



Study Comparing The Role Of Conventional Incision And Drainage Versus Primary Suturing With Tube Drain In The Management Of Acute Superficial Abscesses

¹Dr. J. Prakash Kumar, ²Dr. R. Vinoth

^{1,2}Assistant Professor, Department Of General Surgery Government Vellore Medical College, Adukamparai. Vellore

***Corresponding Author:**

Dr. R. Vinoth

Assistant Professor, Department Of General Surgery Government Vellore Medical College, Adukamparai. Vellore

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Abstract

Introduction: An abscess is a common surgical condition. It is a collection of pus that has accumulated within a tissue because of an inflammatory process in response to either an infectious process or foreign material. It prevents the spread of infection into the systemic circulation thereby serving as a defensive response. On clinical examination, presents as a tender and fluctuant swelling surrounded by firm granulation tissue and erythema.

Aim & Objectives: This study aims to compare the outcomes of conventional I&D versus drainage of abscess cavity along with primary closure of abscess cavity with an in situ tube drain in patients presenting with acute superficial abscesses.

Materials & methods: the study period was from October 2020 to July 2021. Totally 100, patients. Cases & controls are 50 in each group Patients admitted with a clinical diagnosis of acute superficial abscesses under the Department of General Surgery, Government Vellore Medical College, and Hospital during the study period. Patients in the control group are managed with conventional Incision and drainage and the abscess cavity is packed with sterile gauze and allowed to heal by secondary intention. These patients are serially followed up for healing time, recurrence, and healthy scar formation. They are administered with analgesics and antibiotics similar to the study group.

Results: Region-wise distribution of abscesses are as follows: Head and neck: 16% in cases and 16% in control group Trunk: 18% in cases and 18% in the control group. Upper limbs: 22% in cases and 16% in control group Lower limbs: 20% in cases and 32% in control group Back region: 6% in cases and 10% in control group Gluteal region: 18% in cases and 8% in the control group. The mean number of days taken for wound healing was 10 days in the study group as opposed to 12.39 days in the control group. Since the p-value is <0.05, the difference is statistically significant. The residual abscess formation was 32% (16) in the control group compared to 30% (15) in the study group with an insignificant p-value of 0.6. The presence of a residual abscess was almost similar in both groups due to factors such as the growth of virulent/resistant organisms and increased colony count seem to play a role in the complete healing of the abscess cavity. The formation of a cosmetically appealing scar was noted in 40 (80%) of patients in the study group and 29 (58%) of patients in the control group. Thus, scar formation was much better in a study group with a p-value of 0.02 which is statistically significant.

Conclusion: Healing time was significantly shortened in patients who underwent primary suturing with tube drain following abscess drainage. The rate of recurrence of the abscess was lower following primary suturing

and tube drain compared to the I&D group. The scar formation was cosmetically appealing in the primary suturing group. The proportion of residual abscess formation was more or less similar in both groups.

Keywords: Acute abscess, comparative study of abscess treatment, I and D versus primary closure

