

Endogenous Panophthalmitis in a case of Multiple Myeloma and Diabetes Mellitus

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ABSTRACT

Multiple myeloma cripples the human body in many ways, one of them being decreased immunity. Infections occurring spontaneously can increase the morbidity. We report a case of an elderly lady with multiple myeloma on treatment and uncontrolled diabetes, who developed loss of vision, swelling and redness of left eye of 4 days duration. There was no history of injury or entry of a foreign body. She also had left arm cellulitis. Ocular examination revealed visual acuity of 6/36 in right eye and no perception of light in left eye. Anterior segment of the right eye was insignificant while the left eye showed features suggestive of panophthalmitis. B scan revealed choroidal detachment and confirmed panophthalmitis. She underwent evisceration of the left eye. The cause of spontaneous infections is an immunocompromised state due to multiple myeloma and uncontrolled diabetes. This case report highlights the propensity of multiple myeloma to cause infections of the eye debilitating enough to cause severe visual morbidity.

Keywords: B Scan, Evisceration, Perception of light negative, Sloughed cornea

CASE REPORT

A 61-year-old lady reported with swelling and redness of left eye. The patient was a diagnosed case of multiple myeloma based on anaemia, neutropaenia and bone pain and confirmed with serum electrophoresis 2 years back, had completed three cycles of chemotherapy with melphalan, dexamethasone and bortezomib and uncontrolled diabetes mellitus (HbA_{1c}: 12.7) on insulin of 8 years duration and hypothyroidism presented with a four day history of rapid onset loss of vision, pain and redness of the left eye. There was no history of injury or entry of a foreign body. She also complained of pain and swelling in left arm and inability to move it. General examination revealed a pulse of 78/min, BP 140/80mm Hg and left arm cellulitis. Ocular examination showed visual acuity of 6/36 in right eye and no perception of light in left eye. Anterior segment of the right eye showed a clear cornea, briskly reacting pupil and an immature cataract, whereas in the left eye, ductions were restricted in all directions, lids were edematous, conjunctiva was congested and chemosed, and showed total corneal sloughing [Table/Fig-1]. Fundus was normal in the right eye. B scan of the left eye revealed 9X5mm serous choroidal detachment in the temporal aspect of the globe and confirmed panophthalmitis and ruled out uveal plasmacytomas. Blood investigations revealed Haemoglobin 11g%, a total count of 8,800/mm³, platelets of 1.6 lac and an ESR 99/hr. Differential count was suggestive of neutrophilia with toxic granules.

She was started on intravenous Clindamycin and Metronidazole. Ultrasound of the wrist joint showed only soft tissue swelling ruling out septic arthritis. As the patient did not consent evisceration at this stage, surgery was postponed. The next day the cornea perforated in the central two thirds and showed iris prolapse. Then she underwent evisceration of the left eye. Centre of the cornea showed a 5mm long horizontal perforation with iris prolapse. Lens was found dislocated in the vitreous cavity. Vitreous culture and blood culture did not show any growth. The cellulitis of the arm was controlled. The patient was followed up regularly till 3 months and has been fitted with a prosthesis.

DISCUSSION

Multiple myeloma is a malignant proliferation of plasma cells originating from a single clone. It is caused by infiltration of bone



[Table/Fig-1]: Left eye & ductions were restricted in all directions, lids were edematous, conjunctiva was congested and chemosed showing total corneal sloughing.

marrow by bone marrow-derived plasma cells followed by the production of monoclonal Ig by these cells. The characteristic signs of myeloma include bone pain, hypercalcaemia, anaemia, renal failure and hyperviscosity syndrome. Symptomatic hyperviscosity is observed in 2–6% of patients with multiple myeloma [1]. Multiple myeloma causes morbidity by various mechanisms: abnormal immunoglobulins leading to decreased immunity, pancytopenia and susceptibility to infections and bleeding tendencies, plasmacytomas and metastases and pathological fractures.

Decreased synthesis and increased catabolism of normal immunoglobulins leads to hypogammaglobulinaemia. As a result, these patients are prone to bacterial infections, especially the *Pneumococcus*, *Klebsiella pneumoniae*, and *Staphylococcus aureus* affecting the lung and *Escherichia coli* and other gram-negative pathogens affecting the urinary tract. The infections; caused by bacteria, fungi and viruses; have been described in patients with multiple myeloma are pneumonia, sinusitis, discitis, osteomyelitis, septic arthritis, cellulitis, septic thrombophlebitis, colitis, abdominal abscess and periodontal abscess [2].

Manifestations of multiple myeloma can be seen in all structures of the eye, including both anterior and posterior segment. Bilateral eyelid ecchymoses was one of the first signs in detecting multiple myeloma, as described in a patient [3]. Multiple myeloma has also

presented initially with recurrent subconjunctival haemorrhages [4]. Deposition of amyloid crystals in all layers of cornea has been reported [3].

Multiple myeloma has posterior segment manifestations too. Bilateral central retinal venous occlusions [5], Purtscher's retinopathy [6] have been reported as initial manifestation of multiple myeloma. Endogenous endophthalmitis due to *Pneumococcus* has been reported in multiple myeloma [7]. Panophthalmitis is inflammation of all the coats of the eyeball. It is characterized by loss of vision, restricted eye movements and proptosis. The most important cause is entry of an exogenous infective etiology, usually following trauma. However, endogenous endophthalmitis and panophthalmitis do occur in immunocompromised state. This patient had cellulitis of the left upper arm concurrent with panophthalmitis. However, blood culture and vitreous culture were inconclusive, probably as the patient had already been started on intravenous antibiotics prior to being referred to us. Spontaneous panophthalmitis has been reported in uncontrolled insulin dependent diabetes [8] and urosepsis [9]. Panophthalmitis has a poor prognosis, and is one of the few indications of evisceration. The immune status of the patient was crippled by two morbidities- Multiple myeloma and diabetes mellitus, which was accentuated by steroids. The extent of contribution of each in causing panophthalmitis cannot be commented upon.

CONCLUSION

Multiple myeloma predisposes the patients to a wide spectrum of infections, which in this case was further exaggerated by

uncontrolled diabetes mellitus. This case report highlights the propensity of ocular damage that can come across in Multiple myeloma.

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