Hoesin Hospital, Palembang. Performed in the from January 2019 to December 2019. Samples were all patients who underwent abdominal laparotomy and diagnosed with post-operative wound dehiscence.

Results: There were 26 subjects participated who met study criteria. Subjects with post laparotomy wound dehiscence were mostly male (69%). The largest age distribution is 40-59 years old (61.53%), with the average age was 48 years old. The most common type of surgery was emergency surgery (73%). The most

common albumin level was hypoalbuminemia (76%). Subjects without diabetes melitus were the most common (88%).

Conclusion: Male patients, patients age 40-59 years old, underwent emergency operation, have low albumin level in blood and without diabetes melitus, are all the most common characteristic of patients diagnosed with post laparotomy wound dehiscence.

Keyword: abdominal surgery, laparotomy, wound dehiscence, characteristic

1. Introduction

Wound dehiscence is a postoperative complication of which the incidence ranges from 0.4% to 3.5%. Wound dehiscence is defined as the postoperative separation of the abdominal musculoaponeurotic layer, can occur several days after surgery, and requires special intervention. Various risk factors influence the incidence of wound dehiscence such as emergency surgery, intra-abdominal infections, malnutrition (hypoalbuminemia, anemia), old age, systemic diseases (uremia, diabetes mellitus), and more. A good understanding of these risk factors is necessary to prevent wound dehiscence, because patients at high risk for wound dehiscence should be considered for confined observation and early intervention.¹⁻³

The postoperative wound healing process, which occurs gradually and continuously, plays a groundbreaking role in optimizing the patient's healing. On the first day after surgery, the wound's ability to close has not yet occurred, but over time, the process occurs gradually. In the third week, the wound healing process reaches 20% and after 6-12 weeks 70-80%. Wound dehiscence contributes to increased morbidity and mortality, as well as implicit and explicit costs to patients and health care providers.³⁻⁶

The factors associated with wound dehiscence are divided into two, namely factors related to patients and factors related to surgery. Patient-related factors are age, gender, obesity including malnutrition, systemic disease, postoperative cough, as well as BMI <20 and BMI > 25. As for surgery-related factors, there are the indication of surgery (elective or emergency), type of suture used, type of incision, and surgical wound closure technique. A solid understanding of these risk factors may also be important in the prevention of these complications.⁷⁻⁸

In a study conducted by Saad et al. On 66 patients with wound dehiscence, the incidence of dehiscence was higher in men, namely as many as 48 patients (72.7%) compared to women, namely 18

patients (27.3%). This can be because men have a higher intraabdominal pressure than women. It was also found that the most frequent age group was 70 years (28.8%). Wound dehiscence was reported frequently on the tenth postoperative day (range from day 5 to 18).⁹

The length of stay in the hospital in Saad et al's study was 26 days (ranging from 20 to 35 days) and this was consistent with a study by Mazilu et al who also found that wound dehiscence was associated with higher mortality and morbidity, as well as increased costs and duration of hospitalization. The study shows that wound dehiscence is most commonly found in patients undergoing emergency surgery.⁹⁻¹⁰

There are several risk factors associated with the incidence of wound dehiscence after laparotomy. It is also frequently associated with high mortality and morbidity as well as raised costs and length of postoperative care. This study aims to determine the factors associated with the occurrence of wound dehiscence in post-laparotomy patients so that not only it can help predict or prevent post-laparotomy wound dehiscence, but also expect to reduce morbidity and mortality.

2. Method

The design is cross-sectional descriptive study, using secondary data from the medical records of Mohammad Hoesin Hospital, Palembang. The study was conducted in the medical record department of dr. Mohammad Hoesin Palembang between period of January 1st, 2019 – December 31th, 2019. The study samples were all wound dehiscence patients who underwent laparotomy surgery at dr. Mohammad Hoesin Palembang between the time frame. Patients with incomplete medical record data were excluded. Variables researched were age, gender, type of surgery, albumin levels, and comorbidities (Diabetes mellitus/DM). After obtaining approval from the Research Ethics Committee, data recording was carried out in the medical record room, analyzed univariately with SPSS software, and presented in tables and graphs.

3. Results

This research is a descriptive observational study using secondary data through patient medical records. We found 26 patients who met the study's criteria.

Age distribution can be inferred to chart 1. The youngest age of patients with abdominal wound dehiscence who received treatment was 23 years old, whereas the oldest age was 71 years old. The average age of patients with abdominal wound dehiscence who were treated in the digestive surgery subdivision was 48 years old. There are 6 patients in the age group under 40 years, 8 patients in the 40-49 years age group, 8 patients in the 50-59 years age group, 3 patients in the 60-69 years age group, and only 1 patient in the older age group. than equal to 70 years.

