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Chemotherapy may obviate Prophylactic Femoral Nail Surgery for Multiple Myeloma patients with High Mirels' score lesions and impending pathological hip fracture

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Background: Bone Metastases presents in 70-95% of patients with multiple myeloma. This causes bony lesions for which prophylactic surgery is indicated to prevent pathological fractures if the lesion is graded $\geq 9/12$ on the Mirels' score. Although successful, these surgeries have risks and lengthy recovery periods. We present a case indicating chemotherapy may obviate prophylactic femoral nailing for high Mirels' score lesions in the femoral head with impending pathological hip fracture.

Case Presentation: A 75-year-old Afro-Caribbean woman presented to the hospital in December, 2017. Plain X-Ray indicated Degenerative Anterolisthesis in her Lumbosacral Spine. Serum analysis, immunofixation and protein electrophoresis revealed abnormal biochemical markers of Multiple Myeloma, immunoglobulin and serum kappa light chain levels, respectively. She was diagnosed with ISS stage 3 IgA Kappa Light Chain multiple myeloma which was successfully treated with chemotherapy that year. She presented again to the hospital in June, 2020; MRI scans showed myelomatous deposits in her left femoral head and spine, the former being graded 10/12 on the Mirels' score indicating prophylactic femoral nailing. Instead, she was treated with chemotherapy as it was thought that surgery would provide limited cytoreductive effect and prevent chemotherapy occurring for 6 weeks post-surgery, potentiating pathological hip fracture. This reduced the deposits such that the femoral lesion was graded < 8 on the Mirels' score, improved her pain and restored her ability to traverse stairs.

Discussion: Chemotherapy substantially reduced myelomatous deposits in the femoral head such that indications of prophylactic surgery were eliminated according to Mirels' score recommendations. This reduced the risk of pathological hip fracture whilst eliminating surgical complications. Further research should be conducted into the safety and efficacy of this treatment regimen in patients with high Mirels' score lesions. With this knowledge, consideration can be taken as to whether prophylactic femoral nailing is necessary given strong indications.

Biography

Omkaar Divekar is currently a 3rd-year medical student at St. George's University of London. Through his recently completed BSc, he picked up a keen interest in academic research. He intends to combine this with his interest in Orthopaedic Surgery and is currently working on multiple projects within the Spinal Research team at St. George's. Outside of medicine, Omkaar loves to play sport and captains the St. George's University cricket club and was part of the St. George's University rugby team that won the United Hospitals cup.

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