ORIGINAL ARTICLE

Comparison of incision and drainage of superficial skin abscesses with and without packing in pediatric population

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ABSTRACT

Background: Following incision and drainage of any abscess most common practiceis to pack the cavity. However, it is a painful experience particularly during daily change of dressing.
Aim: To compare the need for an intervention with packing versus no packing after incision and drainage of superficial skin abscesses in pediatric patients.
Methods: The study was a randomized control trial done at Department of Pediatric Surgery, The Children Hospital, Lahore. We did it from June 2017 to December 2017.Then patients were allocated two separate groups. In group P, patients had undergone I& D with packing. In group NP patients had undergone I & D of abscesses without packing anda sterile gauze and tape was used to dress the wound. Patients were discharged and were followed up after 48 hours to be assessed for need of intervention. All data was analyzed using SPSS version 20.
Results: We included 440 patients in our study. In the study mean age of the patients was 8.11±4.39 months; the mean size of abscess of the patients was 2.49±1.23 cm. The further fluctuation at wound site was found in 156 (35.5%) cases and persistent fever was noted in 182 (41.4%) cases. Statistically there was insignificant difference found in outcome between these study groups with and without packing in terms of the need of interventions i.e. p-value=0.206.
Conclusions: Our study results concluded that there was no statistical difference between with packing and without packing after incision and drainage of superficial skin abscesses in pediatric patients**.**So we recommend that following incision and drainage there is no need of packing of wound in children.
Keywords: Intervention, Superficial Abscess, Pediatric, Packing, Incision, Drainage

INTRODUCTION

In any hospital setting theroutine practice of treating the superficial skin abscesses is in the emergency department (ED)[1]. The traditional method of treatment for subcutaneous abscesses is incision and drainage (I&D) along with wound packing. Its main purpose is to secure hemostasisand prevention of recollection of pus.However, retrieving of pack from wound makes patients anxious[2]. Variety of textbooks describes procedural guidelines regarding management of superficial skin abscesses, but lacking practical support[3,4,5].

The common recommendation regarding treatment is wide incision along the whole length of abscess which provide with enough space to break all loculations, placement of a pack and adequate drainage[1]. Packing increases discomfort of patients because its removal and re-packing requires multiple emergency visits. It's purely a surgeon's decision whether to pack a wound or not[6]. One study conducted on elderly patient did not found any significant difference between packing and non-packing groups in terms of need for an intervention (17.4% out of 23 cases with packing vs. 20% out of 25 cases without packing, p=0.72). However, the need for intervention was observed in fewer cases with packing as compared to non-packing[6].

Kessler et al had not found any significant difference (p=0.144) in terms of repeated intervention. He observed that 70.4% cases required afterward intervention with packing (n=27) while 59.1% cases required for intervention without packing (n=22). In this study, it was noticed that need for intervention was higher with packing as compared to non-packing[7].

Rationale of this study is to compare the need for an intervention with packing versus no packing following incision and drainage of superficial skin abscesses in pediatric patients. Packing is painful procedure and if there is no difference between both group, then why packing would be used. Literature has reported that the need for intervention with or without packing has no difference. But controversy is observed as one study reported need for intervention was high with packing[7] other reported it high without packing[6]. Our study's objective was to compare the need for an intervention with packing versus no packing after incision and drainage of superficial skin abscesses in pediatric patients.

MATERIAL AND METHODS

The study was a randomized controlled trialwhich we performed at department of Pediatric Surgery, Children Hospital,Lahore in a period of 6 months, from June 2017 to December 2017. We included patients of age 1–16 years of both genders with superficial skin abscess (as per operational definition). Abscesses > 5 cm in any dimension; abscesses located on the face, neck, scalp, hands, feet, perineal, rectal, or genital areas; hid adenitis or pilonidal abscesses (on clinical examination) were not part of study. Also patients on steroid (medical record); immunosuppressive states including sickle cell disease, sarcoidosis (medical record), history of allergy to any drugs especially to sulfa drugs excluded.

According to operational definition superficial skin abscess was defined as collections of pus within the dermis and deeper skin tissues located on the trunk or extremities of size <5cm in the largest dimension.And need for

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interventiondefined as when assessed after 48 hours, anyone or more of these signs are present and patients required repeat interventions;

i. Persistent discharge of pus from wound site
ii. Further fluctuation at wound site
iii. Persistent fever (temp more than 99ºF for >1 hour)

Inability to resolve mass (size same as or increased).

Oursample size was of 440 cases; 220 cases in each group was calculated with 80% power of test, 5% level of significance and taking expected percentage of need for an intervention i.e. 70.4% with packing and 59.1% with non-packing after incision and drainage of cutaneous abscesses.

