The Professional Medical Journal
www.theprofesional.com

DOI: 10.29309/TPMJ/18.4978

ORIGINAL PROF-4978

UPPER LIMB FRACTURE

COMPARISON OF POST OPERATIVE RESULTS IN UPPER LIMB FRACTURE SURGERY WITH OR WITHOUT SUCTION DRAIN.

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Article received on:
30/03/2018
Accepted for publication:
26/07/2018
Received after proof reading:
00/00/2018

ABSTRACT… Introduction: Upper limb fractures are one of the common fractures presenting in Accident and Emergency departments. Some of the upper limb fractures need open reduction and internal fixation. Use of suction drains after upper limb surgery is still debatable issue. Some surgeons routinely use, others never use and few occasionally use. **Objectives:** Aim of this study was to compare the results of upper limb fracture surgery by using or not using the suction drains. **Design:** Quasi Experimental Design. **Settings:** Orthopedic department Aziz Bhatti Shaheed Teaching Hospital Gujrart. **Period:** From December 2015 to November 2016. **Method & Material:** Total 120 patients were selected as per selection criteria. In 60 patients we used suction drain post-operatively & remaining 60 patients without Suction drain. **Results:** In our study we selected 120 patients .Patients divided in two groups. In group A 60 patients included in the study. We did not use suction drain in these patients. In group B we also selected 60 patients of upper limb fractures. We used suction drain in these patients. We compared the results of both groups on the basis of superficial wound infection and pain. In group A, six patients developed superficial wound infection while four patients developed superficial wound infection in group. There was no difference in severity of pain in both groups. **Conclusion:** We concluded from our study that there is no added advantage of suction drain in upper limb fracture surgery.

Key words: Fracture, Internal fixation, Open redaction, Suction Drain.

Article Citation: Rasool S, Manzoor B, Amjad A. Upper limb fracture; Comparison of post operative results in upper limb fracture surgery with or without suction drain. Professional Med J 2018; 25(8):1151-1154. **DOI:**10.29309/TPMJ/18.4978

INTRODUCTION

Upper limb injuries are one of the common injuries presenting in orthopedic surgery department.[1,2] Among them fractures of upper limb bones, tendon injuries are the common presentations. Most fractures of upper limb needs fixation.[3] The use of suction drain has been practiced routinely, ever since the era of Hippocrates. Surgical drains and drainage techniques evolved over a period of time.

Prophylactic wound drainage is still being practiced without clear evidence that they improve outcome. The paucity of randomized controlled trials has not helped clinicians arrive at a definitive evidence-based position on the subject. The usual known advantages of prophylactic wound drainage are, prevention of hematoma / seroma formation and hence the risk of infections, prevention of wound swelling and compartment syndrome and better local wound environment which should improve wound healing.[4,5] On the other hand documented disadvantages of prophylactic wound drainage are no advantage, increase the risk of infection and the need for blood transfusion with the attendant risks of this therapy.[6,7]

Traditionally most surgeons use suction drains after limbs surgery.[8-12] This is because most limb surgery is being done under tourniquet and there is chance of post-operative hematoma from small bleeders. Hematoma can leads to edema of the limb which can result in delayed wound healing, increase in pain by stimulating pain receptors. Moreover hematoma can be the source of infection.[13,14] The use of suction drain in upper limb surgery is still controversial.[15,16,17] Various studies reported that postoperative use of suction drain leads to retrograde migration of bacteria causing infection and there will be more chances of blood loss that will be more

problematic for the patient and hence raise treatment cost. Lot of studies has been done in the past that show merits and demerits of post-operative closed suction in various surgical procedures. There is no extensive work reported regarding use of closed suction drains in upper limb surgery especially in Pakistan. The current study is designed to compare the advantages/ disadvantages of closed suction drain in upper limb surgeries.

Design

Quasi Experimental Design.

Settings

Orthopedic department Aziz Bhatti Shaheed Teaching Hospital Gujrart.

METHOD & MATERIALS

120 patients were included in this study. Among them, in 60 patients, we used suction drain and in other 60 patients we did not use drain.

Inclusion Criteria

Patients With upper limb fractures who needs open reduction and internal fixation of fractures.

- Patients with isolated humerus or radius/ ulna fractures
- Age between 20 to 50 years

Exclusion Criteria

- Poly trauma patients
- Patients with vascular injury
- Patients with multiple limb surgeries
- Patients in whom tourniquet is contraindicated.
- A total of 120 patients were selected as per selection criteria.

