

# Pseudomonas aeruginosa Osteomyelitis after Percutaneous Fixation of a Pediatric Supracondylar Humerus Fracture: A Case Report and Review of the Literature.



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## INTRODUCTION

Supracondylar humerus fractures are the most common pediatric elbow injuries, typically managed with closed reduction and percutaneous pinning (CRPP) for displaced Gartland type II and III fractures. Postoperative pin-site infections are rare (~1%), and progression to osteomyelitis is extremely uncommon (~0.2%). *Pseudomonas aeruginosa* is exceptionally rare in this context, with only two prior pediatric cases documented.

## AIM

To report a rare case of distal humerus osteomyelitis secondary to a pin-site infection following percutaneous fixation of a Gartland type II fracture in a 7-year-old boy, and to analyze contributing factors.

## MATERIAL

Case report and literature review.



## CLINICAL REPORT & TIMELINE

|                                  |                                                                                                                                                                                                              |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Initial Presentation & Surgery   | A 7-year-old boy presented with a Gartland type IIa supracondylar humerus fracture. Managed successfully via closed reduction and percutaneous internal fixation using lateral Kirschner wires (K-wires).    |
| 4 Weeks Post-O                   | Cast and K-wires were removed.<br>Patient missed the primary initial follow-up.<br>Persistent purulent discharge was observed at the pin site after hardware removal.                                        |
| 8 Weeks Post-Op                  | Presented to the emergency department.<br>Radiographs revealed explicit bone cavitation at the prior K-wire insertion sites.<br>Low acute phase reactants noted.                                             |
| Surgical Intervention & Cultures | Surgical debridement and cleaning performed in the operating room.<br>Deep tissue cultures yielded positive results for pan-susceptible <i>Pseudomonas aeruginosa</i> .                                      |
| Antimicrobial Regimen            | <b>Intravenous:</b> Ceftazidime 1g every 8 hours for 9 days.<br><b>Oral:</b> Ciprofloxacin 750mg every 12 hours to complete a total 6-week course.                                                           |
| 10-Month Follow-Up               | Near-complete range of motion recovery (-10° flexion deficit).<br>Radiographs showed progressive filling and consolidation of the cavitation.<br>Residual physeal involvement requires long-term monitoring. |

## DISCUSSION & RISK FACTORS

- Preoperative & Postoperative Care: Standard protocols requires rigorous sterile preparation and scheduled monitoring, which can be logistically challenging in pediatric outpatients.
- Patient Compliance: Missing scheduled clinical checks significantly delays the identification of early pin-site complications, allowing minor superficial infections to track deeper into bone tissue.
- Pathogen Profile: *Pseudomonas aeruginosa* is highly opportunistic; hardware retention and humidity under orthopedic casts represent common environmental risk factors.

## CONCLUSION

Early detection of post-fixation complications can be severely hindered by missed clinical appointments. Implementing “prompt targeted antibiotic therapy” at the very first sign of persistent pin-site drainage may successfully halt progression to deep osteomyelitis. This clinical scenario underscores the absolute need for heightened parental education and clinical vigilance regarding delayed pin-site changes in pediatric orthopedics

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