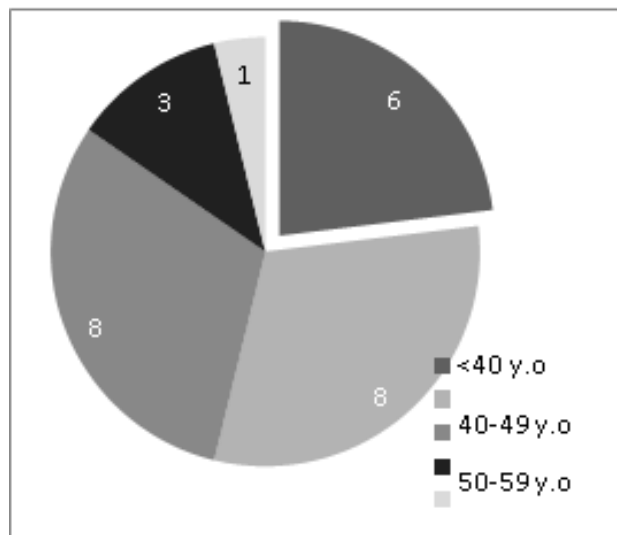


Chart 1. Age distribution of research subjects

Of the 26 cases of abdominal wound dehiscence, it was found that most patients of abdominal wound dehiscence were male, namely 18 people and followed by 8 female subjects. The results can be seen in chart 2.

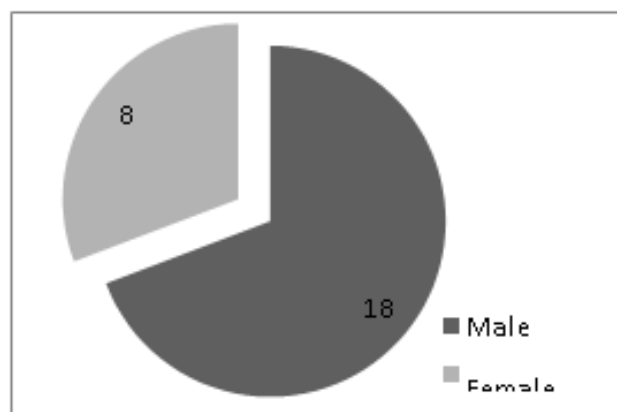


Chart 2. Sex distribution of research subjects

There were 26 abdominal wound dehiscences with a history of elective surgery for 9 people and 17 people with a history of emergency operation at Dr. Mohammad Hoesin Palembang during the period January 1st, 2019 to December 31th, 2019. The distribution of the type of operation can be seen in chart 3.

Based on albumin level, the study reported 20 subjects with hypoalbuminemia and 6 subjects with normal albumin level. On the other hand, Meanwhile, if viewed from the presence of comorbidities (Diabetes mellitus), only 3 subjects had diabetes mellitus and the rest did not suffer from diabetes mellitus.

