

UAMS Journal Club Summary

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## **Loop Incision and Drainage of Cutaneous Abscesses Compared to Conventional Incision and Drainage**

### **Clinical Bottom Line**

The loop drainage technique does not appear to show significant improvement in treatment failure in adult populations. Though there may be some benefit shown in the pediatric population, the studies included in the meta-analysis were mostly retrospective and carried a high risk of bias. Additionally, the control groups used packing which is not directly comparable to the techniques that we frequently use.

Future studies should include more randomized controlled trials, assessing this technique in larger patient populations, and with control groups' treatment more similar to techniques we use (ie no packing).

### **PICO Question**

P- Patients presenting to ED with cutaneous abscess

I- Loop drainage technique

C- Conventional incision and drainage

O- Treatment failure

### **Background**

Skin and soft tissue infections are a common presentation to the emergency department. Traditional management of abscesses involves a linear incision through the center of the abscess +/- packing. We know that packing has been shown not to be beneficial in abscesses less than 5cm and thus is being uncommonly used. The loop drainage technique (LDT) is an alternate approach that may reduce pain and scarring, as well as decrease the number of follow up visits needed. The LDT consists of two incisions through which the abscess is drained and then a loop is fed through the two incisions and tied to keep the incisions open. Some have theorized that the LDT may result in less treatment failure better patient centered outcomes versus CID.

### **Trial 1**

Gottlieb M, Peksa G. *Comparison of the loop technique with incision and drainage for soft tissue abscesses*. American Journal of Emergency Medicine, Volume 36, 2018, Pages 128-133

**Pubmed link: <https://www.ncbi.nlm.nih.gov/pubmed/28917436>**

**Validity Rating:** Moderate to high risk of bias/poor validity due to the quality of included studies.

**The Basics:**

This article was a meta-analysis of studies evaluating the loop drainage technique with conventional incision and drainage. The authors evaluated 3 retrospective studies and 1 RCT comparing the technique, and evaluated outcomes of treatment failure defined as need for repeat procedure or subsequent admission for IV antibiotics.

**Inclusion Criteria:**

Inclusion criteria consisted of all retrospective, prospective, or randomized controlled trials comparing the LDT with CID with an outcome of treatment failure.

**Exclusion Criteria:**

Exclusion criteria included case reports, case series, and studies published in abstract format only.

**Primary Outcomes:**

Treatment failure, defined as need for repeat incision and drainage or admission for IV antibiotics, addition of antibiotic treatment, or need for operative management.

**Secondary Outcomes:**

Pain with procedure  
Cosmetic outcome

**Results:**

Four studies, comprising 460 total patients, were selected for the final analysis. Two studies were performed only on pediatric patients and two studies were on adult patients. Overall, the CID technique failed in 25 of 265 cases (9.43%). The LDT failed in 8 of 195 cases (4.10%). There was an OR of 2.63 (95% CI 1.04 to 6.63) in favor of higher failures in the CID group. Subgroup analysis was performed by age group. Among studies of pediatric patients, CID met failure criteria in 16 of 225 cases (7.1%), while the LDT failed in 2 of 136 cases (1.5%). This resulted in an OR of 4.09 (95% CI 1.04 to 16.12) in favor of higher failures in the CID group. Among studies of adult patients, CID met failure criteria in 9 of 40 cases (22.5%), while the LDT failed in 6 of 59 cases (10.2%). This resulted in an OR of 1.82 (95% CI 0.52 to 6.37) indicating no difference in the included adults.

**Limitations/Bias:**

- Mostly retrospective studies included, which introduces significant bias
- We disagree with their ratings of the included studies (it seems they overestimated the quality of the included studies)
- Studies compared loop drainage technique to incision and drainage with packing (only one included study did not pack the abscesses).
- small number of total patients included

- Variation in outcome measure between studies
- Many patients were lost to follow up in 2 of the studies

## **Trial 2**

Ozturan, Ibrahim Ulas. *Comparison of loop and primary incision & drainage techniques in adult patients with cutaneous abscess: A preliminary, randomized clinical trial.* American Journal of Emergency Medicine. Volume 35, 2017, pages 830-834

**Pubmed link:** <https://www.ncbi.nlm.nih.gov/pubmed/28162873>

### **The Basics:**

This article was a randomized clinical trial comparing loop drainage technique (LDT) to standard incision and drainage (I&D) as measured by change of diameter of the abscess and cellulitis within 7 days of the procedure. Secondary outcomes measured were pain intensity at the end of procedure and duration of procedure.

### **Validity Rating:**

Moderate validity for RCT with appropriate randomization and description of withdrawals and dropouts. Moderate risk bias for RCT considering inability to blind patient, provider, or assessor.

### **Inclusion Criteria:**

Patients 18 years or older presenting to tertiary care urban ED's with a cutaneous abscess between October 2014 and August 2016. (Total of 70 patients.)

### **Exclusion Criteria:**

Patients with immunocompromise (transplant patients, active cancer, hereditary and acquired immunodeficiencies), those using medications which affect wound healing (steroids, chemotherapy), those with lidocaine allergies, patients who did not have an abscess identifiable with bedside ultrasound, those currently on or having recently taken antibiotics, and patients who refused consent. (24 of 70 patients were excluded.)

### **Primary Outcomes:**

Change in abscess and cellulitis diameter within 7 days of procedure.

### **Secondary Outcomes:**

Pain intensity after procedure, procedure duration in minutes, patient satisfaction with procedure, need for antibiotics and/or repeat drainage.

### **Results:**

There was no statistically significant difference in primary outcomes between the two groups. 46 patients were included in the randomization with 23 patients in each group. The baseline characteristics between the two groups were similar for the most part other than age.

The LDT group abscess diameter decreased by a median of 3.0cm (IQR 1.8-4.0) while the I&D group decreased by 2.4cm (IQR 1.0-3.0). Thus, the I&D group median diameter change was 0.6 less (95% CI: 0.1-1.7) than the LDT group. The LDT group cellulitis diameter decreased by a median of 7.0cm (IQR 4.5-8) while the I&D group decreased by a median of 5.7cm (IQR 3.5-7.1). Thus, the I&D group median diameter change was 1.3cm less than the LDT group (95% CI: -3.4-0.8). Although the LDT group median diameter change for both abscess and cellulitis was greater, the difference was not statistically significant. Secondary outcomes were also not different by a statistically significant margin.

**Limitations/Bias:**

- Relatively small sample size, especially after exclusion criteria
- Location of abscesses were varied
- Smaller abscesses were excluded from the study (criteria for what was deemed “too small” was not specified)
- Study population predominantly male
- Impossible to blind patient and provider to procedure (after procedure completed)
- Abscess measurement and infection evaluation user dependant