

Nonsecretory Anaplastic Myeloma – A Case Report

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Received: June 17, 2018; **Published:** July 25, 2018

Abstract

We report a case of non-secretory myeloma, characterized by absence of abnormal paraprotein 8 in blood and urine. A 43-year-old man had pain in the upper back following lifting of heavy weight on his back. There was a pathological fracture of T4 vertebra. Skeletal survey showed multiple lesions in skeleton, but no abnormal paraproteins were detected in serum. He underwent surgery and biopsy. Histopathologically, the diagnosis was confirmed. Later he was referred to the oncologist for chemotherapy and radiotherapy.

Keywords: Non-Secretory Myeloma; Paraprotein 8; Free Light Chains; Radiotherapy; Chemotherapy

Introduction

Multiple myeloma is a primary malignant bone tumor characterized by abnormal proliferation of plasma cells. A small percentage (1 - 5%) of cases do not have abnormal paraprotein 8 in blood and urine [1,2]. These cases are termed as non-secretory myeloma. It has been reported in a child by Gorgia., *et al* [3]. Until 1996, only two cases were reported in literature [4].

These patients are often a diagnostic dilemma to Orthopaedic surgeons.

Case Report

A 43-year-old man presented to us with pain in the upper back of 8 days duration following lifting of heavy weight of about 50 kgs on his back. On examination he had tenderness of T4 Spinous process. There was no neurological deficit. Radiographs (Figure 1A and 1B) and magnetic resonance imaging (Figure 2) showed fracture of T4 vertebra.

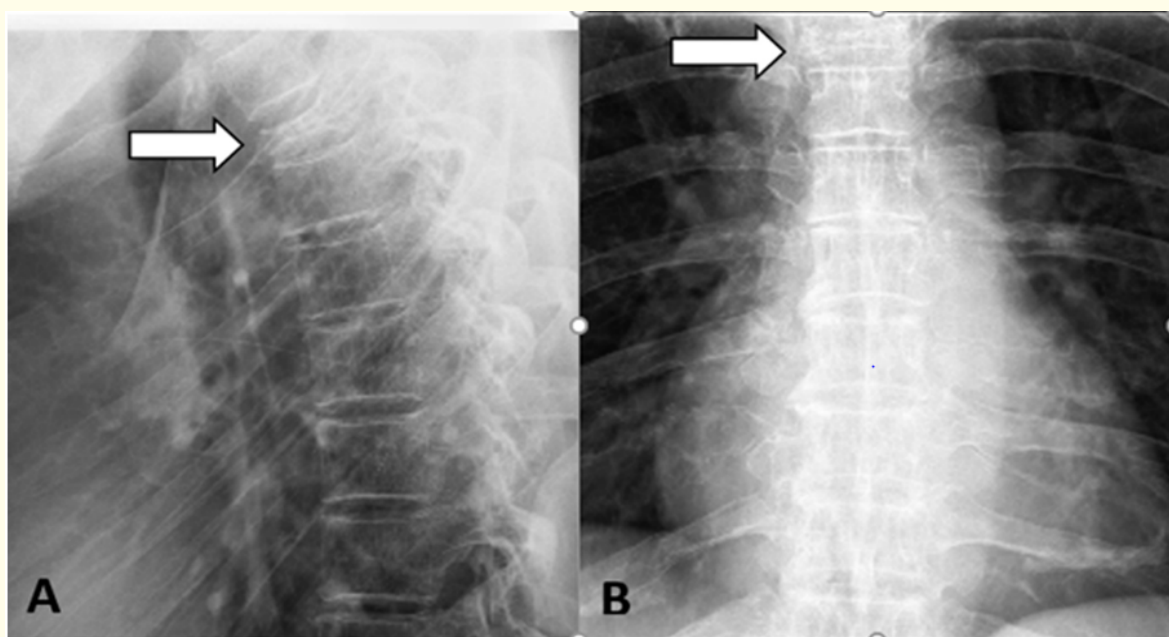


Figure 1: Lateral and anteroposterior radiographs of thoracic spine at presentation.



Figure 2: Magnetic Resonance Imaging of thoracic spine showing compression of T4 vertebra. Note cord compression causing myelopathy.

His erythrocyte sedimentation rate was 41 mm/hr. Albumin: Globulin ratio was 3:2. Protein electrophoresis was normal. Bone scan showed multiple osteolytic lesions in sternum, vertebrae, ribs, ilium, head of left femur and head of right humerus.