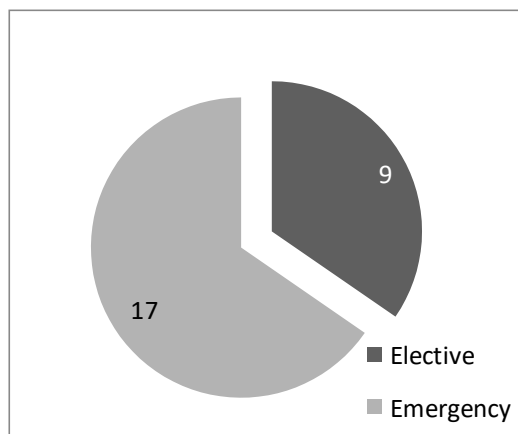


Chart 3. Type of surgery distribution of research subjects

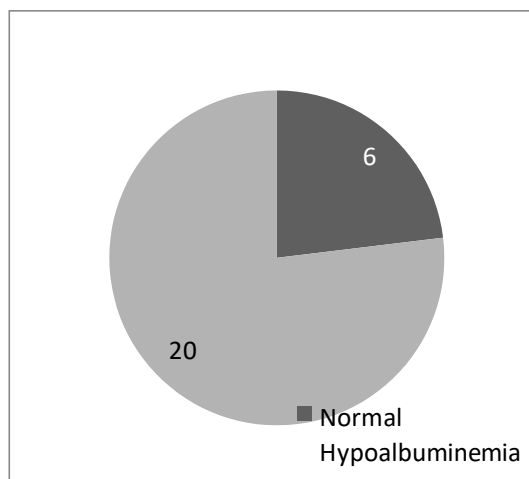


Chart 4. Level of albumin distribution of research subjects

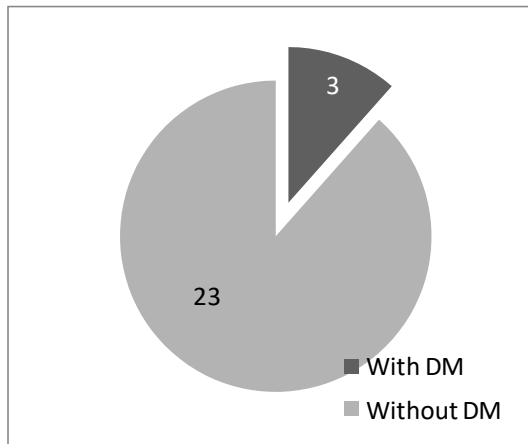


Chart 5. Presence of comorbidities (dm) distribution of research subjects

4. Discussion

This study found that the most age groups who experienced wound dehiscence at post-operative laparotomy were the 40-59 years old group with 16 subjects. The results of this study are in line with the findings of Jaiswal et al.¹ and Mahey et al.⁷ which stated that the age range of 40-60 years is the most dominant age for abdominal wound dehiscence. However, it is different from the research of van Ramshorst et al.³ which stated that the age range of more than 70 years is the age where abdominal wound dehiscence occurs most.

This study revealed that the male gender is the group with the most incidence of wound dehiscence after laparotomy. The results of this study are in line with studies by N.K. Jaiswal et al¹ and van Ramshorst et al³, which explained that the male sex suffered more abdominal wound dehiscence than women.

Emergency laparotomy is the group with the most incidence of post-laparotomy wound dehiscence. The results are similar to findings by N.K. Jaiswal et al¹, Afzal et al², Rajesh Mahey et al⁷. They stated that previous emergency surgery history was the most case in patients with abdominal wound dehiscence.

From the level of blood albumin levels, post-laparotomy patients who experienced wound dehiscence had hypoalbuminemia. The results of this study are consistent with the research of Dharmarajan et al.¹¹, which states that hypoalbuminemia is a risk factor for abdominal wound dehiscence.

Of the comorbidities, most patients with post-laparotomy wound dehiscence did not have diabetes

mellitus. The results of this study are in accordance with N.K. Jaiswal et al¹ and van Ramshorst et al³ stated that patients who did not suffer from Diabetes Mellitus had more abdominal wound dehiscence.

5. Conclusion

Subjects with post laparotomy wound dehiscence were mostly male (69%). The largest age distribution is 40-59 years old (61,53%), with the average age was 48 years old. The most common type of surgery was emergency surgery (73%). The most common albumin level was hypoalbuminemia (76%). Subjects without diabetes melitus were the most common (88%).

6. References

1. Jaiswal, N. K., and Sandeep Shekhar. "Study of *Wound dehiscence*: It's Causes and Management." *International Surgery Journal*. 2018;3(5):1035.
2. Afzal S, Bashir MM. Determinants of wound dehiscence in abdominal surgery in public sector hospital. *Annals of King Edward Medical University*. 2010;14(3):119
3. Gabrielle H, van Ramshorst, Nieuwenhuizen J, Hop WCJ, Arends P, Boom J, et al. Abdominal wounddehiscence in adults: development and validation of a risk model. *World J Surg*. 2010; 34:20-7.
4. Webster C, Neumayer L, Smout R, Horn S, Daley J, Henderson W, Khuri S, Qua NVAS. Prognosticmodels of abdominal wound dehiscence after laparotomy. *J Surg Res* 2003; 109:130–7.
5. Phan TQ, Theodorou P, Depner C, Lefering R, Perbix W, Spilker G, Weinand C. Failure of secondary wound closure after sternal wound infection following failed initial operative treatment: causes and treatment. *Ann Plast Surg* 2013; 70:216–21.
6. Graf K, Ott E, Vonberg RP, Kuehn C, Haverich A, Chaberny IF. Economic aspects of deep sternal wound infections. *Eur J Cardiothorac Surg* 2010; 37:893–6.
7. Mahey, Rajesh, et al. "A Prospective Study of Risk Factors for Abdominal Wound Dehiscence." *International Surgery Journal*, 2017.1(1):1-5
8. Amini AQ, Khan NA, Ahmad J, Memon AS. Management of abdominal wound dehiscence: still a challenge. *Pak J Surg*. 2013;29(2):84-7.

9. Al-Shammary, Saad AR. "Risk Factors of Abdominal Wound Dehiscence: Evaluation and Outcome."
Iraqi Journal of Medical Science.2012;10(4):1-4
10. Mazilu O, Grigoraş D, Cnejevici S, et al. postoperative complete abdominal dehiscence: risk factorsand clinical correlations. *Chirurgia (Bucur)*. 2009 Jul; 104(4): 419-23.
11. S. Dharmarajan, P.S. Shanthi. A Clinical Study on Wound Dehiscense in Patients Undergoing Emergency Exploratory Laparotomy. *Scholars Journal of Apllied Medical Science (SJAMS)*. 2017;5(7E):2937-2942