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A Novel Combination Chemotherapy Targeting Extramedullary Disease in Multiple Myeloma Following First-Line Treatment Failure

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Introduction:
Multiple Myeloma (MM), a plasma cell neoplasm that resides in the bone marrow's intramedullary space.
Extramedullary disease (EMD) occurs when plasma cells extend through the bone cortex or via hematogenous spread to different organs.
This case of EMD of MM didn't respond to the first line RVD regimen per NCCN guidelines which includes Lenalidomide (Revlimid), Bortezomib (Velcade), and Dexamethasone (Decadron). Therefore, new combination chemotherapy including Daratumumab, and Carfilzomib was initiated with excellent response.

Case description:
62-year-old female presenting to the oncologist for progressive right hip pain for 4 weeks. Initial hip x-ray and bone scan suspected malignancy. MRI showed multiple lytic bone lesions, largest in the proximal femur diaphysis with anterior medial soft tissue mass. Labs revealed elevated IgA and free light chain.
Right femur pathological fracture occurred days later, treated with intramedullary nail fixation. Bone biopsy taken showed solitary plasmacytoma.
Further imaging including CT and PET/CT scans showed widespread osseous metastasis and metastatic involvement of the pancreas, and large soft tissue back lesion inferior to the scapula.
First-line chemotherapy including Lenalidomide, Bortezomib, and Dexamethasone was initiated however there was progression in the back and the pancreatic lesions resulting in obstructive jaundice and severe gastric outlet obstruction. Hence, biliary drain and local pancreatic radiation were done for symptomatic treatment.
New combination chemotherapy with Daratumumab and Carfilzomib was initiated resulting in excellent response and back lesion disappearance. Repeat PET/CT showed overall improvement of lytic lesions and chest and abdominal metastatic disease. Stem cell transplantation was performed followed by maintenance therapy with Daratumumab monthly.

Conclusion:
EMD of MM is an extremely rare and aggressive disease. There is no unified consensus on the treatment approach. This case shows a novel treatment with Daratumumab and Carfilzomib and raises the question of whether a Daratumumab-based regimen should be adopted as a first-line treatment.