

Original Research Article

Comparative Study Between subcuticular and simple wound closure in incidence of wound infection

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Abstract: Prevention of infection following surgery is important aim. Simple suture is most fundamental technique of wound closure used in. Another method of wound closure is subcuticular stitches. subcuticular suture technique is useful to enhance the cosmetic result. A prospective non-randomized study of 200 patients with surgical wound was carried out over a period of 12 months in 100 patients(group A), wound closure was done with simple interrupted method and in 100 patients(group B) with subcuticular method. This study was undertaken in hospitals of Iran University of Medical Sciences, Iran. Data including age, sex, wound infection, wound type and overweight were collected. 1% of patients in group A and 2% in group B had wound infection. Wound type of 71% of the group A and 67% of patients in the group B were clean contaminated. Thirty nine percent of patients in group A and 40% of patients in group B are located in the age of 21 to 40 years. 68% of group A and 62% of group B were male. Surgical site of 84.8 %, 4%, 9.1% and 2% of patients in group A and 84%, 2%, 7% and 7% of patients in group B was in abdomen, thorax, head and neck and extremity, respectively. About Eighty four percent of the surgeries in both groups were done on abdomen. Incidence of wound infection in patients who had surgical wounds sutured by subcuticular and simple were 2% and 1%, respectively that this difference was not statistically significant. therefore, we recommend the routine use of subcuticular method in surgical wound closure with better aesthetic result. In our study, the incidence of wound infection was lower than other studies.

Keywords: Infection, simple, subcuticular.

INTRODUCTION:

The degree of bacterial contamination during an operation is related to the risk of incisional infections [1]. Good suturing technique should eliminate dead space in subcutaneous tissues, minimize tension that causes wound separation. It involves correct wound placement with respect to relaxed tension lines [2]. Simple suture, it is the most fundamental technique of wound closure used in cutaneous surgery. In this procedure the needle enters one side of the wound and penetrates well into the dermis or subcutaneous tissue. By altering the depth or angle of the needle, one can use this technique for wound edges of uneven thickness. The needle is then passed through the subcutaneous tissue to the opposing side of the wound and exists closer to the wound edge so that the final configuration of the suture is flask-shaped [3,4, 5]. Another method for suture is subcuticular stitches, the subcuticular stitch is started by inserting a knot at one end of the incision.

A small bite is taken of the subcuticular material and the suture is pulled through. Then on the opposite side of the wound a similar subcuticular bite of the suturing material is inserted and gently worked up the wound. The subcuticular suture is used primarily to enhance the cosmetic results. [6]. The aim of this study was to compare the incidence of wound infection between the two groups of patients that their wound are sutured by subcuticular or simple interrupted procedure.

MATERIAL AND METHODS:

A prospective non-randomized study of 200 patients with surgical wound was carried out over a period of 12 months. in 100 patients(group A), wound closure was done with simple interrupted method and in 100 patients(group B) with subcuticular method. This study was undertaken in hospitals of Iran University of Medical Sciences, Iran. Data including age, sex, wound infection, wound type and obesity (BMI>30) were

collected. The correlation between the variables was done by IBM SPSS statistics 18. Chi-square test was used to analyze the significance of correlation between group A and group B and P <0.05 was considered significant.

RESULTS:

1% of patients in group A and 2% in group B had wound infection. All wound infections occurred in

the first weeks. Wound type of 71% of the group A and 67% of patients in the group B were clean contaminated. 39% of patients in group A and 40% of patients in group B were located in the age of 21 to 40 years. 68% of group A and 62% of group B of patients were male. Two percent and 2% of patients in group A and 4% and 1% of the group B had diabetes and toke steroids, respectively (**Table 1**).

