

Bedside Washout of a Septic Shoulder in the Emergency Department: A Case Report

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We present a case of successful bedside irrigation of a septic joint in the emergency department. Complicating factors prevented the patient from undergoing operative management. With a simple 2 catheter technique the authors irrigated the patient's septic shoulder at the bedside. The patient's pain and range of motion improved immediately following the technique. The patient had complete recovery without open drainage. With further investigation, definitive management of septic joints could begin in the emergency department. [Ann Emerg Med. 2016;68:110-113.]

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INTRODUCTION

For emergency medicine practitioners, septic joints are rare but obvious diagnoses. Unfortunately, identifying the condition can be challenging because of lack of reliable physical examination findings or definitive serum markers.¹ Instead we must rely on a strong clinical suspicion and a low threshold for joint aspiration with fluid analysis.² Traditional management involves administering antibiotics and consulting outside services for drainage.³ However, any delay to drainage exposes the patient to potential complications² and continued pain.⁴ To our knowledge, we present the first published case of an emergency medicine provider performing bedside drainage and irrigation of an infected joint.

CASE REPORT

A 46-year-old, black, right-handed man with a history of hypertension, chronic renal failure with hemodialysis, and multiple myeloma (undergoing chemotherapy and steroid therapy) presented to the emergency department (ED) from his hemodialysis center with complaints of not feeling well. He completed a course of dialysis during which he began complaining of generalized fatigue and vomited once. He was sent into the ED for further evaluation.

The patient refused to answer most questions. He repeatedly stated, "I just don't feel well." He admitted to feeling tired and weak. He denied any pain, fevers, or chills. The results for the remainder of his review of systems were negative. He denied illicit drug use.

Physical examination revealed a cachectic man who appeared older than his stated age. Vital signs on presentation

were blood pressure 146/89 mm Hg, pulse rate 81 beats/min, respiratory rate 14 breaths/min, and temperature 37°C (98.6°F). He was lethargic, but awakened to questioning. His cardiovascular and abdominal examination results were normal. Extremity examination revealed a functioning fistula in his right anterior upper extremity. Focused examination of his right shoulder showed moderate tense swelling of his deltoid and posterior shoulder. There was no erythema, induration, or open wounds. The patient refused to move his shoulder, and attempted passive range of motion was unsuccessful and elicited intense pain. He had normal motion and appearance of his elbow, wrist, and hand. His distal right extremity was neurovascularly intact.

With a working diagnosis of septic arthritis of the right shoulder, an evaluation was initiated, including laboratory studies and radiographs. An intravenous line was placed and the patient received 6 mg of morphine, 3 g of ampicillin/sulbactam, and 1 g of vancomycin. Laboratory study results were significant for a total WBC count of 1,000/cu mm, with an absolute neutrophil count of 600/cu mm, hemoglobin level of 9.2 g/dL, platelet count of 94,000/cu mm, blood urea nitrogen of 42 mg/dL, creatinine level of 3.95 mg/dL, and lactic acid level of 2.6 mmol/L. Radiographs of his chest and right shoulder were interpreted by radiology as normal.

Given the concern for septic arthritis, bedside ultrasonography (Edge with HFL-38 probe in MSK mode; Sonosite, Bothell, WA) was performed of the posterior shoulder to evaluate for a glenohumeral joint effusion. The examination revealed an anechoic fluid collection that communicated with the glenohumeral joint and extended medially along the supraspinatus muscle, inferiorly along

the humerus, superiorly to the acromion, and laterally to the midpoint of the deltoid. The collection was surrounded by an echogenic capsule and had maximum dimensions of 10 cm transversely and sagittally.

To confirm the cause of the effusion, joint aspiration was performed under ultrasonographic guidance. Although lethargic, the patient was competent and written consent was obtained. The posterior shoulder was prepped and draped in a sterile fashion. The probe was placed in a sterile cover and sterile ultrasonographic gel was applied to the area. A 27-gauge needle was used to infiltrate local anesthetic at the puncture site. An 18-gauge needle was then introduced under in-plane ultrasonographic guidance into the joint capsule. Aspiration of 10 mL of grossly purulent fluid (Figure 1) confirmed the diagnosis of septic arthritis.

After consultation with orthopedics, the patient was sent to the operating suite. He returned a short time later after the attending anesthesiologist and orthopedist evaluated him and determined he was too ill to undergo surgery. They cited his low WBC count, lethargy, and concern about concurrent infection in his ipsilateral dialysis shunt.

The orthopedist recommended computed tomography (CT)-guided joint drainage, but interventional radiology was not available and would not be for approximately 12 hours. After further discussion with the attending orthopedist, the decision was made to perform bedside joint irrigation.

As with the earlier procedure, two 16-gauge angiocatheters were inserted into the joint capsule under ultrasonographic guidance (Figure 2) and held in place with Tegaderm (3M, St. Paul, MN). One was placed below the lateral edge of the acromion and directed into the deepest pocket of the glenohumeral joint. The other was placed from caudal to cranial into the inferior portion of the joint capsule. An additional 30 mL of purulent fluid was initially withdrawn. When further aspiration was not possible, 1-L sterile saline solution bags were attached to the superior angiocatheter with standard intravenous-line tubing and hung above the patient on an adjustable intravenous-line pole. The inferior angiocatheter was attached to intravenous-line tubing that was cut and hung to drain dependently into a basin. Saline solution was run by gravity into the joint through the superior port and drained through the inferior one. The fluid was initially purulent but cleared over time. When the effluent cleared, the joint was gently passively manipulated, which yielded additional purulence. The procedure was aborted after less than 1 hour once movement of the joint yielded no additional purulent fluid. A total of 3 L of normal saline solution was used to achieve this endpoint. Three times during the procedure, the drainage port stopped draining and required back flushing to unclog. The patient tolerated the procedure well without any sedation or additional analgesia.



Figure 1. Ultrasound image demonstrating an inplane needle guidance from a lateral approach into the posterior glenohumeral joint and resultant purulent fluid. The needle (arrowhead) is placed in the anechoic joint effusion (E) erupting from between the glenoid (G) and humerus (H). Right panel demonstrates the resulting purulent fluid.

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