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A comparison of traditional incision and drainage versus catheter drainage of soft tissue abscesses in children

Adam C. Alder*, Jill Thornton, Kim McHard, Linda Buckins, Robert Barber, Michael A. Skinner

Department of Pediatric Surgery, Children's Medical Center, UT Southwestern, Dallas, TX, USA

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Abstract

Background/Purpose: Soft tissue infections are increasingly being seen for surgical management, which is associated with painful dressing changes, lost days at school, time away from family, and scarring, which can have a great impact on both child and caretaker. We postulated that a drainage technique using a modified Pezzar catheter would be associated with shorter hospital stays and less wound care.

Methods: A consecutive series of 400 children with soft tissue abscesses was evaluated from April 2007 to October 2008. Children were managed according to the operating surgeon's preference. Children remained in the hospital until they were afebrile and the wounds could be adequately managed at home. Drains were removed 1 week after surgery in clinic.

Results: There were no treatment failures. Three hundred twenty-two children were managed with standard incision and drainage (I&D) and 78 patients with catheter drainage. Twenty-two children in the catheter drainage group (28%) required hospitalization of greater than 1 day compared with 151 children (47%) in the I&D group ($P = .001$, Fisher exact test). Thirty-four percent of the children managed with I&D required packing at home, which was required in none of the patients managed with catheter drainage. Patient age, catheter drainage, and site of the lesion were associated independently with shorter hospital stays.

Conclusion: We conclude that catheter drainage of soft tissue abscesses in children is safe and effective. Catheter drainage is associated with a decreased hospital stay. Other factors related to shorter hospital stays include age of the patient and the site of soft tissue abscess.

Soft tissue abscesses are a common presenting complaint among children and infants [1,2]. These infections frequently require operative intervention and increasingly involve resistant bacteria [1,3,4]. Traditional surgical management consists of open incision and drainage (I&D) and packing followed by postoperative packing changes. This is a time-tested and effective technique widely used in the adult and pediatric populations [5]. This technique may result in prolonged hospital stays [6,7], may require prolonged care at home by a caregiver resulting in a negative impact on the parents or caregivers [8], and is associated with pain and anxiety for the child [9].

* Corresponding author. Tel.: +1 214 456 6040; fax: +1 214 456 6320.
E-mail address: adam.alder@utsouthwestern.edu (A.C. Alder).

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New techniques that involve minimal incisions have been developed for many surgical conditions including abscess drainage [10]. The benefits of these techniques include less postprocedure pain and shorter hospital stays with equivalent or improved outcomes. At our medical center, some of the pediatric surgeons have begun to use a minimal incision technique that deviates from the traditional approach.

The experience of treating soft tissue infections with both the traditional as well as the minimal incision approaches was collected over an 18-month period. The results of their care were compared and a description of the minimal incision technique is provided.

1. Methods

A consecutive series of patients cared for at an urban academic hospital dedicated to the care of children over the period of April 2007 to October 2008 was collected into a database. Demographic features along with data regarding outcomes, hospital length of stay, need for postoperative packing, use of antibiotics, and culture results were collected in the database. The treatment decision about traditional versus catheter drainage of the soft tissue abscess was based solely on the on-call faculty surgeon's preference. This preference provided the basis for grouping the subjects. All comparisons were made between the groups that underwent traditional incision and packing and those that had the minimal incision technique alone.

1.1. Technique

The minimal incision technique is comprised of identifying the soft tissue abscess (Fig. 1) and determining the point of maximal fluctuance or an anatomically appropriate location. After general anesthesia is induced, the area is prepared with a povidone-iodine (Betadine) solution. An incision is then made (Fig. 2) to approximate the size of a Pezzar catheter tubing, which is usually 12 to 14 French in diameter. Take care to avoid making a large incision or the drain tube will not be held in the cavity by the flange. Any septations are broken bluntly with a clamp (Fig. 3A). The wound and cavity are irrigated (Fig. 3B). It is recommended that the Pezzar catheter be modified (Fig. 4A) by removing its tip and modifying but retaining the flange of the mushroom portion of the catheter. The catheter is then inserted into the incision without suturing (Fig. 4B). If the abscess is particularly large or if multiple fluid collections are present, multiple catheters may be placed. The drain tubes are cut short (Fig. 4C and D) and covered with gauze. This gauze constitutes the dressing and is changed as often as required.

Children were generally observed in the hospital overnight. They were discharged when afebrile and when their parents were judged able to manage the wound at home. In a few children with small abscesses drained early in the day, discharge occurred from the post anesthesia care unit. All patients received intravenous antibiotics (either clindamycin or trimethoprim-sulfamethoxazole [TMP-SMX]) while in the hospital and were treated with oral antibiotics after discharge for 5 to 7 days at the discretion of the attending surgeon.

Fig. 1 Preoperative image of a medial thigh abscess. Examination reveals the point of maximal fluctuance.

Fig. 2 A small incision is made over the area of maximal fluctuance and the contents of the abscess are expelled. Take care not to make the incision too large.