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The influence of patient gender, systemic disease of connective tissue and neoplastic disease on the occurrence of dehiscence laparotomy

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Abstract

Dehiscence of laparotomy is a disorder of healing of the wound and can manifest in a different degree. This is one of the most significant complications of laparotomy with partial or complete opening or tearing laparotomy wound sutured, with the evisceration of the abdominal organs, which requires urgent reintervention. The aim of this paper is to determine the influence of patients gender, systemic diseases of the connective tissue and neoplastic diseases on the occurrence of dehiscence of laparotomy. The prospective study included 620 operated patients in the Clinic for General Surgery in Nis during 2018. The investigated patients were divided into two groups: a group of patients who had complications dehiscence of laparotomy with 26 patients and a control group (patients who did not have dehiscence of laparotomy) with 594 patients. The influence of patients gender, systemic diseases of the connective tissue and neoplastic diseases on the occurrence of dehiscence of laparotomy was analyzed. Of the total of 26 patients with dehiscence of laparotomy, 20 patients were male or 76.9% and 6 patients were female or 23.1%. Patients in the group with dehiscence of laparotomy are younger than patients without dehiscence of laparotomy. In our study is no statistically significant relationship between dehiscence of laparotomy and systemic connective tissue diseases. There is statistically significant association between dehiscence of laparotomy and neoplastic diseases.

Keywords: Dehiscence of laparotomy, Patients gender, Systemic diseases of the connective tissue, Neoplastic diseases, Wound, Reintervention.

INTRODUCTION

Dehiscence of laparotomy is a disorder of wound healing. There is dehiscence or disorder of the superficial layers of the wound (skin and subcutaneous tissue) while the deep layers healing in a satisfactory manner and the release or dehiscence of all layers of one part or the entire operative wound. Although it can start at any time, the dehiscence of the laparotomy wound usually begins on the 7th postoperative day. It occurs in 0.5 to 3% of operated patients [1]. Dehiscence of laparotomy is accompanied by high morbidity and mortality that ranges up to 40%. The healing process of the wound is an extremely complex and dynamic set of cellular, biochemical and immunological processes.

Systemic connective tissue disease (lupus, RA) and collagen disease (Sy. Marfan, Sy. Oehler-Dunloss), although relatively rare, are characterized primarily by disorders in the fibroplasia phase [2]. Also, the use of corticosteroid therapy as part of these disorders reduces the healing of the epidermis and collagen biosynthesis. Systemic steroid therapy reduces resistance to tearing, slows down angiogenesis and epithelization, especially when given prior to surgery or during the first three days after surgery. Preferably the dosage of steroids is reduced during a critical inflammatory phase of healing of the wound. Simultaneous administration of vitamin A can lead to a reduction in the harmful effects of steroids. Vitamin A accelerates the achievement of hardness of the wound, re-enteritis and steroid-inhibited wound healing [3]. Dehiscence of laparotomy is more common in patients with neoplastic diseases. Reasons are not entirely clear. It is assumed that the protein and calories lost in the tumor also has a premise that tumor cells secrete substances that interfere with wound healing [3].

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METHODS

The research was organized by type of prospective study that had analyzed the following data as risk factors: the presence of patient's gender, systemic diseases of connective tissue and neoplastic diseases on the occurrence of dehiscence of laparotomy of 620 operated patients at the Clinic for General Surgery in Niš from January 1 to December 31, 2018. Investigated patients were divided into two groups: a group of patients who had complications-dehiscence of laparotomy with 26 patients and a control group (patients who did not have dehiscence of laparotomy) with 594 patients.

Statistical sample size is determined by the statistical methodology to meet the basic principle of representativeness. Was used to determine the optimal normogram sample.

The average age of the patients in the group of patients who had complications-dehiscence of laparotomy was 55.27 years, and the average age of the control group of patients without complications was 64.63 years. Out of 620 respondents, 381 are male and 239 are female.

In this paper, results are presented in tables and graphical. The statistical analysis using the methods of descriptive statistics (mean, standard deviation), parametric tests (Student's t-test) and nonparametric Chi-square test. For statistical analysis we used the software package SPSS 14.0, and the imaging table and a Microsoft Office Word 2003.

RESULTS

Dehiscence of laparotomy occurred in 4.2% of respondents or 26 patients out of a total of 620 subjects. In our study, the largest number of patients, 24 were younger than seventy, while only 2 patients were over seventy years of age.

Of the total 26 patients with dehiscence of laparotomy, 20 patients were male or 76.9%, while only 6 patients were female or 23.1%. There is a statistically significant relationship between dehiscence of laparotomy and male gender ($\chi^2 = 26,944$; $p < 0,01$). Of the patients who did not have a dehiscence of laparotomy 361 patients were male or 60.8% and 233 patients without dehiscence of laparotomy were female or 39.2% (Figure 1).

