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CASE REPORT

A Case Study of a 73 -Year-Old Male with Mantle Cell Lymphoma

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Abstract

Mantle cell lymphoma (MCL) is a rare subtype of B-cell non-Hodgkin lymphomas (NHLs) characterized by a (11,14) translocation resulting in overexpression of the cyclin D1 (CCND1) gene. The MCL typically presents with advanced extra nodal, bone marrow, peripheral blood, splenic, and/or gastrointestinal involvement. Excisional biopsy of lymph node and immunohistochemistry plays an important role in the diagnosis. Standard first-line treatment consists of chemoimmunotherapy. This may result in prolonged remission, but relapse is to be expected. This is the case of a 72-year-old man with mantle cell lymphoma, admitted to hospital in December 2022 with the chief complaints of a lump in the axilla, significant weight loss, and fatigue for one month. Patient also had a previous history of osteoarthritis. He was treated with five cycles of chemotherapy with an interval of 28 days between the cycles. He was advised to consume high protein diet and to perform quadriceps and hamstring strengthening exercises. He was informed to periodically review in outpatient department and to consult a doctor if any unusual symptoms present.

Keywords: Mantle cell lymphoma, Chemotherapy Non-Hodgkin lymphomas, Rare cancer, Elderly patient

Introduction

Five to seven percent of non-Hodgkin's (NHL) patients have mantle cell lymphoma (MCL). The incidence rate is 0.8/100,000 people, according to the Surveillance, Epidemiology, and End Results Programme (SEER) database. According to a retrospective study, the prevalence is 5.6% in the Indian population. It is a distinctively aggressive NHL subtype.[1] Mutation and overexpression of the cell cycle gene cyclin D1 which leads to the abnormal proliferation of the malignant cells are distinguishing features of MCL. It may also be more difficult to treat MCL cells with chemotherapy or radiation since they are resistant to drug-induced apoptosis. The two primary cytologic variations of MCL affected cells are typical or blastic, and they multiply in a nodular or diffuse form. Small to medium-sized cells with irregular nuclei are typical cases. Blastic (also known as blastoid) varieties are more aggressive and include medium to large-sized cells with finely distributed chromatin. The lymphoid system, which includes the lymph nodes and the spleen, becomes blocked with tumour cells over time, and the system finally becomes dysfunctional due to non-productive cells. MCL may potentially replace healthy cells in the bone marrow, causing normal blood cell production to decline.[2] Although mantle cell lymphoma is normally

sporadic, some families may experience a greater incidence of the disease. The median age at diagnosis for MCL is between 60 and 70 years old, and men are more likely to develop it (3 to 1).[3]

Patients present to their physician with advanced disease. B symptoms like fever, night sweats, or an unexplained weight loss of over 10% of body weight are present in almost half of patients. Usually, there are enlarged lymph nodes or an enlarged spleen. Early in the course of the disease, the liver, gastrointestinal tract, and bone marrow are all affected. Histological analysis, immunophenotyping, immunohistochemical evidence of overexpression of the cyclin D1 MCL protein, and/or confirmation by fluorescence in-situ hybridization are all used to make the diagnosis of MCL.[2]

Those who are diagnosed with a more aggressive variety often have to begin therapy soon after diagnosis. Chemotherapy and immunotherapy are the two anticancer treatment modalities most frequently employed in MCL for initial therapy. Patients may get chemotherapy and immunotherapy induction at the time of diagnosis if the disease is in stages 1 or 2, without bulky disease, before receiving consolidation radiation therapy to the affected site. Physicians must take into account patient characteristics and preferences as well as clinical and disease aspects when deciding what treatment to administer if MCL is found to be in a more advanced stage (stage 3 or 4). It is advised that younger, physically healthy patients (often under 65 years old) undergo extensive treatment that includes induction therapy, autologous stem cell transplant (ASCT), and immunotherapy maintenance. For induction therapy, a number of medication combinations may be employed, although the monoclonal antibody rituximab and a combination chemotherapy regimen that contains the drug cytarabine are most frequently used. Some examples are R-hyper CVAD (rituximab with cyclophosphamide, vincristine, doxorubicin [Adriamycin], dexamethasone alternating with high-dose methotrexate and cytarabine), and R-DHAP (rituximab with dexamethasone, cytarabine, and cisplatin). After induction, those who are in remission receive ASCT consolidation. Rituximab is then given as a maintenance treatment for a number of years with the intention of extending remission.[4] MCL typically has a 50% (advanced stage MCL) to 70% (limited stage MCL) 5-year overall survival rate.[5]

