



General Surgery

STUDY ON THE CLINICAL PROFILE AND OUTCOME OF PATIENTS WITH SURGICAL DRAINS FOLLOWING ELECTIVE ABDOMINAL SURGERIES

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ABSTRACT **Aims And Objectives-**To determine the surgical profile and outcome of patients with surgical drains following **MATERIALS AND METHODS-** Study design: observational study Period of study: december 2020 to January 2022 sample size :79 **INCLUSION CRITERIA:** .All patients undergoing elective abdominal surgeries with drain placement **EXCLUSION CRITERIA:** 1.Age <18yrs 2.Patients with pre-existing infection at surgical site 2.Patients with pre-existing infection at surgical site **Results & Conclusion-**Obese patients undergoing elective laparotomy suffer from local wound complications such as seroma, hematoma, pain at wound site, wound dehiscence, and surgical site infections. These complications occur because of increased subcutaneous fat thickness, poorly controlled bleeding points in subcutaneous plane. These will lead to increased morbidity for the obese patients and prolonged hospital stay. In this study, we have observed that there is positive correlation between SSI and BMI, with the Rate of SSI was seen more in BMI >25 as compared to BMI <25, there is increased wound complication associated with increase in age because of varied factors mentioned above. We observed less wound complications in female patients compared to males due to the probable beneficial effect of estrogen on wound healing. Also we observed that patients with higher BMI are more prone for wound complications thus further increasing their length of hospital stay.

KEYWORDS : drain, seroma, infection

INTRODUCTION

The idea of surgical drainage, which was prevalent as right on time as fifth century, apparently emerged from perceptions of spontaneous wound or abscess drainage. Since such occasions were well suited to result in clinical improvement, it followed that facilitating the cycle by mechanical means may speed up healing. Hundreds of years after the fact, it appeared to be judicious to prophylactically drain areas that are prone to infection. Over the most recent couple of years, in any case, fresher impacts have arisen. The utilization of prophylactic antimicrobials, for instance, has raised doubt about the requirement for prophylactic drainage, and new radiographic imaging procedures has dramatically changed the manner by which deep fluid collections are analysed and treated. In specific conditions, productivity of drains can be improved by pharmacologic control. Different new kinds of totally implantable drains, for example, ventriculoperitoneal or peritoneovenous shunts, have opened, and propels in biomaterial innovation have given channels of more tissue compatibility. While few would challenge the need to drain purulent material, strategies for which drain to use, length of placement of drain, and how much suction to use all remain controversial. Customary ideas and individual inclination, unsupported by sufficient proof, often determine clinical practice. According to Lawson Tait: "When in question, drain" and on the other hand, Robert Morris kept up with that "Discharge in the peritoneal cavity ought to be left undisturbed as a result of its food value." Even present day spectators have supported leaving drains set up until discharge arises, else the drain will have been for nothing. The present study was conducted to determine the outcome of patients with surgical drains among patients admitted for elective abdominal surgery.¹

AIMS AND OBJECTIVES

To determine the surgical profile and outcome of patients with surgical drains following abdominal surgeries

PATIENT AND METHODS

Study design: observational study

Source of study: general surgery in patients, pesimsr, kuppam

Period of study: december 2020 to january 2022

sample size : 79

INCLUSION CRITERIA:

1.All patients undergoing elective abdominal surgeries with drain placement

EXCLUSION CRITERIA:

1.Age <18yrs

2.Patients with pre-existing infection at surgical site.

3.Patients with comorbid conditions such as diabetes, advanced malignancy, steroid intake, radiotherapy, hepatic, and renal insufficiency & immunocompromised states.

STUDY FACTORS: After being admitted to PESIMSR Hospital, kuppam, information about clinical characteristics and investigations was gathered, based on patient condition appropriate surgery was planned. All patients will receive same preparations- Patients should take shower on the day of surgery and body hair removal, Surgical field disinfected by use of povidone iodine, Injection cefotaxime 1g i.v just before skin incision, Skin incision made with scalpel, Surgical instruments to be exchanged just before muscle Closure, Wound irrigated with saline just before skin closure, Exit of the drain should be separated from main wound, Drain is removed when the output is less than 30 ml/day for 2 days, Daily sterile dressing done, The content in drain is measured daily and drain is emptied daily, The outcome is measured with following parameters such as seroma, hematoma, pain and surgical site infection, All the patients are discharged only after the drain is removed, Seroma is collection of clear fluid in the incision site. It is identified by discharge of clear immature fluid from the wound, Hematoma is abnormal collection of blood in the incision site. It manifests as localized swelling with bluish discoloration of the overlying skin with dark red fluid discharging through the wound, Surgical site infection is identified with drainage of frank pus from the wound. Culture may be positive or negative.

OBSERVATIONS AND RESULT

TABLE 1-Age distribution

Age Range	Frequency	percentage
25-35	31	39.2
36-45	30	38
46-55	18	22.8
Total	79	100

Mean age here is 38.49+7.38

TABLE 2- GENDER DISTRIBUTION

Gender	Frequency	percentage
Male	45	57
FEMALE	34	43
TOTAL	79	100

TABLE 3-Body mass index in kg/m2

BMI	Frequency	Percentage
18.5 – 24.9	15	19%

25 – 29.9	44	55.7%
>30	20	25.3%
Total	79	100%

MEAN SD is 27.81 ± 2.88

Graph 1: Type of Elective Abdominal surgery

Table 4: Wound complications

Wound complication	Frequency	Percentage
Yes	25	31.6
No	54	68.4
Total	79	100

Table 5: Wound complication: Hospital Stay

No. of days	Frequency	Percentage
1-5	30	38
6-10	38	48.1
11-15	11	13.9
Total	79	100