They were divided into two groups.
In all patients we used tourniquet but before closure of wound we deflated the tourniquet.
In all patients we secured the homeostasis before closure of wound
+In group A patients we did not use the suction drain.

But in group B patients we used the suction drain.

We removed the suction drain on 2nd postoperative day.

We followed both group of patients for post -operative pain for 48 hours and wound healing for a period of three weeks.

We used same parenteral analgesia for 48 hours for both group of patients. We used diclofenac sodium 75 mg I/m bid for both group of patients. Five patients were lost in follow up. Three in group A and two in group B.

RESULTS

- In group A six patients developed superficial wound infection
- While four patients in group B developed superficial wound infection
- Which was treated with daily dressings and appropriate antibiotics.

There was no difference of pain severity in both groups for 48 hours
Total numbers of patients= 120

Group A

(Suction drain is not used on patients) = 60
Six patients developed superficial wound infection.
Developed superficial wound= 10%
Recovery rate among 60 patients= 90%

Group B

(Suction drain is used on patients) = 60
Four patients developed superficial wound infection
Developed superficial wound= 6.66%
Recovery rate among 60 patients= 93.4%
Figure-1 and Table-I

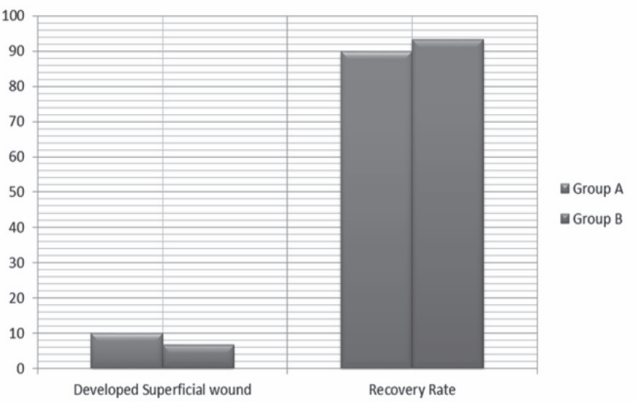

Figure-1. Showing the wound infection and recovery rate in both groups A & B.

Sample Space: Total Number of Patents= 120				
Suction Drain (SD)		Developed Superficial Wound Infection (DSWI)	DSW %	Recovery Rate (RR) %
Group A	60 (NOT USED)	06	10	90
Group B	60 (USED)	04	6.66	93.4

Table-I. Show of difference between Group A & Group B

DISCUSSION

The debate over prophylactic wound drainage in orthopedic surgery is very old suction drains are used in orthopedic surgery to avoid complications like hematoma formation which decreases post-operative tissue perfusion. This could have a negative effect on the wound. Western studies have shown the disparity between literature and routine practice among orthopedic surgeons.

Suction drain remains a tool in the prevention of hematomas and infection. It minimizes hematoma and seroma formation that reduce the risk of infection and other wound complications. Various studies reported the benefits of suction drain to reduce postoperative wound complications. Our results do not show significant statistical differences between the drained and undrained groups regarding pain and wound infection. Wound drainage therefore provides no clear benefit as compared to a no-drainage policy regarding pain and infection. Among Group A six patients (10%) developed superficial wound infection, while in Group B with drain four patients (6.6%) developed superficial wound infection that is statistically insignificant. The advantages and disadvantages regarding use of wound drain remain still remain controversial. In our study also there is no significant difference between two groups. The controversy over wound drainage still exists.[18,19,20]

Ikpeme A. et al study showed no additional advantage of suction drains in orthopedic surgery. As per their study, Prophylactic wound drainage confers no significant advantages over no drainage and may contribute to increased treatment costs through an increased post-operative transfusion requirements. These observations are comparable to our findings that are comparable to our findings. S Al-Zahid etal[21,22,23] examined Hemoglobin levels, blood transfusion requirements and functional scores and concluded that the use of either closed suction drains or reinfusion drains after primary elective total knee replacement did not show significant benefit.

So our results are no more different as compared to above mentioned studies.

CONCLUSION

Our study shows that there is no added advantage of suction drains in upper limb fracture surgery.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Sajjad Rasool	Data collection	
2	Basharat Manzoor	Data analysis	
3	Ali Amjad	Final Review	