Table 1: Characteristics for the patients in group A,B

| Variables | Group A (%) | Group B(%) |
|--------------------|-------------|------------|
| Age | | |
| 0-20 | 19(19) | 20(20) |
| 21-40 | 39 (39) | 40(40) |
| 41-60 | 24(24) | 23(23) |
| >60 | 18(18) | 17(17) |
| Sex | | |
| Male | 68(68) | 62(62) |
| Female | 32(32) | 38(38) |
| Infection | | |
| Positive | 01(1) | 02(2) |
| Negative | 99(99) | 98(98) |
| Wound Type | | |
| Clean | 16(16) | 30(30) |
| Clean contaminated | 71(71) | 67(67) |
| Contaminated | 04(4) | 03(3) |
| Dirty | 09(9) | 00(0) |
| Overweight | | |
| Positive | 09(09) | 09(09) |
| Negative | 91(91) | 91(91) |

Surgical site of 84.8 %, 4%, 9.1% and 2% of patients in group A and 84%, 2%, 7% and 7% of patients in group B were in abdomen, thorax, head and

neck and extremity, respectively. About Eighty four percent of the surgeries in both groups were done on abdomen (**Figure 1**).

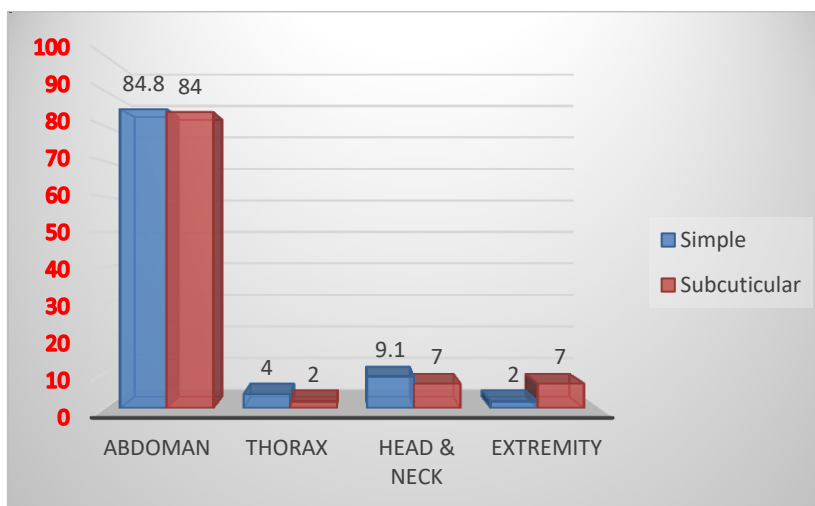


Fig-1: Comparing of surgical site

DISCUSSION:

Prevention of infection following surgery is important aim. Effective skin closure is a necessary

factor in the prevention of infection [7]. More patients in both groups in our study were male (group A and B). The number of patients in different age groups (0-20,

21- 40, 41-60, >60) are almost equally distributed between the two groups (A,B).In this study, other variables such as overweight and diabetes studied. Subcuticular suturing provides a better healing environment as no skin interruption is caused by the suturing tool, and better blood flow is maintained [8]. The subcuticular suture technique of wound closure is preferred in areas in which the best possible cosmetic result is desired. The subcuticular suture does not impact on deep tissues of the skin and leads to minimal strangulation of tissue [9].A study has reported that subcuticular method do not increase the infection rate [10] like our study. Previous work indicates that a wound-infection rate of about 8% is usual for this group [11, 12].Incidence of wound infection in our patients for which of these two techniques (subcuticular and simple) had been used were 2% and 1% that their values were much lower than previous study. Although few studies have been done in this area. It is not easy to explain the increased incidence of wound infection after subcuticular suturing. The theory that bacteria trapped in the interstices of the suture became responsible for latent infection [12]. Chi-square test did not show significant relationship in the incidence of wound infection in two techniques (simple and subcuticular)(P-value <0.05).

CONCLUSION:

Incidence of wound infection in patients who had surgical wounds sutured by subcuticular and simple were 2% and 1%, respectively that this difference was not statistically significant. therefore, we recommend the routine use of subcuticular method in surgical wound closure with better aesthetic result. In our study, the incidence of wound infection was lower than other studies.

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