Subperiosteal Abscess with Pediatric Acute Osteomyelitis

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Introduction

A previously healthy 9-year-old girl presented with a 3-day history of high fever (> 40 °C) and acute pain in the right shoulder. A blood chemical profile showed a C-reactive protein level of 9.7 mg per liter and a white cell count of 12,500 per cubic millimeter. Shoulder radiographs were normal, but magnetic resonance imaging showed acute osteomyelitis around proximal humeral epiphyseal plate and a subperiosteal abscess around the humeral neck (Figure 1). Vancomycin was empirically started after blood cultures taken. The blood cultures grew Methicillin-Susceptible Staphylococcus aureus (MSSA) and the antibiotic therapy was de-escalated to cefazolin. After 1 week of parenteral antibiotics [1], she still had high fever and C-reactive protein level and white cell count were getting worse. Therefore, this therapy was considered ineffective and surgical management was required to control the infection [2]. A deltopectoral approach was used to drain the subperiosteal abscess, and resection was performed (Figure 2).

Figure 1: Contrast-enhanced T1-weighted magnetic resonance imaging showed high signal intensity in the proximal humerus and a subperiosteal abscess (white arrow) around the medial humeral neck. T1-weighted (T1w) Turbo Spinecho Imaging (TSE) showed low signal intensity; (A) T2-weighted (T2w) TSE showed high signal intensity; (B) around proximal humeral epiphyseal plate. Contrast-enhanced T1w magnetic resonance imaging (C) T2w TSE showed high signal intensity around humeral neck (arrow).
traarticular pressure and prevent avascular necrosis is recommended [1]. Early surgical treatment effectively resolved subperiosteal abscess with pediatric acute osteomyelitis to prevent spillover into the joint and subsequent growth cartilage damage.

References


The abscess cultures also revealed MSSA growth. Her shoulder pain and fever rapidly improved 2 days after surgery. At 2 weeks of surgery, blood chemical profiles were normal and blood cultures were negative. She recovered well and there has been no recurrence since a year.

MSSA is definitely the most frequent pathogen responsible for pediatric acute osteomyelitis; the gold standard of antibiotic therapy is usually effective. Surgical treatment should be considered for the patients who do not respond to antibiotic therapy such as those with a subperiosteal abscess [2]. Since the shoulder joint is tightly encapsulated, quick arthrotomy to decrease intraarticular pressure and prevent avascular necrosis is recommended [1]. Early surgical treatment effectively resolved subperiosteal abscess with pediatric acute osteomyelitis to prevent spillover into the joint and subsequent growth cartilage damage.

Figure 2: The subperiosteal abscess was identified intraoperatively (A, arrow) and resection was performed (B: during resection, C: after resection).

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