



A STUDY ON SUBCUTANEOUS WOUND CLOSURE: EFFECT ON WOUND HEALING AND COMPLICATIONS OF SUTURING VS NON-SUTURING OF SUBCUTANEOUS TISSUE

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ABSTRACT **BACKGROUND:** To determine the effect of wound healing and complications of suturing vs non-suturing of subcutaneous tissue during wound closure.

PATIENTS AND METHODS: Study included 100 patients who underwent elective surgical procedures with monitoring of wound healing in the post-operative period.

RESULTS: In our study, we have derived that the subcutaneous suturing during the closure of surgical wounds does not play a vital role in the healing of the surgical site. Subcutaneous suturing has been shown to produce an increased frequency of postoperative complications in the surgical site.

CONCLUSION: Subcutaneous suturing does not play a pivotal role in the healing of the surgical wound. Subcutaneous suturing can be forgone, which will not cause an increase in postoperative complications in the surgical site.

KEYWORDS : Subcutaneous, Wound Closure, Suturing, Surgical

INTRODUCTION:

The Principal aims of tissue repair after surgical skin incisions are the rapid acquisition of strength, least tissue damage, no inflammation and an aesthetically acceptable scar. There has always been a debate regarding the suturing of subcutaneous tissue at the end of a procedure. Accurate closure of the fat layer will prevent the creation of dead space, decrease the risk of subcutaneous bleeding and improve the approximation of the wound edges. It has been stated that the closure of the subcutaneous tissue is not advisable in emergency situations since there is always an increased chance of development of wound dehiscence.

The surgical scar remains the only visible evidence of the surgeon's skills. In contradiction to the suturing of subcutaneous tissue, the anatomy of the fragile subcutaneous tissue layer is imperfect and suturing leads to a decrease in perfusion to the fatty layer thereby compromising the blood supply to the subcutaneous layer leading to fat necrosis. Furthermore, as an extraneous material, sutures may provide a focus for bacterial contamination and wound infections.

Suturing of subcutaneous tissue is also time-consuming and leads to an increase in total operating time and also requires absorbable suture material which leads to a rise in the overall cost of the surgery.

METHODS:

100 patients are selected who are admitted in Maharajahs Institute of Medical Sciences, VZM to undergo elective surgery over a period of 1 year. The patients were evaluated with routine investigations such as complete blood count, screening, Chest X-ray and Electrocardiogram for anaesthetic fitness purposes. The patients were assessed for the planned surgical procedure and were posted for elective surgical procedure.

The patients were divided into two groups, patients who underwent subcutaneous suturing using an absorbable suture such as 2-0 vicryl during the closure of the wound and patients who did not undergo subcutaneous suturing.

The patients were followed up during the postoperative period and the outcomes such as complete wound healing, seroma formation, wound infection and wound gaping after the surgical procedure was documented and graphed into groups separately according to the various outcomes.

The incidence of the various postoperative outcomes is calculated in percentage, and the final inference is given in accordance with the

observations made in the follow-up period of the patients. Patients less than the age of 18 years, Pregnant patients, Psychiatric disorder patients, Patients with HIV and Tuberculosis, Diabetic patients, Patients on radiotherapy and chemotherapy were excluded from the study

RESULTS:

This study was undertaken from January 2019 to January 2020 in the department of general surgery, Maharajahs Institute of Medical Sciences, VZM

The Observations of our study were as follows:

Total number of patients – 100

All patients were operated in an elective surgical setup, subcutaneous suturing using 2-0 vicryl was done in 50 patients, and subcutaneous suturing was not done in 50 patients.

The patients were followed up in the postoperative period, and the status of the wound was observed and documented with the use of tables.

Total male patients – 82

Total female patients – 18

Table 1: Age and Gender distribution of cases

Age Group	Male	Female
20-30	10	-
30-40	10	6
40-50	16	4
50-60	18	2
>60	28	6
total	82	18

The total outcome in patients undergoing subcutaneous suturing Out of 100 patients, the total number of patients undergoing subcutaneous suturing is 50 (50% of the total study population). Out of 50 patients, a total number of male patients was 41 (82% of the total patients undergoing subcutaneous suturing) and total number of female patients were 9 (18%). Out of 41 male patients, the patients who were found to have complete healing were 30 patients (73.2% of total male patients who underwent subcutaneous suturing), 6 patients (14.6%) developed seroma, 3 patients (7.3%) acquired wound infection and 2 patients (4.9%) developed wound gaping.