Case Presentation

Patient Information

This is the case of a 72-year-old agriculturist admitted to oncology ward in December 2022 with the chief complaints of lump in the axilla, significant loss of weight and fatigue for one month.

Past medical and surgical history

History of osteoarthritis of both the knees for 10 years which was managed medically and was not on any medications. He was doing only oil massage for relief. No history of diabetes mellitus, hypertension or cardiac diseases noted. No previous history of any surgery given.

Personal and Family history

He was a smoker for 30 years, consuming 5-10 beedis per day and occasionally drank alcohol. He had no known allergies and his bowel and bladder habits were normal. No family history of any kind of cancer was noted and all his family members were healthy. He lived with his wife and son in a joint family. He was cooperative, had good interpersonal relationship within family members and neighbors as well. Family income was 20000/month. He was eligible for Ayushman Bharath-Arogya Karnataka scheme for the financial support of his treatment.

Clinical findings

On arrival, he was afebrile, pulse was 96 beats/ min, respiratory rate was 18 breath /min and blood pressure was 130/80 mm/Hg. Patient was conscious, cooperative, well oriented to time, place, and person. He was anxious with thin body built, and personal hygiene was not well maintained. His weight was 59.5 kg, height was 173 cm and BMI was 19.8. Physical examination revealed, right axillary lump which was non-tender, mobile and bilateral, cervical and inguinal lymph nodes were palpable. Per abdominal examination revealed soft and non-tender abdomen. No murmur was heard on auscultation of chest and normal vesicular breath sounds were heard on respiratory assessment. His laboratory studies were notable with a white blood cell count of 10,700/ mm3, hemoglobin 11 g/dL, and platelet count of 1,93,000/mm3. His serum lactate dehydrogenase level was 400 U/L, Echo test revealed ejection fraction of 60% and a sclerotic aortic valve. Contrast enhanced 18-FDG (fluorodeoxyglucose) whole body PET (Positron Emission Tomography)-CT scan findings revealed

metabolically active disease in bilateral cervical, axillary mediastinal, pelvic and inguinal nodes, no evidence of metabolically active disease elsewhere in the body and was suggested for histopathological and immunohistochemistry (IHC) correlation. Further, inguinal lymph node tissue biopsy revealed monomorphic proliferation of small to intermediate-sized B cells with overexpression of cyclin D1 and had a translocation of [11,14,] confirming progressive mantle cell lymphoma.

Diagnosis

After physical examination and investigations, a final diagnosis of mantle cell lymphoma was made.

Concomitant disease: Osteoarthritis

Therapeutic interventions

Patient was treated with Inj. (Injection) Bendamustine 140 mg in 500 mL normal saline intravenously over two hours. Patient was treated with same drug every 28 days for five cycles. Pre-medications given before chemotherapy are listed in Table 1.

Table 1: Premedications administered before the chemotherapy for the patient

Drug	Dosage	Route	Frequency
Tab. Arpistar	120 mg	Oral	Stat
Inj. Palzen	0.25 mg	IV (Intravenous)	Stat
Inj. Dexona	80 mg	IV	Stat
Inj. Pantoprazole	40 mg	IV	Stat

The patient was discharged in a relatively satisfactory condition. The next course of chemotherapy was scheduled within a month. On discharge, patient was advised the following medications (Table 2).