Introduction

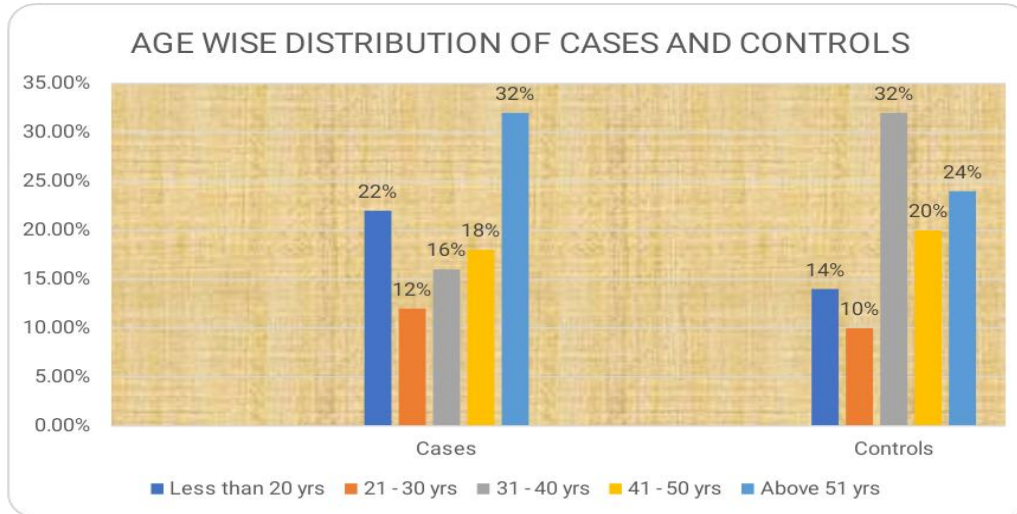
Acute soft tissue abscesses are common conditions in our environment. For the treatment of skin and soft tissue abscesses, options include repeated aspiration, incision and drainage, incision and drainage with primary closure, and conservative treatment by giving antibiotics.[1] The established principle of surgical management of abscesses has been incision and free drainage; this permits healing by secondary intention or treatment by secondary closure.[2] This modality of treatment has been challenged with the introduction of antibiotics. Ellis taught that the abscess wall prevented access of blood-borne antibiotics to the abscess cavity and that if this wall was curetted away the cavity could fill with an antibiotic-laden blood clot, permitting safe primary closure. The primary closure technique is supported by many surgeons who showed its effectiveness in the treatment of breast, anorectal, axillary abscesses. [3]Advantages of primary closure technique are faster healing rate, less hospital stay and early return to work, no greater recurrence than the conventional method, better scar formation, and finally reduced cost of labor and material and may be recommended as an alternative treatment that is superior to the orthodox technique. [4]In our study, we compared the outcome of conventional incision and drainage of acute abscesses versus incision and drainage with primary closure of the wound in acute abscesses. Recently primary suturing of abscess cavity following incision and drainage is more effective as it shortens the healing time, is painless, has a lesser rate of complications, and has a healthy scar compared to routine incision and drainage.[5]

Materials & Methods: the study period was from October 2020 to July 2021. Totally 100, patients.

Cases & controls are 50 in each group Patients admitted with a clinical diagnosis of acute superficial abscesses under the Department of General Surgery, Government Vellore Medical College, and Hospital during the study period. Patients in the control group are managed with conventional Incision and drainage and the abscess cavity is packed with sterile gauze and allowed to heal by secondary intention. These patients are serially followed up for healing time, recurrence, and healthy scar formation. They are administered with analgesics and antibiotics similar to the study group. Inclusion criteria: All patients with acute superficial abscesses attending surgical Out Patient Department (OPD) and casualty.Exclusion criteria :1.Patient with deep-seated abscesses (e.g. intra-abdominal abscess, pelvic), thoracic and intracranial abscess.2.Abscess cavity of internal diameter (I.D.) of more than 5cm and3.Patients with systemic signs of severe infection (septic shock with hypotension) are also excluded from the study. Patients in the control group are managed with conventional Incision and drainage and the abscess cavity is packed with sterile gauze and allowed to heal by secondary intention. These patients are serially followed up for healing time, recurrence, and healthy scar formation. They are administered with analgesics and antibiotics similar to the study group.

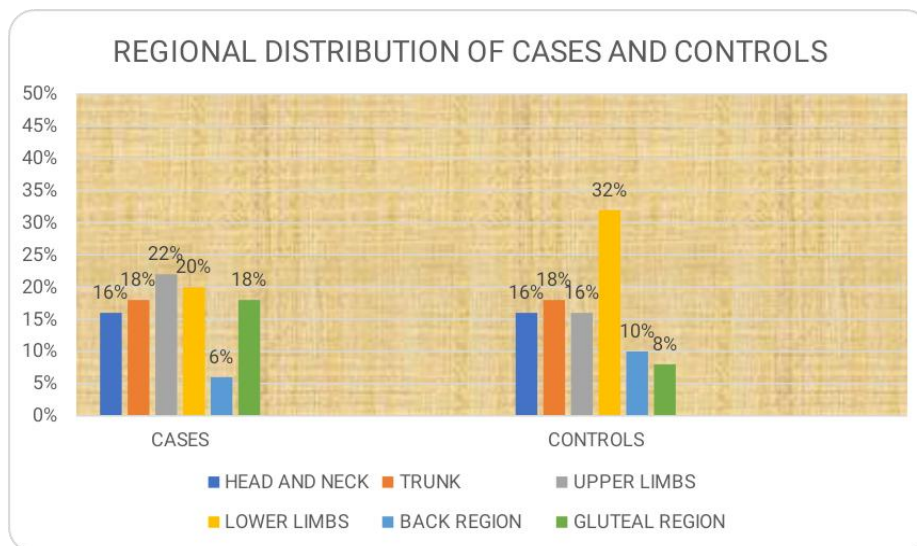
Stastical analysis: All the data were subjected to statistical analysis using Statistical Package for Social Sciences (SPSS), version 15. Independent t-test for statistical analysis. P-value < 0.05 was considered as statistically significant and P < 0.001 as highly significant.

