



A COMPARATIVE STUDY OF CONVENTIONAL INCISION AND DRAINAGE VERSUS INCISION AND DRAINAGE WITH PRIMARY CLOSURE OF THE WOUND IN ACUTE ABSCESSSES

T. Babu Antony*

Associate Professor, Dept Of General Surgery, Chengalpattu Medical College, Chengalpattu. *Corresponding Author

S. Thirunavukkarasu

Associate Professor, Dept Of General Surgery, Chengalpattu Medical College, Chengalpattu.

Karthick Chandran

Post Graduate, Dept Of General Surgery, Chengalpattu Medical College, Chengalpattu.

Gowtham G.

Post Graduate, Dept Of General Surgery, Chengalpattu Medical College, Chengalpattu.

Sudhishnaa S.

Post Graduate, Dept Of General Surgery, Chengalpattu Medical College, Chengalpattu.

ABSTRACT

Acute abscesses are a surgical emergency and almost always require drainage, especially from superficial sites. This is a study among 100 patients in a tertiary care centre in South India to compare the efficacy of two methods of management of superficial – skin and soft tissue- abscesses in terms of post operative pain, wound healing time, duration of inpatient treatment and recurrence of abscess at primary site. The first method was the conventional Incision and Open drainage and healing by secondary intention. The second method involved Incision and Drainage and primary closure of the wound with a negative pressure drain. The latter method was found to be significantly superior to the conventional method in all the above mentioned outcomes. Hence, this method can be promoted along with the use of appropriate antibiotics to lessen the inconveniences of the patients.

KEYWORDS : open drainage, closed drainage, suction drainage, superficial abscess

INTRODUCTION

Abscesses especially involving the soft tissue are very common in the Indian setup. Management of abscesses especially involving skin and soft tissue include, incision and drainage, repeated aspiration, incision and drainage with primary closure and conservatively treated by giving antibiotics. The principle of surgical management of abscesses has usually been incision and free drainage because this permits healing by secondary intention and treatment by secondary closure. This method of treatment had been challenged with the introduction of antibiotics. The primary closure technique was supported and followed by many surgeons in the treatment of breast, anorectal, axillary abscesses. The advantages of primary closure technique were even more faster healing rates, lesser hospital stay and early return to work, no greater recurrence than the conventional method, better or minimal scar formation and finally reduced cost of labour and material and thus it may be recommended as an alternative treatment in the treatment of acute abscesses.

In our study, we compared the outcome of conventional incision and drainage of acute abscesses versus incision and drainage with primary closure of wound of acute abscesses with regards to wound healing, postoperative pain, duration of hospital stays and recurrence.

MATERIALS AND METHODS

A comparative prospective study included 100 cases of acute abscesses at Chengalpattu Medical College, Hospital and Research Centre, Chengalpattu. Institutional Ethical Committee Clearance was obtained for the same. Informed consent was obtained from all the patients before inclusion in the present study. All patients with acute superficial abscesses attending our surgical OPD and casualty were included. Patients suffering from systemic diseases like diabetes mellitus, immunodeficiency, anemia, etc and patients on steroids, deep seated abscesses (e.g., thoracic, pelvic, intraabdominal abscess, intracranial abscess), and abscess cavity of internal diameter of >5 cm were excluded. Patients

were divided into two groups. Group A includes conventional incision and drainage and Group B includes incision, drainage and primary closure with negative suction drain. Patients were randomly allotted to both groups. Patients were prepared preoperatively. Anaesthesia was given depending on the site and age after obtaining consent for the same. Inj Cefotaxime 1g intravenous (I.V.) given before induction of anaesthesia and postoperatively. In both groups, Inj Cefotaxime 1g I.V. given 12 hourly for 2 days and then continued with tablet for 3 more days until culture reports were available and then as per culture sensitivity report antibiotics were changed accordingly for next 5 days. In both groups, injection Diclofenac sodium 50 mg (2ml) was given stat intramuscular (IM) and then continued with tablet diclofenac sodium twice a day for 4 days. Suction drain was removed after discharge from the cavity after it became very minimal (<5 mL/day) and the sutures were removed between 7th and 14th day. The average duration of drain removal was 7 days. Postoperatively wound healing assessment done in Group A: Healing time was recorded from time of incision until the complete obliteration of abscess cavity. In Group B: Healing time was recorded from time of incision until suture removal after confirming that skin edges were properly approximated. Pain assessment was done by visual analogue score (VAS) in both groups.

