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COMPARATIVE STUDY OF OPEN VERSUS CLOSED SURGICAL TREATMENT OF ABSCESSES

General Surgery

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ABSTRACT

BACKGROUND: The conventional method of treatment of abscesses is to lay open by incision and drainage under antibiotic coverage. However with advancement in era, the closed technique of incision and drainage with placement of suction drain is more beneficial and economical. **AIM AND OBJECTIVES:** To compare between open and closed modalities of drainage of abscesses. **METHODS:** It is a descriptive study conducted on patients admitted for abscess in the department of surgery from November 2018 till March 2020. Patients satisfying inclusion criteria were divided into 2 groups, Group A – OPEN, undergoing incision and drainage of abscesses and to leave the wounds open Group B – CLOSED group, undergoing incision and drainage with primary closure with placement of suction drain. Both the groups were compared in terms of pain (VAS), wound healing, hospital stay, total number of dressings, total expenditure and recurrence. **RESULTS:** At the end of the study, mean VAS scores for group A were 7.6, 5.8, 4.8 and 2.7 as compared to group B scores of 4.6, 3, 1.8 and 1.2 on POD days 1, 3, 5 and 7. The hospital stay for Group A and B were around 15.0667 days 10.667 days respectively. Majority of Group B i.e. 93.3% had their wounds in healing stage by POD 5 of hospitalization, it was around POD 10 for Group A. The closed group were more compliant, required lesser duration of hospitalization, had faster wound healing rates and lesser expenditure compared to the open group. **CONCLUSION:** Incision and drainage with primary closure and placement of drain is more economical and beneficial as compared to the conventional method of open incision and drainage of abscesses.

KEYWORDS

Superficial Abscesses, Open And Closed Methods Of Drainage Of Abscesses

INTRODUCTION

Acute abscesses are most commonly encountered surgical conditions, conventionally treated by surgery with adequate antibiotic coverage.[1] The most common surgical treatment is incision and drainage followed by regular dressings and to allow the wound to heal by secondary intention.[2,3]Though now this has been challenged by advent of antibiotics and to perform incision and drainage with primary closure and placement of suction drain.

In a study conducted by Ellis, it was proved that the abscess wall prevented access of blood-borne antibiotics to the abscess cavity and that if this abscess wall was curetted away the cavity could fill with antibiotic-laden blood clot, permitting safe primary closure.[4]

The primary closure technique is very effective in the treatment of abscesses located in the breast, gluteal region, axillary regions and extremities.[5] Advantages of primary closure technique are being cost effectiveness because of less duration of hospital stay, reduced hospital visits and early return to work and also a faster healing rate than the conventional method. [6 7] A better scar formation as well as reduced number of dressings is also observed with the closed method.

In lactational breast abscesses primary closure technique may prove beneficial compared to open method because of reduced discomfort, pain and early initiation of breast feeding. [8] A reduced exposure of infective material to the care givers and reduced risk of secondary infection in closed method as it does not require regular dressings and thus may be recommended as an alternative treatment that is superior to the conventional technique.

Though there is advent of modern techniques, the usage of conventional method is still rampant. Hence, we have conducted a prospective study where we have compared between the conventional method versus closed drainage of abscesses in terms of the intensity of pain, wound healing, and duration of hospital stay, cost effectiveness and number of dressings.

METHODOLOGY

Data collection

A prospective analytical study was conducted comparing the superficial acute abscess cases labelled as open and closed groups admitted in the department of general surgery, JSS AHER, Mysore, Karnataka India from November 2018 to March 2020. A protocol was followed to record the signs, symptoms and investigations of all the cases.

Inclusion criteria

- Patients aged between 18-75 years (males and females) with superficial abscesses anywhere in the body of Size 5-10 cm.

Exclusion criteria

- Intra-abdominal abscess like liver abscess abscesses involving joint cavity, underlying bony or muscular tissue, with inner diameter of abscess cavity more than 10 cm and Immunocompromised patients

METHODS AND PATIENTS

All the patients fulfilling the inclusion criteria were included in the study and consecutively allocated OPEN (Group A) and CLOSED (Group B) groups. There were 30 patients in each group. Patients were followed up from the admission till the complete healing of the wound. The demographic details, symptomatology of the abscess, medical history, general physical examination findings, local and regional examination findings and results of routine blood investigations were entered in the proforma according to the set protocol. After obtaining a written informed consent Group A patients underwent laying open of abscesses following incision and drainage while Group B underwent incision and drainage with primary closure and placement of suction drain.

Statistical Analysis

Descriptive statistics and inferential statistics using chi-square test and z-test for difference between two means were used to study both the groups. The statistical software used was SPSS (statistical presentation system software) version 16.0 and Graph Pad Prism 4 and the results were tested at 5% level of significance.

