



A Case Study on Multiple Myeloma

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Introduction: Multiple myeloma (MM), also known as plasma cell myeloma and simply myeloma, is a cancer of plasma cells, a type of white blood cell that normally produces antibodies. Often, no symptoms are noticed initially. As it progresses, bone pain, anemia, kidney dysfunction, and infections may occur. Multiple myeloma is a hematologic disease characterized by an increase in plasma cells in the bone marrow and, more commonly, the presence of monoclonal immunoglobulin in the blood and / or urine. It is the second major hematologic attack found to have an annual occurrence with an increase in the United States of nearly 15,000 and approximately 45,000, respectively. The condition is higher with age (age between acquisitions of 67 yr). This case report describes a multiple myeloma patient presented with muscle sclerosis and was suspected of having myotonic dystrophy type 2 and illustrates the aspects of differential diagnosis, the use of laboratory and imaging for diagnosis.

Conclusion: Despite the fact that periodontal illness has a detrimental impact on one's quality of life, those benefits are often ignored. As a consequence, periodontal consultation can be a key component of MM care. Treatment for periodontal disease should begin as soon as possible.

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1. INTRODUCTION

Multiple myeloma (MM) is a type of cancer that affects plasma cells, which are white blood cells that contain antibodies. Plasma cell myeloma, or simply myeloma, is another name for it. In addition, no signals are visible at first. As the disease progresses, bone pain, anemia, kidney failure, and infections can occur. Amyloidosis is one of the potential side effects [1–3].

There is no known explanation for multiple myeloma. Risk factors include obesity, nuclear sensitivity, family background, and some toxins. Smouldering myeloma may develop from an undetermined monoclonal gammopathy. Abnormal plasma cells produce abnormal antibodies, which may cause kidney problems and excessively dense blood [2].

2. SYMPTOMS

Multiple myeloma symptoms and signs differ and are as follows:

1. Bone pain, especially in the spine and chest
2. Leg numbness or a feeling of weakness
3. Constipation is a common complaint among people.
4. Infections that occur frequently
5. Confusion or mental fogginess
6. Tiredness
7. Appetite loss
8. Loss of weight
9. Nauseous
10. Excessive Thirst

3. CASE REPORT

A 60-year-old woman Visited to the Datta Meghe Medical College Medical in the Department of Dentistry and General Medicine for consultation and treatment of improvements on the surface of her oral mucosa. In 2018, decompression for spinal canal stenosis at L3-L5 by fenestration was performed after a biopsy from the lower lip revealed hyaline degeneration of the spinal cord, which may have been the first symptom of MM.

In addition, the patient was diagnosed with muscle sclerosis and was suspected of having myotonic dystrophy type 2. Neration and fibrosis, as well as Langhans giant cell focuses. This made it possible to exclude those people. The occurrence of a trend of neoplastic metaplasia. The patient had surgery for lumbar spinal canal stenosis at L3-L4 and L4-L5 in 2018 because he was experiencing symptoms of neurogenic claudication.

However, there was no difference as a result of the procedure. Because of muscle rigidity that had been developing for two years, the patient was admitted to the Neurology Clinic of the Medical University of Warsaw in July 2020. In trepanobiopsy, the performed analysis revealed the presence of monoclonal protein in the serum and urine, as well as a high concentration of 2-microglobulin. MM was confirmed.

During the dental test, the patient said that she saw a dentist on a regular basis “on average twice a year. Fibrous hypertrophy was palpated within the upper and lower lip mucosa, as well as in the arch, in the oral cavity atrium, and symmetrically near the corners of the mouth, during the review of oral mucosa, which had been present for many months, according to the patient. It had a uniform structure, an irregular shape, and varied sizes, and it didn't hurt or bleed.

The muscle specimen had irregularly mixed and hypotrophic fibres with a normal diameter, according to microscopic analysis.

There were no central nuclei in the fibres, but some nuclei clusters of the nuclear clumps form with fasciculi were found. The classification of fibres into three metabolic forms was maintained due to enzyme coloration. With hypertrophy of type 2 fibres and a majority of type 1 fibres (clearly smaller diameter). This provided for the diagnosis of non-typical changes that suggested myotonic dystrophy type 2 and thus reinforced concerns about AMD incidence. Symptoms that occurred before MM allowed for the diagnosis of primary AMD and MM.