Out of 9 female patients, the patients who were found to have complete

healing were 4 patients (44.5% of the total female patients who underwent subcutaneous suturing), 3 patients (33.3%) developed seroma, 2 patients (22.2 %) developed wound infection in the postoperative period.

Table 2: Subcutaneous Suturing Done

	Complete healing	Seroma	Wound infection	gaping
Male	30 (73.2%)	6 (14.6%)	3 (7.3%)	2 (4.9%)
Female	4 (44.5%)	3 (33.3%)	2 (22.2%)	-

Total outcome in patients not undergoing subcutaneous suturing Out of 41 male patients (100%) who did not undergo subcutaneous suturing, 38 patients (92.7% of the total male study population who did not undergo subcutaneous suturing) were found to have complete wound healing, 2 patients (4.9%) developed seroma and 1 patient (2.4%) developed wound infection and none of the patients was found to have wound gaping.

Out of 9 female patients who did not undergo subcutaneous suturing, 5 patients (55.6% of the total female study population who did not undergo subcutaneous suturing) were found to have complete wound healing, 2 patients (22.2%) developed seroma and 2 patients (22.2%) developed wound infection and none of the patients was found to have wound gaping.

Table 3. Subcutaneous Suturing Not Done

	Complete healing	Seroma	Wound infection	gaping
Male	38 (92.68%)	2 (4.87%)	1 (2.43%)	-
Female	5 (55.55%)	2 (22.22%)	2 (22.22%)	-

DISCUSSION:

The goal of any surgical procedure is to produce relief of symptoms to the patient with minimal or no postoperative complications. The recent trend that has been introduced in the field of surgery is to provide the most acceptable surgical scar and approximation of the surgical wound. Due to the variations in blood supply after the incision of the general surgical procedure, there are anatomical disturbances within the subcutaneous tissues which can lead to a hindrance in the complete wound healing. Recent studies have shown there is no benefit over subcutaneous layer suturing during the wound closure at the end of the surgical procedure.

In our study, Out of 100 patients of the study population, total number of patients undergoing subcutaneous suturing are 50.

Out of 50 patients of the study population, total number of male patients was 41, and total number of female patients was 9.

Out of 41 male patients who underwent subcutaneous suturing, the patients who were found to have complete healing were 30 patients (73.2% of total male patients who underwent subcutaneous suturing), 6 patients (14.6%) developed seroma, 3 patients (7.3%) developed wound infection and 2 patients (4.9%) developed wound gaping.

Out of 9 female patients who underwent subcutaneous suturing, the patients who were found to have complete healing were 4 patients (44.5% of the total female patients who underwent subcutaneous suturing), 3 patients (33.3%) developed seroma, 2 patients (22.2 %) developed wound infection in the postoperative period.

Out of 41 male patients (100%) who did not undergo subcutaneous suturing, 38 patients (92.7% of the total male study population who did not undergo subcutaneous suturing) were found to have complete wound healing, 2 patients (4.9%) developed seroma and 1 patient (2.4%) developed wound infection and none of the patients were found to have wound gaping.

Out of 9 female patients who did not undergo subcutaneous suturing, 5 patients (55.6% of the total female study population who did not undergo subcutaneous suturing) were found to have complete wound healing, 2 patients (22.2%) developed seroma and 2 patients (22.2%) developed wound infection and none of the patients was found to have wound gaping.

From the above statistics, it has been found that the study population who underwent subcutaneous suturing had a decreased frequency of complete wound healing in comparison to the study population who did not undergo subcutaneous suturing. The incidence of postoperative

surgical site wound complications were also found to be increased in the study population who underwent subcutaneous suturing. Suturing of subcutaneous suturing was found to have a negative effect on the complete wound healing.

CONCLUSION:

Complete healing of the surgical wound depends on many factors, and utmost care should always be undertaken during the closure of the surgical wound to prevent postoperative complications related to the surgical wound.

Perfect approximation of the tissues during the closure of the surgical wound has been found to be a vital factor in the complete healing of the surgical wound. Suturing of subcutaneous tissue has always been in debate during the closure of the surgical wound.

The presence of an additional foreign body which is the absorbable suture is also a contributing factor in the development of postoperative complications related to the surgical wound. The suturing of subcutaneous tissue does not play an essential role in the complete healing of the surgical wound. There are multiple factors which cause surgical site complications that have not been analysed in this study and need an additional evaluation in further studies.

The suturing of subcutaneous tissue layer can be deferred during regular wound closure in elective surgical procedures.

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