RESULTS

The maximum number of patients in Groups A and B were in the age group 21-30 years. In Group A, of 50 cases, 28 were males and 22 were females. In Group B, 24 were males and 26 were females. The age and gender distributions are shown in Tables 1 & 2 respectively.

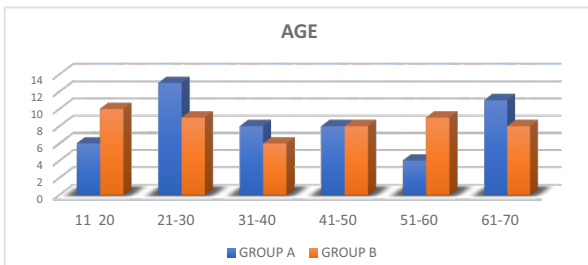
TABLE 1

| Age(years) | Group A | Group B | Total |
|------------|---------|---------|-------|
| 11-20 | 6 | 10 | 16 |
| 21-30 | 13 | 9 | 22 |
| 31-40 | 8 | 6 | 14 |
| 41-50 | 8 | 8 | 16 |
| 51-60 | 4 | 9 | 13 |

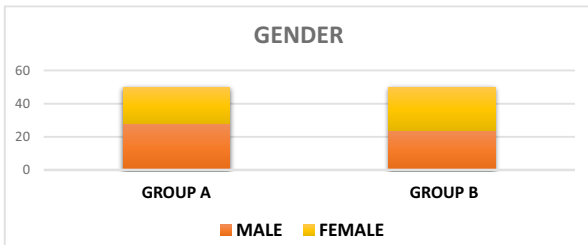
| | | | |
|-------|----|----|-----|
| 61-70 | 11 | 8 | 19 |
| Total | 50 | 50 | 100 |

TABLE 2

| Gender | Group A | Group B | Total |
|--------|---------|---------|-------|
| Male | 28 | 24 | 52 |
| Female | 22 | 26 | 48 |
| Total | 50 | 50 | 100 |



GRAPH 1

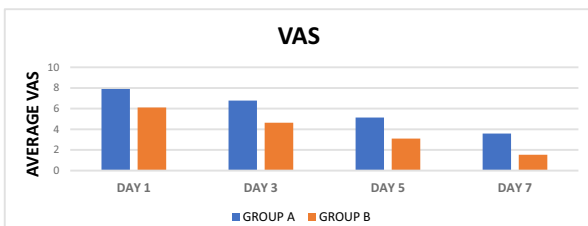


GRAPH 2

The mean Visual Analog Score was analysed quantitatively within both groups. There was a significant difference in both groups, which is statistically highly significant ($P < 0.0001$) [Table 3 and Graph 3].

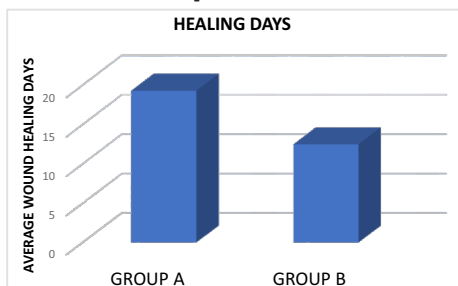
TABLE 3

| VAS | Group A Mean \pm SD(n=50) | Group B Mean \pm SD(n=50) | Z | P value |
|-------|-----------------------------|-----------------------------|------|---------|
| Day 1 | 7.20 \pm 0.70 | 5.64 \pm 0.47 | 8.89 | <0.0001 |
| Day 3 | 6.02 \pm 0.76 | 4.42 \pm 0.22 | 8.63 | <0.0001 |
| Day 5 | 4.76 \pm 0.38 | 2.58 \pm 0.51 | 8.58 | <0.0001 |
| Day 7 | 2.96 \pm 0.63 | 1.26 \pm 0.27 | 8.69 | <0.0001 |



GRAPH 3

Wound healing in Group B was faster than in Group A. Wound healing was analyzed quantitatively within group. The Z value is 13.52. And, P value is statistically highly significant ($P < 0.0015$) [Table 4 and Graph 4].



