Multiple Myeloma in the Foot Superimposed with Osteomyelitis: A Case Study

**Introduction**

Multiple myeloma is a neoplastic hematologic dysplasia of plasma cells. This disorder is characterized by the dysregulation of normal plasma cell function and hyperproduction of monoclonal proteins (M-proteins) that are malignant. Multiple myeloma represents 1% of all neoplastic diseases and 13% of all hematologic malignancies. Patients with multiple myeloma have a complex disease process, and metastatic disease can occur in the bone marrow, lung, liver, and other extramedullary sites. This case study aims to present case information on management of confounding osteomyelitis in the presence of multiple myeloma in a toe.

**Literature Review**

Multiple myeloma is a neoplastic hematologic dysplasia of plasma cells. This disorder is characterized by the dysregulation of normal plasma cell function and hyperproduction of monoclonal proteins (M-proteins) that are malignant. Multiple myeloma represents 1% of all neoplastic diseases and 13% of all hematologic malignancies. In 2017, the incidence of multiple myeloma in Europe was 5.5 cases per 100,000 people, with age-specific rates ranging from 0.2 to 27.0 cases per 100,000 people at age 60 years or older. Multiple myeloma patients are at higher risk of mortality compared to the general population. Treatment options for multiple myeloma depend on the severity of the pathology process. After initial diagnosis, patients with multiple myeloma are typically treated with high doses of chemotherapy and autologous hematopoietic stem cell transplantation. However, it is standard treatment to amputate and treat with antibiotics treatment for immunocompromised patients when infectious concerns arise. This case report is presented to demonstrate our approach treating a rare case of metastatic multiple myeloma in the toe with a superimposed osteomyelitis.

**Case Study**

A 69-year-old male presented to the hospital with a pathological fracture. The patient had a history of low back pain and numbness to his left leg that significantly increased over the past 3 to 4 months. Recently, in the past month, the patient had developed left foot drop and worsening lumbar pain. To the point where ambulation became difficult. A MRI of his spine revealed no significant osseous disease or neurologic deficits. A biopsy was then obtained and diagnosed the patient with multiple myeloma. The patient then elected to receive radiation therapy with chemotherapy.

During the next year, the patient developed a wound to the left lateral ankle most likely from an external rotational dependent position while lying in bed and sitting in his wheelchair. In addition, the patient developed diffuse pain, swelling, and increased erythema of the toes, plantar aspect of the foot, and lateral malleolus. The patient had a 2-inch linear rash on the lateral aspect of the left foot and a 2-inch rash on the dorsal aspect of the left foot. The patient was admitted to the hospital for radiation therapy.

The patient was admitted to the hospital for WBC antibiotics and surgical intervention. A right ankle x-ray revealed an acute osteomyelitis with a lytic lesion of the proximal phalanx, base of the proximal and middle phalanx, and soft tissue swelling. The patient had a history of diabetes, peripheral vascular disease, chronic liver disease, kidney disease are typically evaluated and considered in the patient's overall treatment strategy. The patient had a history of diabetes, peripheral vascular disease, chronic liver disease, kidney disease with metastatic disease to the thoracic and lumbar spine. The patient had a history of diabetes, peripheral vascular disease, chronic liver disease, kidney disease, and estrogen deficiency. The patient had a history of diabetes, peripheral vascular disease, chronic liver disease, kidney disease, and estrogen deficiency. The patient was admitted to the hospital for radiation therapy and chemotherapy.

**Discussion and Conclusion**

This case study highlights the importance of early diagnosis and treatment of osteomyelitis in patients with multiple myeloma. Early intervention can prevent complications and improve outcomes. Treatment options include antimicrobial therapy, radiation therapy, and surgical intervention. A multi-disciplinary approach involving radiation oncologists, infectious disease specialists, and primary care physicians can improve patient outcomes.

**References**