

## KEY PROCEDURES

## SURGICAL DEBRIDEMENT FOR ACUTE AND CHRONIC OSTEOMYELITIS IN CHILDREN

Ernest Ekunseitan, BS, Coleen S. Sabatini, MD, MPH, Ishaan Swarup, MD

Published outcomes of this procedure can be found at: *J Pediatr Orthop*. 1996 Mar-Apr; 16(2):220-3, *Afr J Paediatr Surg*. 2014 Oct-Dec;11(4):297-303, and *J Orthop Surg* (Hong Kong). 2016 Aug;24(2):250-2.

*Investigation performed at UCSF Benioff Children's Hospital Oakland, Oakland, California*

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Step 5: Irrigation



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**Abstract**

**Background:** Osteomyelitis is an infection of the bone that commonly occurs in pediatric populations. First-line treatment most often involves a course of antibiotics. In recent studies, surgical debridement, in addition to antibiotics, has been shown to provide positive clinical and functional outcomes in children. Debridement is most often indicated in patients with an abscess or in those who do not respond to empiric antibiotic therapy; however, there are limited video resources describing this technique in pediatric patients.

**Description:** The key steps of the procedure, which are demonstrated in the present video article, are (1) preoperative planning, (2) positioning, (3) subperiosteal exposure and debridement, (4) cortical window creation, (5) irrigation, (6) adjunctive treatment, (7) drain placement, (8) wound closure, (9) dressing and immobilization, and (10) wound check and drain removal.

**Alternatives:** Nonoperative treatment is usually indicated for acute osteomyelitis in which patients present with little to no necrotic tissue or abscess formation. In these cases, a course of broad-spectrum antibiotics may be sufficient for a cure.

**Rationale:** This procedure allows for the removal of necrotic bone and soft tissue, thus facilitating the recovery process. It also allows for the retrieval of tissue samples that may be used to guide selection of the appropriate antibiotic therapy. Surgical debridement is a safe and reliable technique that has been associated with positive long-term outcomes.

**Expected Outcomes:** We expect that some patients will require repeat surgical debridement procedures to decrease pathogen burden and prevent future complications. However, we expect that the majority of patients who undergo surgical debridement for uncomplicated osteomyelitis will recover full functionality of the affected limb with no associated long-term sequelae<sup>10</sup>.

**Important Tips:**

- Understand preoperative imaging to identify areas of infection, localize critical structures and the physis, and plan surgical approaches.
- Use extensile approaches and preserve vascularity during the approach.
- Perform subperiosteal dissection and create a cortical window to debride areas of infection, but avoid excessive periosteal stripping.

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- Close the dead space and wound in a layered manner.

### Acronyms and Abbreviations:

- MRI = magnetic resonance imaging
- K-wire = Kirschner wire
- MRSA = methicillin-resistant *Staphylococcus aureus*
- PDS = polydioxanone

Ernest Ekunseitan, BS<sup>1</sup>

Coleen S. Sabatini, MD, MPH<sup>1</sup>

Ishaan Swarup, MD<sup>1</sup>

<sup>1</sup>Division of Pediatric Orthopaedic Surgery, UCSF Benioff Children's Hospital Oakland, Oakland, California

Email for corresponding author: Ishaan.Swarup@ucsf.edu

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