Table 6- Wound complication :Pain

Pain	Frequency	Percentage
Yes	17	21.5
No	62	78.5
Total	79	100

Table 7- Wound complication :Seroma

Seroma	Frequency	Percentage
Yes	17	21.5
Total	79	100

Table 8- Wound complication :Hematoma

Hematoma	Frequency	Percentage
Yes	4	5.1
No	75	94.9
Total	79	100

Table 9- Wound complication :SSI

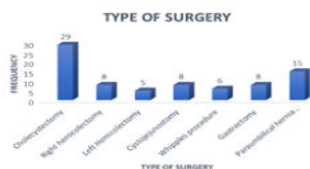
SSI	Frequency	Percentage
Yes	4	5.1
No	75	94.9
Total	79	100

Table 10: Duration of Hospital stay and Wound complication

	Minimum	Maximum	Mean ± SD	P Value
Yes	7	15	10.28± 2.65	<0.001
No	3	8		

Table 11: Body mass index and wound complication

	Minimum	Maximum	Mean ±SD	P Value
Yes	29.1	32.9	31.20 ±1.17	<0.001
No	23.1	28.9	26.23±1.90	



The minimum & maximum length of hospital stay in patients with wound complications is 7days and 15days respectively with mean 10.28 ±2.65. The minimum and maximum length of hospital stay in patients without wound complications is 3 days and 8 days respectively with mean 5.33 ±1.74. The minimum and maximum BMI in patients with wound complications is 29.1 and 32.9 kg/m2 respectively with mean 31.20 ±1.17. The minimum and maximum BMI in patients without wound complications is 23.10 and 28.90 kg/m2 respectively with mean 26.23 ±1.90.

DISCUSSION:

In spite of present day careful surgical procedures and the utilization of anti-microbial prophylaxis, SSI is quite possibly most widely

recognized difficulty experienced in a medical procedure. Age is an important variable leading to SSI. older ages increases the risk of SSI due to abnormal immune reaction due to abnormal T cell activity into the wound with changes in manufacturing of chemokine and decreased phagocytic ability of macrophage. The observation made from various studies implies that patients in the thirties and forties are the mostly affected patients.

There is a difference in healing capacity of males and females due to the beneficial effect of estrogen. The mean age in the study was 38.49 ± 7.38 years. 40% of the members had place with the 25-35 years, 38% had a place with 36-45 years, 22.8% had a place with the age group of 46-55. In the review led by Dhaigude BD et al.,⁴ the mean age of the patients was 39.88±13.06 years (range 23-75). In the review led by Jindal R et al.,¹⁶ the mean age noticed was 58 years. In the current review 57% and 43% were males and female correspondingly

The post-surgery complications of the wound can be characterized as any adverse result as seen either by the specialist or by the patient. In the present study, 31.6% had and 68% did not have any wound complications. 21.5% had pain, 5.1% had seroma, 5.1% had hematoma, 12.7% had surgical site infection.

In the study conducted by Murtaza B et al.¹² in a comparative cross-sectional study complications were experienced in 28 (33.7%) patients, with 14 (17.0%) showing more than one.

In the present study, 36.7% underwent cholecystectomy, 10.1% underwent Right hemicolectomy, 6.3% underwent Left hemicolectomy, 10.1% underwent Cystojejunostomy, 7.6% underwent Whipples procedure, 10.1% underwent gastrectomy, 19% underwent paraumbilical hernia repair.

In the current review, the mean duration of hospital stay was 6.89 ± 3.09 days, 48% remained for a length of 6-10 days, 38% remained for a term of 1-5 days, 13.9% required a stay of 11-15 days. In the study conducted by Dhaigude BD et al.¹, majority of the patients stayed for a duration of <10 days in cases irrespective of the mode of surgery. In this study they have also observed that the mean duration if stay was lower in cases who underwent elective surgeries.

Mean stay in hospital with and without complications was 10.28 ±2.65 days and 5.33±1.74 days. There was genuinely huge distinction in the mean length of hospital stay in cases with and without complications, length of stay in cases with complexities was longer when contrasted with cases without any complications

Obesity and malnutrition are major hinder factors in surgical wound healing. Hypoalbuminemia causes helpless tissue healing, diminished collagen creation and granuloma arrangement bringing about an expanded danger of SSI. Obesity expands the danger of SSI considerably when the abdomen fat layer surpasses 3 cm, prompting requiring bigger incision, hypoperfusion of fat tissue and seroma, hematoma, wound dehiscence. In this review, we have seen that there is positive relationship among SSI and BMI, with Rate of SSI was seen more in BMI >25 when contrasted with BMI <25

The mean BMI saw in the current review was 27.81 ± 2.88 kg/m2. 19% were with a BMI of 18.5-24.9, 55.7% were with BMI of 25-29.9, 25.3% were with BMI >30. Mean BMI in cases with and without complications was 31.20 ±1.17 kg/m2 and 26.23 ±1.90 kg/m2. In the study done by Jindal R et al.,¹¹ they have also observed that higher BMIs are independent risk factors for post-surgical complication & surgical site infections.

CONCLUSION:

Obese patients undergoing elective laparotomy suffer from local wound complications such as seroma, hematoma, pain at wound site, wound dehiscence, and surgical site infections. These complications occur because of increased subcutaneous fat thickness, poorly controlled bleeding points in subcutaneous plane. These will lead to increased morbidity for the obese patients and prolonged hospital stay.

In this study, we have observed that there is positive correlation between SSI and BMI, with the Rate of SSI was seen more in BMI >25 as compared to BMI <25, there is increased wound complication associated with increase in age because of varied factors mentioned above. We observed less wound complications in female patients

compared to males due to the probable beneficial effect of estrogen on wound healing. Also we observed that patients with higher BMI are more prone for wound complications thus further increasing their length of hospital stay.

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