4. DISCUSSION

Cardiologists, internists, dermatologists, gastrologists, orthopaedists, nephrologists, radiotherapists, psychooncologists, and physiotherapists, as well as a haematologist and a periodontist, were all involved throughout the event [4]. If the patient's bone structure deteriorates and his orthostatic hypotension worsens, the infection of periodontal tissues may become more severe. Plaque index (PI) measurements taken over a one-year period show this. As a consequence, we're presented with the task of developing a complicated therapy for oral mucosa and tongue lesions that are pathognomonic for AMD and MM progression.

It is fair to predict an uptick in the occurrence as the total population lifespan grows. According to estimates, almost half of patients, including this woman, was diagnosed before the age of 65. People under the age of 40 are also seeing an increase in incidents. As a result, patients with AMD and/or MM are entitled to expect from their care provider a medication that not only alleviates symptoms but also allows them to heal. High doses of chemotherapy should be administered effectively with autologous stem cell transplantation, increasing the chances of survival [5].

After the transplant, patients with pancytopenia also experience oral mucositis, requiring the use of narcotic analgesics and parenteral feeding on a daily basis. Mucositis is excruciatingly uncomfortable, and it often leads to an inflammation of the oral mucosa by bacteria, viruses, or fungi. Despite the fact that multiple myeloma remains virtually incurable, novel treatments have significantly altered the disease's trajectory. In the past 15 years, significant change has been made in the management of this condition. With an average of 2-3 years at the end of the preceding decade to a current average of 10 years [6].

The development in basic knowledge and widespread preclinical research of new molecules were among the reasons that contributed to this achievement. As a part of this expansion, patients' overall life expectancy has improved. After long-term use of bisphosphonates, osteonecrosis of the jaw is normal. This is caused by osteoclasts, which are "bone resorbing cells from the bone marrow that assimilate these preparations." [7].

Their half-life is reduced, and osteoblasts "bone-forming cells_" are modulated at the same time. Since osteoblasts are made of type I collagen and lack the capacity to migrate, their position in bone development and regeneration is entirely reliant on osteoclast activity. Because of its phagocytic capacity and original location in the bone marrow, when an organism is healthy, it forms microtubules in the bone system, causing bone-forming cells to migrate with blood and thereby begin the regeneration process. Their long-term dysfunction results in osteonecrosis [8].

Bisphosphonates is licensed to treat hypercalcemia caused by MM because they increase patients' quality of life by reducing discomfort and bone complications. Osteonecrosis is more frequent in MM patients treated with zoledronic acid (Zometa) than in those treated with pamidronic acid (Aredia). If factors that promote osteonecrosis of the jaws occur, such as oral surgery such as tooth extraction or inflammation, as well as poor oral hygiene, osteonecrosis of the jaws can develop prior to the onset of the disease [9].

Osteonecrosis is described as an uncovered mandibular or maxillary bone that can be seen during a dental procedure, on X-ray pictures, or after six weeks of treatment and dental care and shows no signs of healing. A dental examination and oral cavity sanitation are needed before beginning bisphosphonate therapy. Dentists should properly remove any bacteria foci in the oral cavity prior to beginning bisphosphonates, or during the first few weeks after starting them. According to American standards gathered at the Mayo Clinic, bisphosphonates should be issued to MM patients for one year and a half to two years, depending on the patient's situation. During the operation, tooth extraction and implant insertion should be avoided, and all dental operations should be performed with caution [10].

According to American standards gathered at the Mayo Clinic, bisphosphonates should be issued to MM patients for one year and a half to two years, depending on the patient's situation. During the operation, tooth extraction and implant insertion should be avoided, and all dental operations should be performed with caution. Extensive surgical operations should be stopped at all costs. Any dental surgery will worsen the problem if osteonecrosis of the jaws occurs when taking bisphosphonates [10].

The authors hope for at least a partial elimination of the potential cause of mucositis and inflammation occurring in periodontal tissue that could play an auxiliary function during the therapy of the basic disorder, taking into account a relatively limited scope of therapy during the initial procedure, a lack of activities during the therapeutic phase, and an improvement in patient satisfaction and quality of life. The importance of a comprehensive treatment plan for AMD and/or MM patients, as well as an interdisciplinary approach, is emphasized in this article [11-15].

4. CONCLUSION

The case of a 62-year-old man with MM is seen, along with the care he got, to demonstrate the improvements in his oral mucosa and periodontal tissues affected by MM (amyloidosis) (bisphosphonates). Despite the fact that periodontal illness has a detrimental impact on one's quality of life, those benefits are often ignored. As a consequence, periodontal consultation can be a key component of MM care. Treatment for periodontal disease should begin as soon as possible. Periodontal status in MM is a subject that is seldom discussed in medical journals.

ETHICAL APPROVAL & CONSENT

Ethical clearance taken from institutional ethics committee and patient's written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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