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Case Report

CASE REPORT

An MRSA Infection in a Diabetic Patient Following Laparoscopic Cholecystectomy

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INTRODUCTION

Gall bladder empyema secondary to Methicillin-resistant Staphylococcus aureus (MRSA) infection is a very rare occurrence that was scarcely reported. Methicillin-resistant *Staphylococcus aureus* is a bacterium that causes infections in different parts of the body. It's tougher to treat than most strains of *staphylococcus aureus*, or staph, because it is resistant to some commonly used antibiotics. Garden-variety staph are common bacteria that can live on our bodies. Plenty of healthy people carry staph without being infected by it. In fact, 25-30% of us have staph bacteria in our noses.

However, staph can be a problem if it manages to get into the body, often through a skin compromise. MRSA has become a major problem worldwide and is associated with significant morbidity and mortality (*D.Q.A. Nguyen and N.I Ramus*). Teranishi *et al* reported a case of acute cholecystitis caused by MRSA in the Japanese literature. No prior such cases were reported.

CASE HISTORY

The patient is 68 year old female of African origin with a history of diabetes mellitus type 2, end-stage renal disease on hemodialysis, and hypertension who presented to the emergency department for a one-day history of non-bloody, non-bilious emesis and mild localized epigastric pain. At the time of her admission, her vital signs were stable with a HR 78, BP 135/86, RR18, and T 98.6F. Abdominal exam revealed a soft abdomen with right upper quadrant tenderness, negative Murphy's sign, positive bowel sounds, and no guarding or rebound. The

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rest of the physical examination was unremarkable.

Her white blood cell count was 12,000, BUN of 21, creatinine of 4.7, glucose of 374, and amylase of 156. Initial abdominal series revealed no evidence of obstruction or free air. CT abdomen was performed and multiple gallstones were visualized, along with the stones in the common bile duct with mild biliary dilatation.

On the hospital day one, her temperature reached 102.3F. Patient was started on Zosyn 2.25mg every 8 hours; blood, urine, and sputum cultures were obtained. Her sputum cultures revealed a growth of gram positive cocci; both blood and urine cultures had no bacterial growth. Surgical service was consulted and the patient was cleared for an ERCP and laparoscopic cholecystectomy. For the first four days, patient had persistent temperature elevations and was beginning to feel sicker, characterized by the progressive weakness, fatigue, and somnolence. Infectious Disease service was consulted and patient was aggressively managed with broad spectrum antibiotics, NPO, and fluid resuscitation. An ERCP was successfully performed on hospital day 5, which revealed CBD stones. Sphincterotomy allowed for retrieval of multiple stones from the common bile duct and stent was placed. On the following day, patient had undergone a laparoscopic cholecystectomy. The procedure was very challenging by the nature of the patient's anatomy and an inflamed gall bladder, revealing a gangrenous gall bladder. During the procedure, pus was drained from the gall bladder and cultures were sent for analyses. A 10 mm JP drain was inserted, which had a persistent drainage of the purulent material.

On the hospital day 7, gall bladder cultures grew methicilin-resistant Staphylococcus aureus (MRSA). The patient continued to spike fevers on the order of 101-102F. Patient was then started on Vancomycin treatment according to the Infectious Disease specialist.

Multiple blood and urine cultures were collected during the patient's hospital stay secondary to persistent temperature elevations, all of which yielded no growth. The patient was undergoing regular dialysis and her vital signs were carefully monitored by the nursing staff. On hospital day 20, the purulent discharge from the JP drain has begun to decrease, and the patient's temperature became to normalize. The patient had undergone a CT-guided drainage of the fluid collection in the gall bladder fossa and 2

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mL of a serosanguinous fluid was collected. There was no evidence of abscess found during the procedure. There was some resolving postoperative fluid. Patient remained afebrile for 24 hours, she was switched to oral antibiotics and discharged home the following day in a stable condition.

Patient was seen in the family practice clinic one week after the discharge from the hospital, and she appeared to be in a stable condition. She had no pain at that time. Her surgical incision was healing well and she continued to undergo dialysis for her ESRD.

DISCUSSION

This is an unusual case of an elderly woman with an end-stage renal disease on dialysis, whose gall bladder cultures grew Methicillin-resistant Staphylococcus aureus. Only two studies were found so far that observed an unusual growth of MRSA in the gall bladder. The increasing prevalence of MRSA in hospitals has become a major problem for the health-care providers. However, it is interesting to notice that a likelihood of MRSA in the biliary system is very unlikely. One consideration that may be entertained is a possible iatrogenic introduction of the organism, either through the invasive surgical procedure or a regular dialysis that patients with end-stage renal disease often undergo.

Whether a patient can become a carrier of MRSA within the internal organs remains to be proven. However, such colonization may present a serious array of complications leading to sepsis and death. It is still unclear whether this patient's fever was associated with MRSA bacteremia or any other source of infection. As suggested by Nguen and Ramus, *et al*, patients with previous MRSA bacteremia should be considered MRSA positive until proven otherwise. As for the health-care personnel, it is paramount to adhere to a stringent hygienic control through wearing of appropriate gowns and handwashing technique in order to avoid further colonization of MRSA.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

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ETHICAL APPROVAL

No ethical approval was required as this was a clinical case.

CONSENT

Patient permission was obtained prior to writing this report.

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