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MDPI

Case Report

Refractory Multiple Myeloma in a West Highland White Terrier: Clinical Presentations and Therapeutic Interventions

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Simple Summary

Multiple myeloma, a rare cancer in dogs, is characterized by abnormal plasma cell proliferation and immunoglobulin overproduction. This case report describes a West Highland White Terrier with relapsed and refractory multiple myeloma treated with various therapies, including conventional chemotherapy, radiation, and newer drugs, such as verdinexor and bortezomib. Verdinexor showed the longest stable remission with fewer side effects, while bortezomib was effective, but limited by its toxicity. Despite aggressive treatment, the dog eventually died from hyperviscosity syndrome complications. This report highlights the potential of novel therapies and the importance of supportive care for advanced canine multiple myeloma.

Abstract

This report presents the case of a seven-year-old West Highland White Terrier diagnosed with relapsed and refractory multiple myeloma (MM), managed using multiple treatment approaches, including conventional chemotherapy (melphalan, vincristine, doxorubicin, and dexamethasone), radiation therapy (RT), and novel agents such as the selective inhibitor of nuclear export (verdinexor), proteasome inhibitors (bortezomib, carfilzomib, and ixazomib), and tyrosine kinase inhibitors (TKIs; toceranib and sorafenib). Treatment response was monitored using serum globulin concentration and imaging studies. Verdinexor achieved the longest period of stable remission with minimal toxicity post-RT. Bortezomib + dexamethasone was effective in controlling hyperglobulinemia at doses ≥ 1.45 mg/m^2, although cumulative hematologic and gastrointestinal toxicity limited its prolonged use. Second-line proteasome inhibitors and TKIs demonstrated limited efficacy. Despite initial therapeutic response, the patient's condition deteriorated due to persistent hyperglobulinemia and hyperviscosity syndrome. The absence of advanced supportive options, including plasmapheresis, contributed to a fatal outcome. This case highlights the potential utility of novel therapies such as verdinexor and bortezomib in managing refractory canine MM. Timely intervention, individualized dosing, and supportive care are essential for optimizing treatment outcomes. Further research is required to define effective combinations and integrate advanced care options, including stem cell transplantation and targeted antibody therapies, in veterinary MM.

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