



Subcutaneous Tissue: A Study of the Impact of Suturing and Non Suturing in Wound Closure on Wound Healing and Complications

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Abstract

Background

The study's objective is to analyse and understand the relationship between wound healing and the risks associated with suturing and not suturing subcutaneous tissue to close wounds.

Patients and Methods

100 patients who underwent elective surgery under regional or general anaesthesia and wound healing throughout the postoperative period were included in our study.

Results

Our research has shown that the subcutaneous suturing used to close surgical wounds does not

significantly affect the full recovery of the surgical site. It has been demonstrated that subcutaneous suturing causes a higher prevalence of post-operative problems at the surgical site.

Conclusion

The surgical wound does not completely heal as a result of subcutaneous suturing. It is possible to postpone subcutaneous suturing without increasing the risk of problems at the surgical site.

Introduction

The main goals of tissue repair following surgical skin incisions are quick strength gain, little tissue damage,

no inflammation, and a scar that is aesthetically pleasing. It has always been debatable whether subcutaneous tissue should be sutured after any surgical treatment. The teachings of the traditional surgical schools place a strong emphasis on the precise closure of the fat layer, on the grounds that doing so will reduce the likelihood of subcutaneous haemorrhage, prevent the formation of dead space, and enhance the ability of the wound margins to adapt. Any closure of open wounds require perfect approximation of the wound edges. Any disproportionate suturing technique in the closure of the wound will lead to the formation of a cosmetically non acceptable scar with an increase chances of wound infection and wound dehiscence.

In emergency settings, it has been stated that the closure of the subcutaneous tissue is not advisable since there is always an increased chance of development of wound dehiscence. Hence it is not advisable for the closure of the subcutaneous tissue in emergency settings of wound closure.

In modern times , with the advent of elective surgery , more energy has been directed at achieving an efficient and uncomplicated healing of the deliberately inflicted wound , “ Never judge until you have seen him closing the wound “ is a saying attributable to lord Moynihan. The surgical scar is still the only obvious indication of the surgeon's abilities, and frequently, the success of all of his efforts is determined by how the scar turns out. Sutures are typically needed in these circumstances to achieve such approximation. The major role of a suture is to reserve wound closure and promote wound healing when the wound's integrity is most at risk. The main goals of wound closure are to release the wound's tension and to bring the skin's edges together in an

everted position. Contrary to suturing of subcutaneous tissue, suturing results in a decrease in perfusion to the fatty layer, weakening the blood supply to the subcutaneous layer, and ultimately leading to fat necrosis. Sutures may also serve as a focal point for bacterial contamination and wound infection because they are an external material.

Additionally, suturing subcutaneous tissue takes time, increases operating room time, and necessitates absorbable suture material, increasing the overall cost of the procedure.

Materials and Methods

This prospective comparative study was conducted at Great Eastern Medical School and Hospital, Ragolu, Srikakulam. All of the participants in the study provided written informed consent. The patients were split into two groups: those who had subcutaneous suturing during the closure of the incision using an absorbable suture, such as 2-0 Vicryl, and those who did not. Following surgery, the patients were monitored, and the various results—including total wound healing, seroma formation, wound infection, and wound gaping—were reported and graphed independently based on the different outcomes. The occurrence of the various postoperative outcomes is estimated as a percentage, and the conclusion is drawn in light of the observations made throughout the patients' follow-up period. Patients under the age of 18, women who were pregnant, those who had psychiatric disorders, those who had HIV or tuberculosis, those who had diabetes, and those who were undergoing radiotherapy or chemotherapy were all excluded from the study.

Results

The Remarks of our study were as follows

Total number of patients – 100

All patients underwent elective surgery; subcutaneous suturing was performed on 50 patients with 2-0 Vicryl and not on the remaining 50 patients. Following

surgery, the patients were monitored, and the condition of the wound was noted and recorded using tables.