RESULTS AND DISCUSSION

Age wise Distribution

AGE	GROUP A	GROUP B
<45 YEARS	15	24
>45 YEARS	15	6

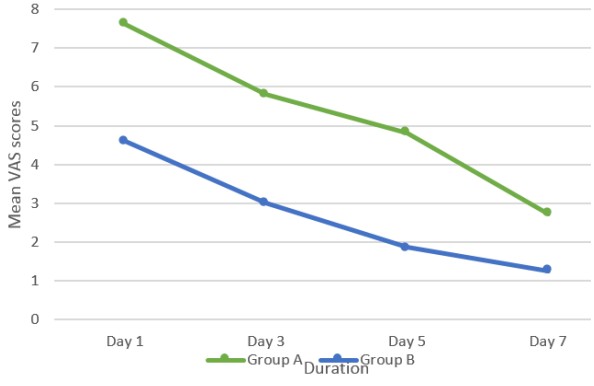
TYPES

The following table shows the different sites of the superficial abscesses included in our study.

			Group		Total
			Group A	Group B	
3	ABDOMINAL WALL ABSCESS	Count	1	1	2
		% within group	3.3%	3.3%	3.3%
	ABSCESS OVER THE BACK	Count	2	2	4
		% within group	6.7%	6.7%	6.7%
	ABSCESS OVER THE BACK AND AXILLA	Count	0	1	1
		% within group	0.0%	3.3%	1.7%
	ABSCESS OVER THE THIGH	Count	0	1	1
		% within group	0.0%	3.3%	1.7%
	BREAST ABSCESS	Count	5	20	25
		% within group	16.7%	66.7%	41.7%
	FOOT ABSCESS	Count	1	0	1
		% within group	3.3%	0.0%	1.7%
	GLUTEAL ABSCESS	Count	12	2	14
		% within group	40.0%	6.7%	23.3%
	HAND ABSCESS	Count	0	1	1
		% within group	0.0%	3.3%	1.7%
	LEG ABSCESS	Count	1	0	1
		% within group	3.3%	0.0%	1.7%
	PERIANAL ABSCESS	Count	4	1	5
		% within group	13.3%	3.3%	68.4%
	RIGHT FOOT ABSCESS	Count	1	0	1
		% within group	3.3%	0.0%	1.7%
	SCROTAL ABSCESS	Count	1	0	1
		% within group	3.3%	0.0%	1.7%
	THIGH ABSCESS	Count	2	1	3
		% within group	6.7%	3.3%	5.0%
Total		Count	30	30	60
		% within group	100.0%	100.0%	100.0%

Visual Analog Scale scores

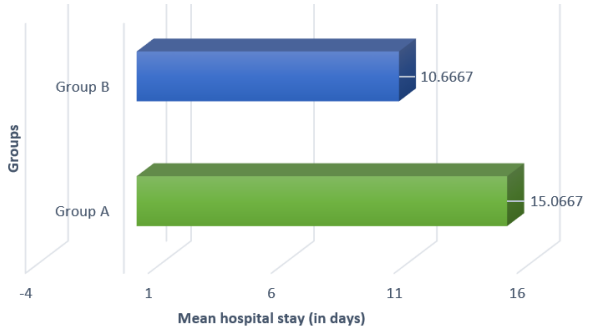
DAYS	GROUP A	GROUP B	P VALUE
POD 1	7.6 + 1.10	4.6 + 0.96	<0.001
POD 3	5.8 + 0.99	3.0 + 0.64	<0.001
POD 5	4.8 + 0.92	1.8 + 0.81	<0.001
POD 7	2.7 + 0.78	1.2 + 0.44	<0.001



Group A – OPEN group was in the higher range as compared to those for
Group B – CLOSED group with a downward trend.

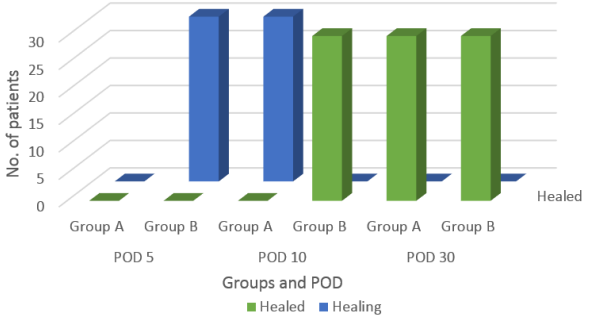
Hospital Stay

	group	N	Mean	Std. Deviation	P value
HOSPITAL_STAY	Group A	30	15.0667	1.55216	<0.001
	Group B	30	10.6667	1.15470	<0.001



A difference of about 5 days extra for group A, with P value of Significance <0.0001.