He underwent open biopsy, decompression and instrumented posterior fusion after surgical work up. Histopathologically, there were bony trabeculae enclosing tumor composed of diffuse sheets of abnormal plasma cells interspersed with large bizarre multinucleated cells with prominent eosinophilic nucleoli (Figure 3). The histopathological diagnosis was non-secretory anaplastic myeloma.

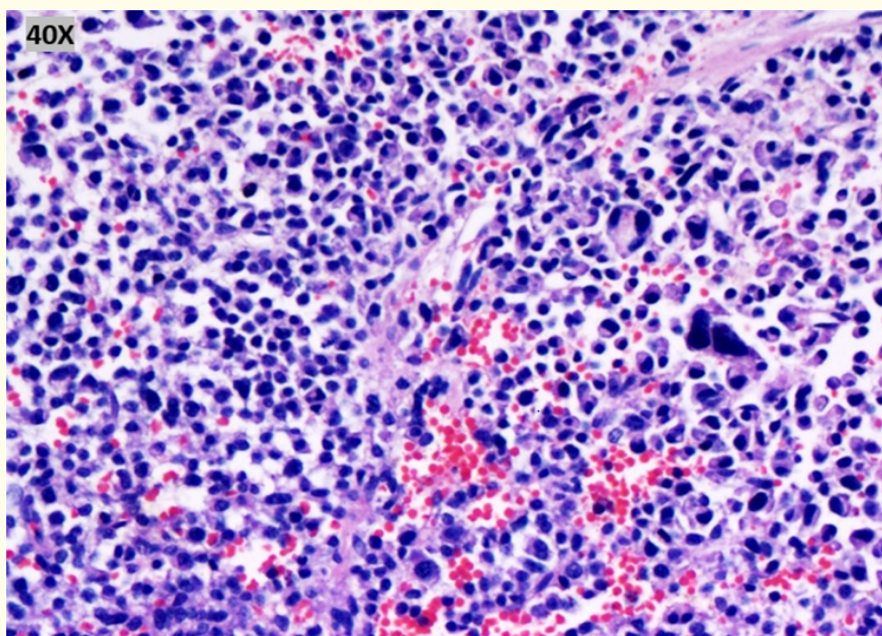


Figure 3: Histopathology (40X) showing abnormal plasma cells.

At the time of surgery, a bone marrow aspiration was also done. There were large clusters of abnormal cells with abundant wispy cytoplasm and eccentric nucleus. Plasma cells and an occasional plasmablast were seen in these clusters. An immunohistochemistry for lambda & kappa chains was suggested. Special staining was negative for cytokeratin.

He was referred to the oncologist of the hospital for radiotherapy and chemotherapy. Palliative radiotherapy was given at 30Gy for 10 fractions over 2 weeks. Chemotherapy with Lenalidomide 25 mg OD and Zoledronic acid with dexamethasone were given.

He was frequently followed up with renal function tests and serum immunoglobulin (IgA, IgG and IgM levels). He was last seen at 1 year postoperatively. There was no neurological deficit.

Discussion

Serre described non-secretory myelomas in 1958 as cited by Middela and Kante [2]. Several hypotheses have been suggested in the pathogenesis [1,2]. There may be reduced protein synthesis or increased breakdown of abnormal immunoglobulin chains. Immunoglobulin is synthesized but not secreted, probably due to reduced permeability or absence and alteration of intracellular transport of light chains. Also there may be intermittent excretion of immunoglobulin evading detection.

There are two types of non-secretory myeloma - nonproducer type (15%) and producer type (85%). The latter showed immunoglobulin in plasma cells but not in blood [2].

It is also said that these patients seem to have less incidence of renal insufficiency probably because light chains are not secreted in urine. These patients may have a better survival due to early presentation and absence of renal insufficiency. However, Adamidis, *et al.* [5] described a case of acute renal failure in non-secretory myeloma. Free light chains (FLC) assay is a useful tool for diagnosing and monitoring the prognosis in these patients [6].

Conclusion

Diagnosis of non-secretory myeloma is made on histopathology of the lesion and/or bone marrow examination in the absence of paraprotein in blood. Molecular and genetic studies may be useful in understanding of this disease.

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Volume 9 Issue 8 August 2018

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