

Multiple myeloma presenting as a pathological rib fracture in a primary health care center and its diagnostic challenges during the COVID 19 pandemic

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Abstract

Multiple Myeloma commonly presents with a myriad of symptoms, signs and abnormal laboratory findings namely bone pains, pathological fractures, lytic bone lesions, anaemia, high ESR, hypercalcemia, raised globulin and presence of monoclonal band in serum/urine. Here, we present a 54-year-old gentleman whose initial presentation was a pathological rib fracture. However, review of his past medical history revealed gout (now asymptomatic) and abnormal laboratory findings that helped us to subsequently diagnose as Multiple Myeloma.

The importance of simple investigations like ESR when managing patients with nonspecific symptoms in primary care, listening and looking for signals that suggest an alarming aetiology, following up of investigations and the continuity of care assured by the electronic medical record is highlighted by this case report.

Keywords: Multiple myeloma, pathological rib fracture, telemedicine, early diagnosis, primary care

Introduction

Multiple Myeloma presenting as a pathological fracture of the ribs is not uncommon [1]. Pathological fractures at other sites, such as, shaft of femur [2] and neck of femur [3] have been reported in patients with Multiple Myeloma. However, to pinpoint the diagnosis during a 15-minute telephonic consultation is quite a challenge especially in the setting of a pandemic where a significant proportion of health care force is devoted to diagnosis and management of the COVID 19 pandemic. A past laboratory finding of very high ESR, anaemia and raised globulin with or without resolution of gout should not be overlooked and should prompt the physician to suspect Multiple Myeloma.

The following case report highlights the importance of investigating the causes of pathological fracture especially when preceded or accompanied by high ESR, anaemia and raised globulin. It also highlights the importance of a proper face to face consultation (history, examination and review of past lab investigations) with the patient as opposed to a telephonic consultation, to arrive at a reasonable diagnosis.

Case Report

A 54-year-old man complained of left sided chest pain of three days duration during a telephonic consultation. It was a dull aching pain with no radiation to any other part of the body. Pain was localised and was increased by body movements. There was no relation of pain to exertion. There was no history of diaphoresis, shortness of breath or palpitation, to suggest angina. There was a past medical history of gout (uric acid – 532 micro mol/L) a year ago which subsided with symptomatic treatment. There was no other past medical history of diabetes, hypertension or coronary artery disease. Patient is a non-smoker and does not consume alcohol. Patient denied any history of trauma to the chest. There was no history of general weakness, prolonged fever, anorexia or weight loss. A non-significant low backache of three months duration that did not affect his daily routine was reported on repeated questioning.

A face-to-face consultation was arranged on the same day to get a clarity on the history and for a detailed examination. Clinical examination revealed a moderately built man with normal vitals. He had mild pallor but no icterus, clubbing or lymphadenopathy. There was localised tenderness of the left 6th rib in the mid axillary line. CVS, respiratory and abdominal examination revealed no abnormal findings. Xray ribs revealed cortical disruption on the lateral aspect of the left 6th rib suggestive of a fracture.

A review of investigations done 7 months ago showed high Erythrocyte sedimentation rate (ESR) of 135 mm/hour, mild anaemia (Hb 11.5g/dL), normal uric acid (362 micro mol/L) and a raised serum total protein (91 g/L) which was done as a part of the follow up of gout, was noted from his Electronic Medical Records. It was probably overlooked and there was no follow up arranged for the afore-mentioned abnormal investigations.

Since he had a pathological fracture and past history of gout, anaemia and high ESR a probable diagnosis of Multiple Myeloma was kept in mind and further investigations were targeted to confirm this diagnosis.

The investigations showed:

- Haemoglobin 8.5 g/dL, Red cell indices normal.
- Platelets 140 x103/micro L
- Peripheral smear - normocytic normochromic anaemia with rouleaux formation, mild leukopenia and mild thrombocytopenia.
- ESR more than 150 mm/hour
- Iron profile was normal
- Liver function tests - Total protein 97 g/L (high), Albumin 32.8 g/L (low), Globulin 64.2 g/L (high), Normal enzymes.
- Calcium normal (2.57 mmol/L).
- Renal function tests were normal.
- Xray skull - abnormal density of the calvarium and subtle ill-defined lucent lesions.
- Serum protein electrophoresis- 2 monoclonal bands of IgA lambda, normal Albumin and hypogammaglobulinemia.
- Urine electrophoresis- Bence Jones protein in trace amounts.

As the diagnosis of Multiple Myeloma was high in probability, patient was referred on an urgent basis to the tertiary care centre for further diagnostic confirmation and management.

A bone marrow aspirate and trephine biopsy (increased plasma cells comprising approximately 51%, with many immature forms) confirmed the diagnosis of Multiple Myeloma. A whole-body PET scan revealed mild uptake in the left 6th rib. An MRI spine and skull revealed patchy signals and enhancement of the calvarium and suspicious multilevel vertebral focal osseous lesions, most probably attributed to marrow infiltration. Serum Beta-2 microglobulin was high (2.79 mg/L).

Patient is currently receiving chemotherapy (2nd cycle) from the government tertiary care center. His symptoms have improved remarkably. His recent blood tests showed an Hb of 11.6 g/dL, platelets 313 x 103/micro L, WBC 4.8 x 103/micro L, Calcium 2.2 mmol/L.

Discussion

Telephonic consultation and telemedicine during the current COVID-19 pandemic remain a challenge for the medical professionals to come to an accurate diagnosis [4, 5]. No doubt that telemedicine brings undisputed benefits in a selected group of diseases and patients but also has its limitations. Failure of the physician to understand the symptomatology and connect the dots to make a specific diagnosis, paucity of clinical findings, lack of ability by the patient to the use of new technology especially in the elderly and those with cognitive decline, fear of loss of privacy are some of the pitfalls of telemedicine [4, 6]. Any suspicion of serious illness should prompt the physician to make a conventional face to face consultation.

Causes of pathological fracture should be thoroughly investigated especially when there is a past or concurrent history of gout (or high uric acid) or abnormal laboratory findings (anaemia, high ESR, high globulin, hypercalcemia, renal failure).

Diagnosis of Multiple Myeloma requires the following criteria. [7]

1. 10% or more abnormal plasma cells in the bone marrow or histologic proof of plasmacytoma.
2. At least one of the following 3 features: monoclonal (M-protein) in the serum, M-protein in the urine, or lytic bone lesions/pathological fractures.

All investigations except bone marrow aspiration/biopsy and skeletal survey can be requested in the primary health care setting. The following clues will aid in the diagnosis of Multiple Myeloma in a primary care setting.

1. Low back pain/bone pain/pathological fracture/lytic skeletal lesions [8].
2. Concurrent or a past medical history of gout or high uric acid.
3. Normocytic normochromic anaemia.
4. High ESR.
5. Thrombocytopenia.
6. High serum globulin.
7. Hypercalcemia

Any afore-mentioned abnormalities should prompt the primary care physician to request for serum and urine electrophoresis and refer to Haematology/Cancer Centre on an urgent basis for confirmation and further management.

Conclusion

This case report highlights the importance of looking for clues that might suggest an underlying pathology particularly in those that present with non-specific and uncommon presentations. Furthermore, simple investigations like ESR and Uric acid should not be overlooked in those who present with symptoms. It is important that physicians in a primary care setting consider a diagnosis of multiple myeloma when a patient presents with a rib fracture/pathological fracture. It also highlights the importance of reviewing patient's past medical records, following up on investigations and ensuring patients are triaged appropriately for a face-to-face consultation following a teleconsultation.

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