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 overall result of individuals who had subcutaneous suturing 50 patients—or 50% of the overall study population—of the 100 patients underwent subcutaneous suturing. Male patients made up 41 of the 50 total patients (82% of the total patients getting subcutaneous suturing), whereas female patients made up 9 (or 18%) of the total. Out of 41 male patients, 30 patients (73.2% of the total male patients who had subcutaneous suturing) were

determined to have complete healing. Six patients (14.6%) developed seroma, three patients (7.3%) acquired wound infection, and two patients (4.9%) suffered wound gaping. Out of 9 female patients, 4 patients (44.5% of the total female patients who underwent subcutaneous suturing) were determined to have complete healing. In the postoperative phase, 3 patients (33.3%) developed seroma, and 2 patients (22.2%) acquired wound infection.

Table 2: Subcutaneous Suturing Done

	COMPLETE HEALING	SEROMA	WOUND INFECTION	GAPING
MALE	30	6	3	2
FEMALE	4	3	2	-

Patients' overall results when they don't have subcutaneous sutures Out of 41 male patients (100%) who did not undergo subcutaneous suturing, 38 patients (92.7% of the total number of male study participants) were found to have fully healed wounds. Two patients (4.9%) experienced seroma, one patient

(2.4%) experienced wound infection, and none of the patients had wound gaping.

Five of the nine female patients who did not undergo subcutaneous suturing (55.6% of the total female stud population) were found to have fully healed wounds, while the other two (22.2%) developed seroma and

the other two (22.2%) wound infections. No patient was found to have wound gaping.

Table 3: Subcutaneous Suturing Not Done

	COMPLETE HEALING	SEROMA	WOUND INFECTION	GAPING
MALE	38	2	1	-
FEMALE	5	2	2	-

Discussion

Any surgical technique should aim to relieve the patient's symptoms with little to no postoperative consequences. In the world of surgery, there has been a recent trend toward offering the best surgical scar and approximate surgical wound. There are anatomical changes within the subcutaneous tissues as a result of the differences in blood flow following the incision of the general surgical operation, which might impede the wound's full healing. Recent investigations have demonstrated that there is no advantage to subcutaneous layer suturing during wound closure following surgery.

Out of the 100 patients who made up the study group, 50 individuals in total underwent subcutaneous suturing. In the study population of 50 participants, there were 50 male participants and 9 female participants. Thirty male patients, or 73.2% of the total number of male patients who had subcutaneous suturing, were reported to have complete healing. Six patients (14.6%) suffered seroma, three patients (7.3%) developed wound infection, and two patients (4.9%) developed wound gaping. Out of the 9 female patients who underwent subcutaneous suturing, 4 patients (44.5% of the total number of female patients) were reported to have complete healing. In the postoperative phase, 3 patients (33.3%) suffered seroma, and 2 patients (22.2%) acquired wound infection. Out of 41 male patients (100%) who did not

undergo subcutaneous suturing, 38 patients (92.7% of the male study population as a whole) were found to have healed their wounds completely. Two patients (4.9%) experienced seroma, one patient (2.4%) experienced a wound infection, and none of the patients had wound gaping. Five of the nine female patients who did not have subcutaneous suturing (55.6% of the total female study population) had fully healed wounds, whereas the other two (22.2%) developed seroma and the other two (22.2%) wound infections. No patient was found to have a wound that was gaping. According to the aforementioned statistics, it was discovered that the study group who received subcutaneous suturing experienced a lower incidence of full wound healing than the study population who did not. Additionally, it was discovered that the study population's subcutaneous suturing patients had an elevated frequency of postoperative surgical site wound problems.

Conclusion

Numerous aspects must be taken into consideration for the surgical wound to heal completely, and extreme caution should always be used when closing the surgical wound to avoid issues related to the surgical wound later on. The perfect apposition of the tissues during surgical wound closure has been discovered to be a crucial element in the full healing of the surgical wound. Subcutaneous tissue suturing

has always been controversial when it comes to healing surgical wounds. The development of postoperative problems associated to the surgical incision is also influenced by the presence of an additional foreign body, the absorbable suture. The surgical wound doesn't need to be completely healed before the subcutaneous tissue can be sutured. In elective surgical operations, the suturing of the subcutaneous tissue layer may be deferred during routine wound closure.

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