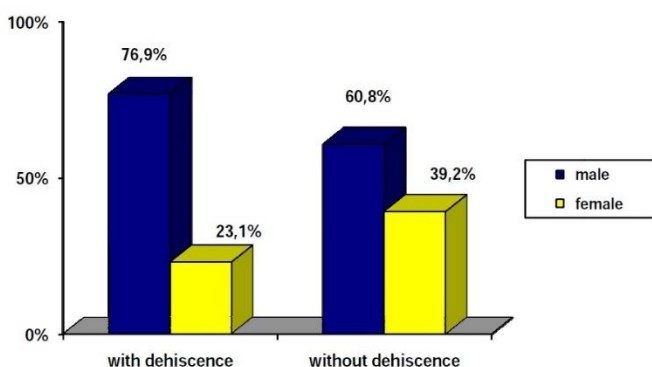


Figure 1: Occurrence of dehiscence of laparotomy in relation to patients' gender

There is no statistically significant correlation between dehiscence of laparotomy and systemic connective tissue disease ($\chi^2 = 0.028$; $p > 0.05$). Systemic connective tissue disease had 2 patients with dehiscence of laparotomy or 4.9% and 39 patients without dehiscence of laparotomy or 95.1%. Of the patients who did not have a systemic connective tissue disease 24, they had dehiscence of laparotomy or 4.1%, or 555 patients without dehiscence of laparotomy or 95.9% (Figure 2).

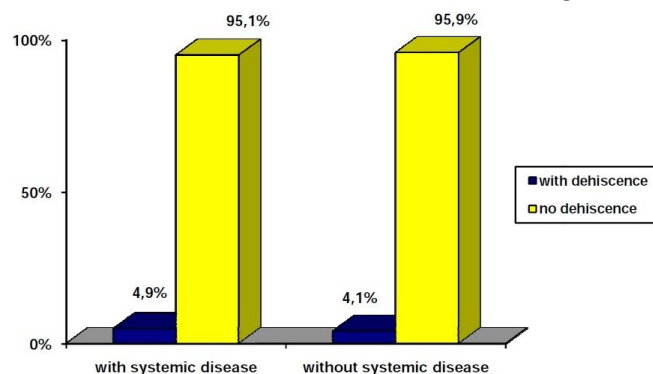


Figure 2: Occurrence of dehiscence of laparotomy in relation to patients' gender

There is statistically very significant correlation between dehiscence of laparotomy and neoplastic diseases ($\chi^2 = 26,944$; $p < 0,01$). Neoplastic disorders had 10 patients with dehiscence of laparotomy or 38.5% and 16 patients without dehiscence of laparotomy or 61.5%. Without neoplastic disease, there were 16 patients with dehiscence of laparotomy or 2.7% and 578 patients without dehiscence of laparotomy or 97.3% (Figure 3).

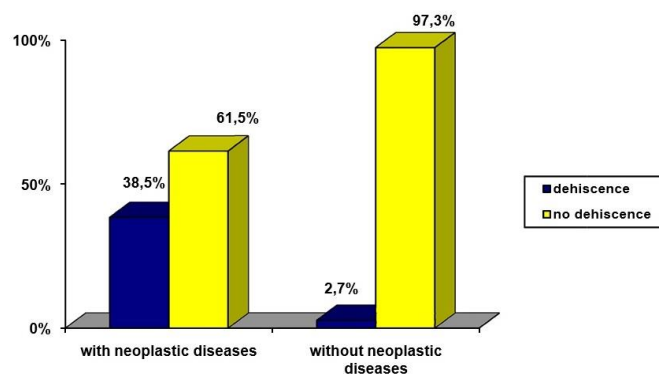


Figure 3: Occurrence of dehiscence of laparotomy in relation to patients' gender

DISCUSSION

Despite great shifts in the understanding of the physiology of the wound healing process, surgical technique and the application of modern technologies and materials in surgery, the percentage of difficulty healing of laparotomy is still high. Dehiscence of laparotomy occurs in up to 3% of patients. In a retrospective study by Rodriguez-Hermosa Ji and all from Spain, in 57 patients or 0.45% of the total 12622 patients who had undergone laparotomy occurred in dehiscence of laparotomy. In that study were 45 male patients and 12 female patients [4]. In India's study from Rajindra Hospital in Patiala male predominance (37/50) was observed, with ratio of male to female being 2.84:1 [5]. The results of our study show that dehiscence of laparotomy occurred in 4.2% of patients or 26 patients of the total of 620 respondents. In relation with gender from 26 patients with dehiscence of laparotomy, 20 patients were a male gender and 6 females. Our study does not show a statistically significant difference between genders. Preoperative preparation is an important stage in the treatment of surgical patients and the adequacy of preoperative depends on result of the operation, the incidence of complications and mortality of patients. It is necessary that all the general condition of the patients preoperatively stabilized and carry a minimum of anesthesia and surgical preoperative whenever the patient's condition allows [6].

In the work of Rodriguez-Hermosa Ji and all results were shown that out of 57 patients with dehiscence of laparotomy, 44 were younger than seventy years old [4]. In our study, the largest number of patients who had dehiscence of laparotomy, 24 were younger than seventy, while only 2 patients were over seventy years old.