After taking approval from hospital ethical committee, those 440 children which were according to inclusion criteria were selected from ED of Pediatric Surgery, The Children Hospital, Lahore. Informed consent was obtained from parents. Demographic information (name, age, gender, contact) was also obtained. Two groups were allocated to the patients randomly. Then patients were randomly divided in two groups. In group P, patients underwentI& D with packing i.e., the wound cavity was filled with a piece of gauze soaked in iodophore. In group NP patients underwent I&D without packing and abscesses were simply dressed like other surgical wounds.

All surgeries were done by a single surgical team. Patients were discharged and were instructed to be followed up in OPD after 48 hours for need for an intervention. The collected data was noted on Performa**.** The collected data was analyzed through SPSS version 20. Quantitative variables like age were calculated at mean & standard deviation. Qualitative variable like gender and need for intervention was calculated as frequency and percentage.Chi square test was applied to compare the frequency of need for an intervention in both groups. P-value $\leq$ 0.05 was considered as significant. Data wasstratified for age, gender, size of abscess, nutritional status to deal with effect modifiers. Post-stratification chi-square test was applied. P-value $\leq$0.05 was considered significant.

RESULTS

A total 440 patients were included in the study.Most of the patients were <8 months of age and male in both groups. Also size of abscess was <3cm in both groups. All the demographic details are in table 1.

Incision and drainage was done in all patients and packing and non-packing was done as per group allotted. All patients were followed up at 3rd post-operative day and clinical examination was done. All data is given in table 2.

The study noted, 314 casesneeded intervention, among them 163 cases belonged topacking group and 151 belonged to no packing group (p-value=0.206). This need of intervention was further stratified against variables i.e., age, gender, size of abscess, health status and results are shown in Table 3.

Table 1: Demographic data

Gender Distribution	Variables	Mean	SD
Male (66.59%)	Age	8.11	4.39
Female (33.41%)	Size of Abscess	2.49	1.23

Table 2: Percentage distribution

Clinical Examination	Percentage	
	Yes	No
Malnourished	22.5%	77.5%
Further fluctuation at wound site	35.5%	64.5%
Persistent fever	41.4%	58.6%
Inability to resolve mass	24.3%	75.7%
persistent discharge of pus from wound site	57.3%	42.7%

Table 3: Comparison of intervention need in both study groups stratified by variables

Intervention need		Study Groups				p-value
		Group A		Group B		
		Yes	No	Yes	No	
Age	≤ 8 months	86	39	91	37	0.69
	> 8 months	77	18	60	32	0.014
Gender	Male	110	33	104	46	0.143
	Female	53	24	47	23	0.82
Abscess Size(cm)	<3	103	33	94	40	0.301
	≥ 3	60	24	57	29	0.469
Health Status	Malnourished	32	14	38	15	0.816
	Non Malnourished	131	43	113	54	0.119

DISCUSSION

This study's objective was to compare the need for an intervention with packing versus no packing after incision and drainage of superficial skin abscesses in pediatric patients.

According to our study the need of intervention was noted in 314 patients, 163 belonged to packing group and 151 were from no packing group. Statistically there was not any obvious difference between both methods of treatment. Wound packing did not increase the outcome neither the non packing increased the failure of treatment. However, the common observation is increase of pain scores in patients with wound packing[8].

The results of Ken Milne et al study of 48 patients with abscess, 23 were from packing and 25 from no packing. A total of 9 subjects needed an intervention[9]. One study conducted on elderly patient did not found any significant difference between packing and non-packing groups in terms of need for an intervention (17.4% out of 23 cases with packing vs. 20% out of 25 cases without packing, p=0.72). However, the need for intervention was observed in fewer cases with packing as compared to non-packing[6]. Michael Leinwand et al study included 85 patients with distribution of 43 in packing group and 42 in no packing

group. The statistics of this study showed no difference between two groups. However, the study results showed that Incision and drainage of superficial skin abscesses without packing is a safe method[2].

Another study also did not find any significant difference (p=0.144) in terms of repeated intervention and observed that 70.4% cases in packing group while 59.1% in non-packing group. In 2011, Schmitz et al surveyed 350 emergency medicine providers regarding abscesses and found that 91% of these providers still packed abscesses following I&D[10]. Our study was a single center study and we included superficial abscess only. So, given this limitation of our study we recommend further multi-centric randomized trials over the topic.

CONCLUSION

Our study results concluded that statically there is no difference between packing and without packing after incision and drainage of superficial skin abscesses in pediatric patients, however less number of patients needed intervention in no packing group compared to packing group among children.

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