Graph :1 age distribution



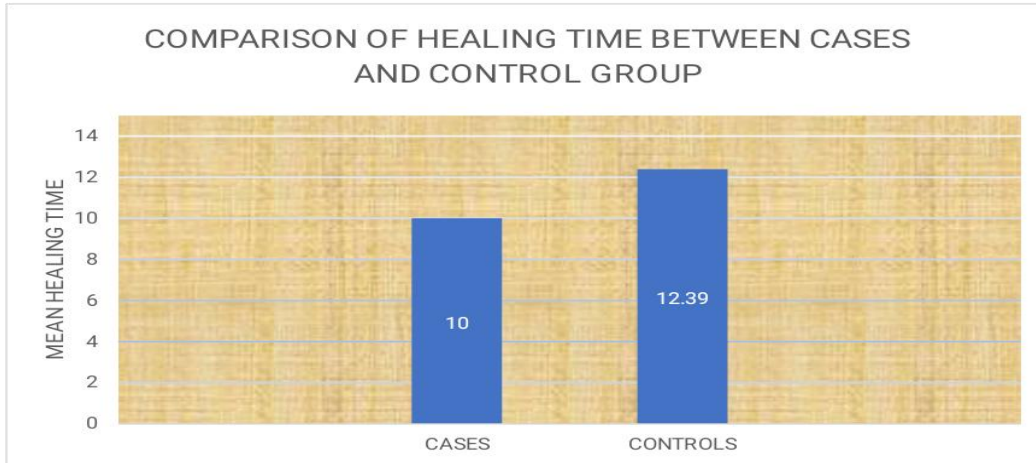
Graph :1 Total number of patients in study 100 (50 cases and 50 controls) Among them, the male and female distribution was 30 (60%) and 20 (40%) in the study group respectively and 24 (48%) and 26 (52%) in the control group respectively. Less than 20 years: 22 % in the study group and 14 % in the control group 21 – 30 years: 12 % in the study group and 10 % in control group 31 – 40 years: 16 % in the study group and 32 % in the control group 41 – 50 years: 18 % in the study group and 20 % in control group Above 51 years: 32 % in the study group and 24 % in control group p-value: 0.42

Graph:2 regional distribution



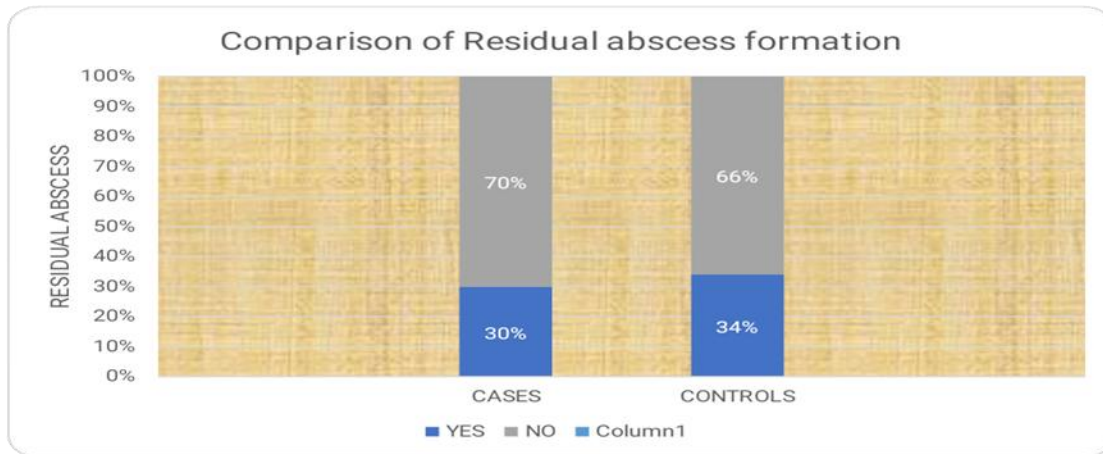
Graph:2Region-wise distribution of abscesses is as follows: Head and neck: 16% in cases and 16% in control group Trunk: 18% in cases and 18% in the control group. Upper limbs: 22% in cases and 16% in control group Lower limbs: 20% in cases and 32% in control group Back region: 6% in cases and 10% in control group Gluteal region: 18% in cases and 8% in the control group