Both studies confirm recent perceptions that chronological age over seventy years, by itself, is not a contraindication for extensive operations in abdominal surgery [2,3,7,8]. Far more important are the parameters that determine the biological age of the patient: the patient's general condition and ability to care for oneself (Performance status), nutritional status (Seltzerov index), as well as the risk of anesthesia- estimated ASA score [2].

In our study from 41 patients who had systemic connective tissue disease, dehiscence of laparotomy occurred in 2 patients. In all investigated patients, the disease was in remission, well-regulated and with intensive control of the immunologist, ie 14 days before, and during 14 days after surgery did not use corticosteroid and immunosuppressive therapy.

In the work of Akkusa A, Avdinuraza K. and a colleague at the University of Kirikkala Medical School in Turkey, proven that long-term use of corticosteroid therapy leads to a change in the enzymes involved in the glycolysis process during healing. The tension values on the sewinged laparotomy wound line were lower in the group where carnitine was administered compared to the group where methylprednisolone was administered ($p > 0.05$). The use of carnitine led to an increase in the level of hydroxyproline in wounds in the group of patients receiving methylprednisolone and carnitine compared to the control group of patients ($p < 0.05$). The use of carnitine leads to a decrease in tension on the sewinged laparotomy wound line in relation to the tension of the sewinged laparotomy wound line where only methylprednisolone is applied [9]. Corticosteroids (given especially preoperatively and during the first three postoperative days) slow down all stages of the healing process: inflammation, collagen synthesis, epithelization and angiogenesis. Quick correction is possible using vit. A (20,000 IU) and anabolic steroids [3].

The presence of malignant disease is accompanied by intense tumor metabolism, malnutrition and disorders of absorption, all of which can disrupt the normal wound-healing process and therefore the more frequent occurrence of dehiscence. Many drugs, anti-tumor and anti-cancer drugs affect the various stages of wound healing, particularly in cell division [10]. In our study is a statistically very significant relationship between dehiscence of laparotomy and neoplastic diseases. Neoplastic diseases had 10 patients with dehiscence of laparotomy or 38.5%. A study worked in South Korea in 1987 to 2004 were included 8033 patients. Dehiscence of laparotomy occurred in 9.3% of treated patients with cancer [11].

Aksamija G et all who worked on the study in Clinic for abdominal surgery in Sarajevo from 1998. to 2002 dehiscence after laparotomy surgery colon cancer from 439 patients were observed in 10 patients, or 2.27% [11]. In a study from South Korea, the percentage of dehiscence of laparotomy in cancer patients is lower than the percentage of dehiscence of laparotomy in our study, as opposed to a study in Sarajevo, where the percentage is very low.

Comparing the results of world studies with the results of our observational prospective study, we conclude that our results are not worse than the results of the world's healthcare institutions.

CONCLUSION

Dehiscence of laparotomy occurs in less than 5% of patients. The chronological age of over 70 years, by itself, does not a danger for the occurrence of dehiscence of laparotomy. Parameters who determine the biological age of a patient are more important. In patients who had systemic connective tissue diseases, dehiscence of laparotomy occurs rarely when the disease is in remission, or when they do not use corticosteroid and immunosuppressive therapy. In patients with neoplastic diseases, dehiscence of laparotomy is a common occurrence.

By analyzing risk factors, a surgeon can identify high-risk patients and take all measures of prophylaxis at his disposal.

REFERENCES

1. Radovanovic´ S. Abdominal hernia. Prosveta, Požarevac, 1988; 119-123.
2. Zinner M: Maingot's Abdominal operations. Appleton Lange, London, 1997;548-80.
3. Gerzic´ Z. Possible complications in digestive surgery. Institute for textbooks, Belgrade, 2000; 625-9.
4. Rodriguez-Hermosa JI, Codina-Casadora, Ruiz B, Roig J, Girones J, Pujadas M, Pont J, Adeguer X, Acero D. Risk factors for acute abdominal wall dehiscence after laparotomy in adults. Cir. Esp. 2005; 280- 6.
5. Ramnesh G, Sheerin S, Surinder S, Bar S. A Prospective Study of Predictors for Post Laparotomy Abdominal Wound Dehiscence. J Clin Diagn Res. 2014, Jan; 8(1): 80–83.
6. Višnjic´ M, Surgery, Medical Faculty of Niš. DIGP "PROSVETA" Niš, 2005; 15-7.
7. Krivokapic´ Z, Prevention of colon anastomose relax. Science book, Beograd, 1990; 39-47.
8. Israelsson LA. Abdominal closure and incisional hernia. Eur. Surg. 2003; 35: 5-11.
9. Jeremic´ M, Abdominal Surgery I, Medical Faculty, University of Niš. PELIKAN PRINT-Niš, 2009; 23-8.
10. Oh SJ, Choi WB, Hyung WJ, Choi SH, Noh SH; Yonsei Gastric cancer Clinic Department of surgery, College of Medicine, Yonsei University, Seoul, South Korea. 2009; 239-45.
11. Aksamija G, Tanovic´ H, Sabanovic´ J, Muhovic´ S. Early surgical complications after treatment of malignant diseases of the colon and rectum. Clinic for abdominal surgery, KCV Sarajevo, Med. Arh. 2003, 57 (3 supp L1): 23-4.