Table 2: Prescribed drugs on discharge of the patient

Drug	Dosage	Route	Frequency
Tab. Arpistar	120 mg	Oral	OD x 2 days
Tab. Fitcerin GM	1 Tablet	Oral	BD x 30 days
Inj. Pantoprazole	40 mg	Oral	OD x 5 days
Tab. Flupistel	100 mg	Oral	BD x 10 days
Tab. Domstal	10 mg	Oral	TID x 3 days
Tab. Ecob CA	1 Tablet	oral	BD x 20 days

Further on, patient received remaining four cycles of chemotherapy every 28 days. Patient withstood therapy well. Blood counts were monitored before every chemotherapy cycle. In the background of the treatment, positive dynamics were noted. The count of red blood cells and platelets increased and the number of white blood cells decreased. His vital parameters were stable and the patient expressed moderate level of fatigue on assessment during his fifth cycle visit and his performance level was average. Patient received Inj. Neukine 300 mcg (Colony stimulating factor) s/c (Subcutaneously) OD for 5 days after 28 days of completion of fifth cycle of chemotherapy. Later he was advised for follow up on outpatient basis and was also advised to consume high protein diet. Patient was informed to seek immediate care in case of dizziness, weakness, fever, diarrhoea, increased vomiting or any unusual symptoms. Patient was educated regarding prevention of infection and was also advised to be physically active with regular walking and simple exercises. Exercises to reduce cancer related fatigue were taught for practicing at home.

Discussion

Only limited population-based data are available on mantle cell lymphoma (MCL), a relatively rare and aggressive mature B cell non-Hodgkin lymphoma (NHL) entity. Age-standardized incidence rate of MCL (per 100,000) is 1.1 in men and 0.26 in women.[6]

A 72-year-old agriculturist admitted to oncology ward in December 2022 with the chief complaints of lump in the axilla, significant loss of weight and fatigue for one month was diagnosed with MCL. MCL is more common in men (3 to 1), and the median age at diagnosis ranges between 60 to 70 years.[2] In this case, patient was above 70 years of age. The MCL typically presents with advanced extra nodal, bone marrow, peripheral blood, splenic, and/or gastrointestinal involvement. In the present case, patient did not show extra nodal involvement. Patient visited tertiary care center before any metastasis to other organs. Patient had severe fatigue on arrival which is common in this patient group.[5] On comparing the presenting manifestations of this patient with the case report of a 61-year-old male who presented to the emergency department for evaluation with a one month history of generalized intermittent abdominal pain with occasional dark blood during bowel movements and was diagnosed as primary gastrointestinal MCL presenting as colon-colonic intussusception,[7] all the necessary investigations were done to diagnose our patient.

Standard first-line treatment for MCL includes chemoimmunotherapy.[5] There are various combinations of medications that can be used for induction therapy,

but typically incorporates the monoclonal antibody rituximab and a combination of chemotherapy regimen that includes cytarabine as a drug.[4] For older fit patients without significant coexisting illnesses and those who are not eligible for transplantation, the combination of Bendamustine and Rituxan (B+R) may offer an alternative to the standard regimen and should be considered as initial (first-line) treatment in these patients.[8] In the current case, only drug given was Inj. Bendamustine 140 mg in each cycle. It is a less intensive chemotherapeutic agent.[8] On the contrary, a case report of a 70-year-old North African man with primary mantle cell lymphoma of the larynx reported a treatment regimen with a combination of drugs (rituximab-cyclophosphamide, doxorubicin, vincristine and prednisone).[9] Chemotherapy causes neutropenia;[10] in the present case, there was a reduction in white blood cell count after a course of chemotherapy. Fatigue is also a commonly reported symptom among cancer patients.[11] In the present case also patient reported fatigue despite the therapeutic interventions for relieving fatigue. Patient was advised to consume high protein diet. Intake output chart was maintained to monitor dehydration. Vital parameters were stable. Patient responded well to the treatment.

Mantle cell lymphoma (MCL) is a rare subtype of B-cell non-Hodgkin lymphomas (NHLs). Patients usually present to their physician with advanced disease. Because mantle cell lymphoma is known to relapse and become resistant to treatment, seeking care from a team of experts specialized in treating mantle cell lymphoma is the key for successful treatment. Holistic approach in care of these patients is required to manage the physical symptoms, side effects of therapeutic interventions and psychosocial needs of the patients.

Informed consent: Before taking this case, informed consent was obtained from the patient and his son.

Conflict of Interest

None

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