Graph :3 healing time



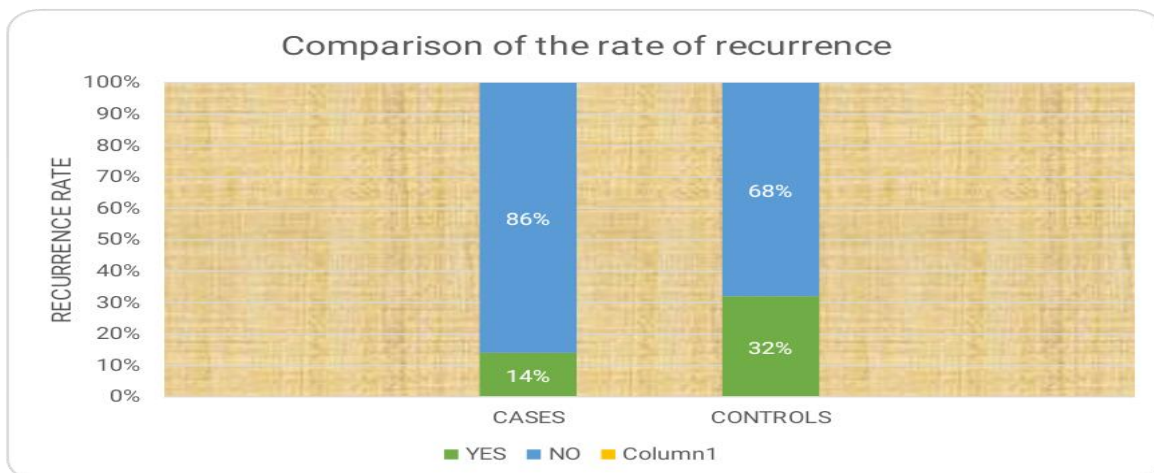
Graph :3 The mean number of days taken for wound healing was 10 days in the study group as opposed to 12.39 days in the control group. Since the p-value is <0.05, the difference is statistically significant.

Graph:4 residual abscess



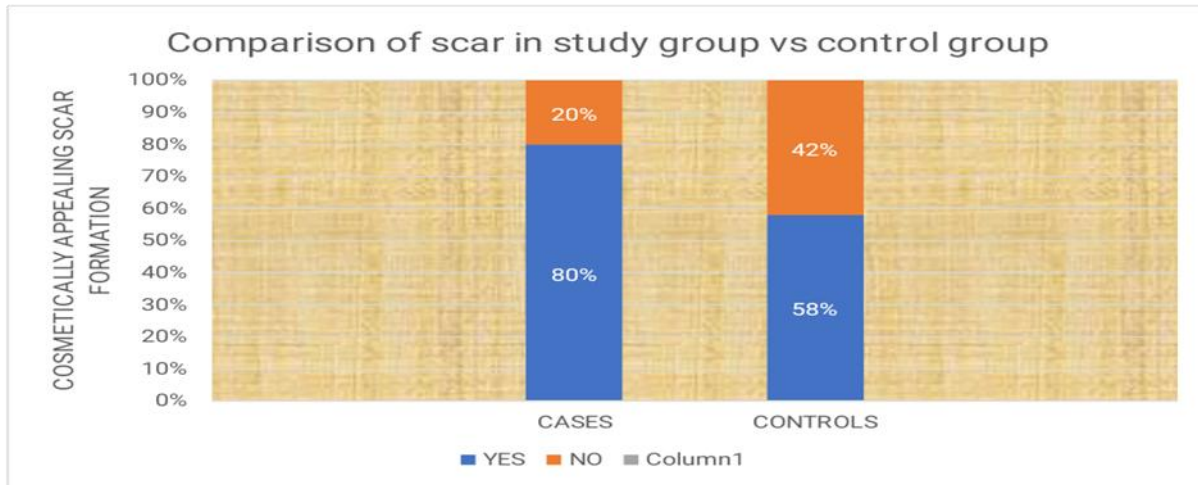
Graph:4 The residual abscess formation was 32% (16) in the control group compared to 30% (15) in the study group with an insignificant p-value of 0.6. The presence of a residual abscess was almost similar in both groups due to factors such as the growth of virulent/resistant organisms and increased colony count seem to play a role in the complete healing of the abscess cavity.