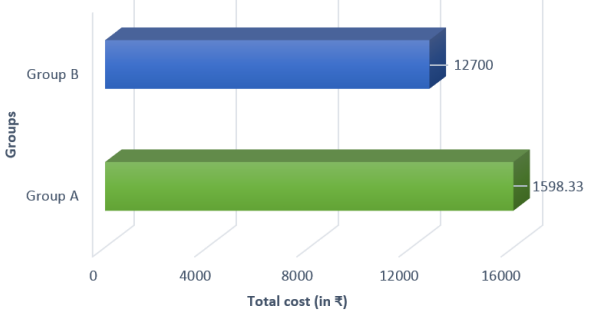
Wound Healing



POD 5 wounds of Group A patients showed active postoperative changes whereas Group B - 30 patients in healing stage. On POD 10 group B had sutures removed whereas wounds of Group B patients were healed by POD 30.

Total costs

	group	N	Mean	Std. Deviation	P value
BED_CHARGES	Group A	30	3013.3333	310.43166	<0.001
	Group B	30	2133.3333	230.94011	
OT_DRESSINGS	Group A	30	12975.0000	401.23731	<0.001
	Group B	30	10566.6667	115.47005	
TOTAL_COSTS	Group A	30	15988.3333	681.86905	<0'001
	Group B	30	12700.0000	346.41016	



There was a difference of about Rs. 880, Rs. 2408.33 and Rs. 3288.33 in bed charges, OT procedure and dressing charges respectively, which was spent more by the OPEN group.

In a comparative study conducted by M R Madan et al, 60 patients - 2 groups of 30 each. They found that the closed group patients took significantly lesser time to heal, duration of hospital stay, number of dressing changes and pain during dressing change also better scar than the open group. With wound healing time and hospital stay being about 12.30±0.88 days and 11.01 ± 1.87 days for Closed group and 19.63± 1.43 days and 18.24 ± 2.67 days for Open group respectively [9]. In a study by Arun Dhankhar et al on management of pyogenic abscesses

by primary closure versus incision and drainage, of 20 patients in each group, they also found that the closed group had better results comparatively [10]. A Comparative study conducted by Aniruddha Kale et a'l, between conventional incision and drainage versus incision and drainage with primary closure of wound in acute abscesses of 2 groups with 50 patients in each group, they also found that results with respect to duration of wound healing, hospital stay and recurrence rates for open group were 16.56± 2.51, 17.46 ± 2.57 and 3 and that of closed group was 11± 1.47, 11.98±1.82 and 1 respectively thus significantly higher than closed group [11]. A Randomized trial was conducted by Abraham N and team wherein 32 abscesses were treated by using closed technique and 29 abscesses by open technique. The results showed 40-60% reduction in duration of hospital stay, dressing changes and need for analgesia.[5]

CONCLUSION

We deduce that incision and drainage with primary closure following placement of suction drain is an alternative procedure for treatment of small superficial acute abscesses with cost effectiveness and lesser amount of pain, number of dressings, hospital stay and recurrence rates also with optimum utilization of resources in form of dressing materials, hospital beds and other consumables.

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REFERENCES

1. Edino ST, Ihezue CH, Obekpa PO. Outcome of primary closure of incised acute soft-tissue abscesses. Niger Postgrad Med J 2001; 8:32-6.
2. Gajiwala KJ. Puncture, drainage and irrigation: Is that enough for treating an abscess? Indian J Plastic Surg 2006; 39:189-95.
3. Sabiston DC, Townsend CM. Soft tissue infections. In: Townsend CM, Beauchamp RD, Evers BM, Mattox K, editors. Sabiston textbook of surgery: the biological basis of modern surgical practice. 17. Philadelphia, PA: Saunders; 2004. pp. 263–8.
4. Ellis M. Incision and primary suture of abscesses of the anal region. Proc R Soc Med 1960; 53:652-3.
5. Abraham N, Doudle M, Carson P. Open versus closed surgical treatment of abscesses: A controlled clinical trial. Aust N Z J Surg 1997; 67:173-6.
6. Dubey V, Choudhary SK. Incision and drainage versus incision and drainage with primary closure and use of closed suction drain in acute abscesses. Wounds 2013; 25:58-60.
7. Khanna YK, Khanna A, Singh SP, Laddha BL, Prasad P, Jhanji RN. Primary closure of gluteal injection abscess (a study of 100 cases). J Postgrad Med 1984; 30:105-10.
8. as: Odiya S, Mathur R, Arora S. Comparative study of conventional incision and drainage versus percutaneous placement of suction drain: changing trend of breast abscess management. Int Surg J 2016;3:1580-4.
9. Raj MRM, Aareb A. Acute Abscess Management – Comparative Study between Primary Closure versus Healing by Secondary Intention. Int J Sci Stud 2016; 4(2):260-262.
10. Arun Dhankhar, Sunil Kumar Agrawal. Comparative study of management of pyogenic abscesses by primary closures versus incision and drainage. MedPulse International Journal of Surgery. July 2017; 3(1): 33-35
11. Kale A, Athavale V, Deshpande N, Nirhale D, Calcuttawala M, Bhatia M. A comparative study of conventional incision and drainage versus incision and drainage with primary closure of the wound in acute abscesses. Med J DY Patil Univ 2014;7:744-7