

IrriSept: Open hand amputation with osteomyelitis and MRSA infection: A Case Report

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Osteomyelitis is a bone infection that can result in osteonecrosis if left untreated. According to the American Academy of Orthopaedic Surgeons, 10,000 to 20,000 people develop osteonecrosis each year¹. In most cases of osteonecrosis, the bone tissue breaks down faster than the body can repair it, therefore, most people with osteonecrosis will need surgery. The rapid breakdown of bone tissue during osteonecrosis is complicated further with the delayed wound healing common in diabetic patients and with the presence of the bacterium, methicillin-resistant *Staphylococcus aureus* (MRSA).

Case Presentation:

The patient is a 73 year-old diabetic male with severe peripheral vascular disease and end-stage renal failure on dialysis that presented with osteomyelitis and a methicillin-resistant *Staphylococcus aureus* (MRSA) metacarpal infection following amputation in April 2010.

In December 2009, the patient fell and his right hand wound was difficult to heal. Despite several different wound treatments to promote healing, the hand developed gangrene and needed open amputation on April 27, 2010. Vacuum Assisted Closure (VAC) therapy was used after the amputation through June of 2010. In July, the patient developed infection and was treated with frequent irrigation, Kaltostat dressings, and antibiotics through September 2010. On September 22, radiographs revealed osteomyelitis of the middle and ring metacarpal. October 6, 2010, a wound culture of the hand was positive for MRSA. Resection of 50% of the middle and index metacarpal was performed and the site was irrigated using IrriSept wound debridement and cleansing system on October 8, 2010. The patient was seen for follow-up at ten days, three weeks, and six weeks.

Conclusion:

In this case, a 73 year-old diabetic male with severe peripheral vascular disease and dialysis dependent end-stage renal failure underwent a metacarpal resection for a MRSA osteomyelitis infection. During the surgical procedure, the metacarpals were irrigated with IrriSept. A wound culture taken at the three-week follow-up visit was reported as “no growth.” The metacarpal infection resolved and the wound healed. The patient required no further treatment.

Significant Medical History: Hypertension, End-Stage Renal Failure, Diabetes, Hypothyroidism, CABG, Fem-Pop bypass, bilateral shoulder surgery, left hand surgery, Diabetic Peripheral Vascular Disease

Medications: NovoLog, Prinivil, Imodium, aspirin, Toprol-XL, Zocor, Synthroid, heparin, Procrit, Zemplar, Fosrenol, Lasix, Endocet, Lantus, amlodipine, simvastatin

Allergies: Betadine, cephalexin, povidone-iodine

Treatment:

Resection of 50% of the middle and index metacarpal was performed and confirmed by radiographs. Lab cultures confirmed MRSA. The site was irrigated with IrriSept wound debridement and cleansing system, and closed loosely with a Penrose drain.

At the ten day follow-up, the wound was healing without difficulty and the patient reported no pain. Radiographs revealed resection back to the junction of the proximal middle third of the metacarpal with one loose fragment of bone. The patient was instructed to continue vancomycin.

At three weeks, the sutures and a small area of eschar over the ring metacarpal were removed. The wound had healthy granulation tissue without purulence. A wound culture was taken and later reported, “no growth.” Radiographs revealed no evidence for further resorption of the metacarpals or gas in soft tissues, and continued calcification of the arterial tree. The patient was instructed to continue dressing changes and vancomycin after each dialysis treatment.

At six week follow-up, the patient continued to show improvement and denied pain. But, reported falling one week beforehand (five weeks following surgery) with a hematoma over the proximal interphalangeal joint. Radiographs revealed no evidence of osteomyelitis. The patient no longer required antibiotics and has healed quickly.

Conclusion: In this case, a 73 year-old diabetic male with severe peripheral vascular disease and dialysis dependent end-stage renal failure underwent a metacarpal resection for a MRSA osteomyelitis infection. During the surgical procedure, the metacarpals were irrigated with IrriSept. A wound culture taken at the three-week follow-up visit was reported as “no growth.” The metacarpal infection resolved and the wound healed. The patient required no further treatment.

¹ National Institute of Health (2006). Osteonecrosis (Avascular necrosis). Retrieved from www.niams.nih.gov