Graph:5 recurrence rate



Graph :5 Recurrence rate was 7 (14%) in study group and 16 (32%) in control group. Hence, the patients in the control group had more recurrence with a p-value of 0.03 which is statistically significant.

Graph :6 scar comparsion



Graph:6 The formation of a cosmetically appealing scar was noted in 40 (80%) of patients in the study group and 29 (58%) of patients in the control group. Thus, scar formation was much better in a study group with a p-value of 0.02 which is statistically significant.

Discussion

100 patients with acute superficial abscesses chosen based on the inclusion criteria and exclusion criteria were included in the study. These patients were divided into study and control groups based on randomization and the study proceeded. Overall 54 (54%) male and 46 (46%) female patients were included, of which 30 (60%) male patients and 20 (40%) female patients were randomized into the study group and 20 (40%) male and 26 (52%) female patients in the control group. [6] Of the total number of cases 18 (18%) patients were aged less than 20 years, 24 (24%) patients between 31 to 40 years, and 28 (28%) above 50 years contributing to the majority of cases. The mean age at presentation was found to be 39.6 in the study group and 38.8 in the control group. The mean age of presentation was 40.5 years in males and 38.8 years in females [7]. The majority of abscesses were noted on the trunk in 18 (18%) cases, upper limbs in 19 (19%), and lower limbs in 26 (26%) of cases. Patients who received suturing of the wound with a tube drain had a better rate of healing with a mean healing time of 10 days (SD 1.97) compared to those patients in the control group who received conventional incision and drainage with a mean healing time of 12.39 (SD 2.16). The p-value of this variable was <0.00001 which is statistically significant. [8]The presence of a residual

abscess was more or less similar in both groups with 17 (34%) patients presenting with an abscess within 7 days of conventional incision drainage compared to 15 (30%) patients who underwent drainage followed by primary suturing of the abscess cavity. An insignificant p-value of 0.6 shows that primary suturing with tube drain does not alter the formation of a residual abscess compared to conventional I&D.[9] The most common complication of abscesses includes its recurrence which was found to be comparatively higher in the control group with 16 (32%) patients presenting with a recurrent abscess 14 days after incision and drainage. In contrast, only 7 (14%) patients in the study group developed a recurrence which was attributed to other miscellaneous factors. A p-value of 0.03 proves to be of statistical significance in this variable.[10]A healthy and cosmetically appealing scar was better in patients undergoing primary suturing with tube drain in about 40 (80%) patients due to better approximation of the wound edges compared to 29 (58%) patients in the control group due to excessive fibrosis and scarring due to healing by secondary intention. This variable had a p-value of 0.02 which is statistically significant.[11,12]

Conclusion

Healing time was significantly shortened in patients who underwent primary suturing with tube drain

following abscess drainage. The rate of recurrence of the abscess was lower following primary suturing and tube drain compared to the I&D group. The scar formation was cosmetically appealing in the primary suturing group. The proportion of residual abscess formation was more or less similar in both groups. Hence, in all patients presenting with acute superficial abscesses primary suturing with a tube drain following abscess drainage was found to be superior to conventional I&D in terms of faster healing time, reduced rate of recurrence, and a cosmetically better scar formation.

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