GRAPH 4

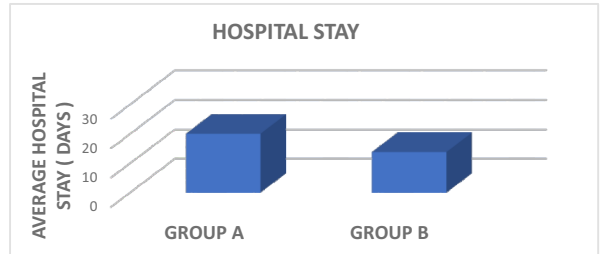
TABLE 4

| WOUND | Group A Mean \pm SD (n=50) | Group B Mean \pm SD (n=50) | Z | P value |
|--------------|------------------------------|------------------------------|-------|---------|
| Healing Days | 17.66 \pm 1.61 | 12 \pm 0.47 | 13.48 | <0.0015 |

Hospital stay was less in Group B than in Group A [Table 5 and Graph 5].

TABLE 5

| | Group A Mean \pm SD(n=50) | Group B Mean \pm SD(n=50) | Z | P value |
|---------------|-----------------------------|-----------------------------|-------|---------|
| Hospital stay | 18.46 \pm 1.57 | 10.88 \pm 2.92 | 12.19 | <0.0001 |

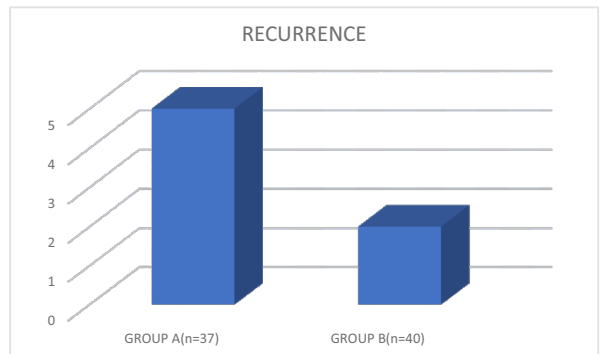


GRAPH 5

Recurrence was found 3 times more in Group A than in Group B [Table 6 and Graph 6]. The recurrence of abscess in Group A was more (5 cases) as compared to Group B (2 cases). Recurrence in Group A was at three different sites (gluteal region, axilla and thigh), while in Group B, recurrence was in a axilla and breast abscess. In both groups, the recurrence was at the primary site.

TABLE 6

| Recurrence | Group A(n=37) | Group B(n=40) | Z | P value |
|------------|---------------|---------------|------|---------|
| Present | 5(9.12) | 2(3.49) | 2.10 | >0.05 |



GRAPH 6

DISCUSSION

A total of 100 patients were chosen and they were divided into two groups. The comparison was done in regards to postoperative pain, wound healing, hospital stay and recurrence. In our study, postoperative pain assessment was done by Visual Analogue Score. On comparing both groups in our study, to attain mild (0-3) VAS patients in Group B needed 3-4 days as compared to 6-7 days in Group A.. In our study, wound healing was compared between the two groups Group A and Group B. Wound healing was found to be faster in Group B as compared with Group A (<0.0015). It was found that wound healing was faster in acute abscesses treated with primary closure than in in conventional incision and drainage. In our study, mean hospital stays in Group B was less than in Group A.It was found that hospitalization was reduced by 40-60% in group with closure of superficial abscess. In our study, recurrence rate was almost 3 times more in Group A as compared with Group B where abscesses were closed with a negative suction drainage.

CONCLUSION

Incision and drainage with primary closure technique with negative suction drainage was associated with less postoperative pain, faster wound healing, less hospital stay and low recurrence rate than conventional incision and drainage. Primary closure with negative suction drain is a better alternative technique and hence therefore recommended over the conventional incision and drainage method of acute abscesses.

REFERENCES

1. Dubey V, Choudhary SK. (2013). Incision and drainage versus incision and drainage with primary closure and use of closed suction drain in acute abscesses. *Wounds*, 25:58-60.
2. Ellis M. (1960). Incision and primary suture of abscesses of the anal region. *Proc R Soc Med*, 53:652-3.
3. Edino ST, Ihezue CH, Obekpa PO. (2001). Outcome of primary closure of incised acute soft-tissue abscesses. *Niger Postgrad Med J*, 8:32-6.
4. Abraham N, Doudle M, Carson P. (1997). Open versus closed surgical treatment of abscesses: A controlled clinical trial. *Aust NZ J Surg*, 67:173-6.
5. Khanna YK et al. (1984). Primary closure of gluteal injection abscess (a study of 100 cases). *J Postgrad Med*, 30:105-10.
6. Gajiwala KJ. (2006). Puncture, drainage and irrigation: Is that enough for treating an abscess? *Indian J Plastic Surg*, 39:189-95.