

Skull Lesion in Myeloma Mistaken for Myeloma Deposit

Senthil Muthian¹, Dimpu Bhagawati¹, Sean Molloy¹

1 Spinal deformity unit, Royal National Orthopaedic Hospital, Brockley Hill, Stanmore HA7 4LP, United Kingdom.

Conflict-of-interest statement: The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

Open-Access: This article is an open-access article which was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

Correspondence to: Dimpu Bhagawati, Spinal deformity unit, Royal National Orthopaedic Hospital, Brockley Hill, Stanmore HA7 4LP, Luton, United Kingdom.
Email: dimpubhagawati@nhs.net
Telephone: +01582491166

Received: February 10, 2021

Revised: March 4, 2021

Accepted: March 6 2021

Published online: April 28, 2021

ABSTRACT

We report the case of a 85 year old lady with multiple myeloma referred to our specialist spinal unit for treatment of multiple spinal fractures. She had an area of high signal on the occipital region seen on MRI and reported at a peripheral hospital as an erosive skull lesion in the occiput with protrusion of intracranial contents. The site of the erosion would mean that the upper margin of any cervical brace or collar would have potentially impinged on the defect and caused further damage. However on further evaluation at our tertiary myeloma unit the lesion turned out to be a normal variant requiring no further treatment.

Key words: Intraosseous myoepithelioma; Fibula; Recurrent myoepithelioma; Spindle myoepithelioma; Smooth muscle actin; Orthopedic oncology

© 2021 The Author(s). Published by ACT Publishing Group Ltd. All rights reserved.

Muthian S, Bhagawati D, Molloy S. Skull Lesion in Myeloma Mistaken for Myeloma Deposit. *International Journal of Orthopaedics* 2021; 8(2): 1467-1469 Available from: URL: <http://www.ghrnet.org/index.php/ijo/article/view/3134>

BACKGROUND

We present this case as it poses a significant management problem. Lytic bone lesions are seen in 80-90% of multiple myeloma patients at presentation^[1], and although the vertebral column is the most common bony site of involvement^[2], skull lesions are well documented. Treatment of vertebral body collapse is dependent on several factors, including stability, pain, neurological involvement and deformity. The mainstay of treatment involves bracing, with or without surgery. The upper end of the brace would typically be at the occipital area and may cause pressure effect over any skull lesion in this region. Accurate radiological diagnosis is required so that the patient can be appropriately managed.

CLINICAL FEATURES

An 85 year old lady was referred to our tertiary center with a recent diagnosis of multiple myeloma which was made after she sustained multiple fractures in a fall, including ribs, sternum and vertebrae. Lab workup had shown a high level of beta-2 microglobulin with a calcium of 2.29 mmol/L and creatinine of 57 umol/L and she was diagnosed to have Kappa Light chain myeloma and was started on Bortezomib and Dexamethasone by the peripheral hospital.

A large skull lesion in the occipital region was reported at the peripheral hospital to represent a myeloma deposit with localised lysis (Figures 1 and 2). MR imaging had shown vertebral compression fractures at T4, T5, T6, T7, T8 and T9 with T10 benign angioma and T12 endplate fracture (Figures 3 and 4). She also had fractures of the sternum and right 4th and 5th ribs as well as multiple lucent lesions in the spine at C6, C7 and T2 and in the manubrium. The skull was diffusely sclerotic with multiple lytic lesions. However on further review by the musculo-skeletal radiologist at our tertiary centre, the area in the occiput was diagnosed as a normal variant (Figures 1 and 2).



Figure 1 Occipital skull lesion on CT.

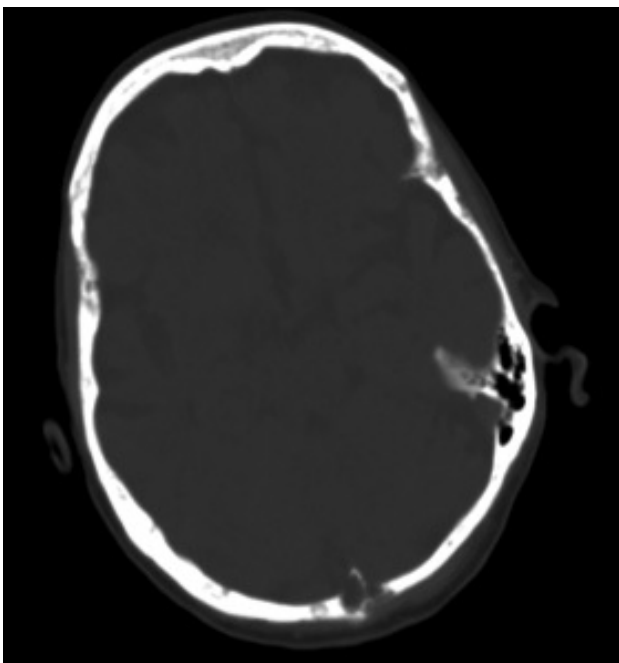


Figure 2 Axial CT scan showing occipital lesion.

TREATMENT

She was given one cycle of Velcade chemotherapy and advised thoracolumbosacral orthotic support in view of multiple spinal fractures.

She was too frail to undergo further chemotherapy or surgical treatment. The patient successfully underwent orthotic treatment without complications. Since the occipital lesion was not myelomatous, there was no risk of erosion of the skull by pressure exerted from any cervical brace (Figure 4).

DISCUSSION

Multiple myeloma is the most common vertebral primary bone tumour, comprising 1% of all neoplasia and 10% of all haematological malignancies, and has a worldwide distribution[3]. There is a proliferation of plasma cells which produce monoclonal protein, of which IgG, IgA or light chain protein kappa or lambda are the most common^[3]. The neoplastic cells have an affinity for certain microenvironments including bone, resulting in the lytic bone lesions characteristic of multiple myeloma^[4]. Surgical treatment commonly involves percutaneous balloon kyphoplasty, which is aimed at pain relief and restoration of lost vertebral height by injecting cement into the vertebral body after balloon dilatation. Patients who present with cord compression may need spinal decompression. Postoperative bracing with orthotic is used for pain relief and support. The type of brace used depends on the levels involved.

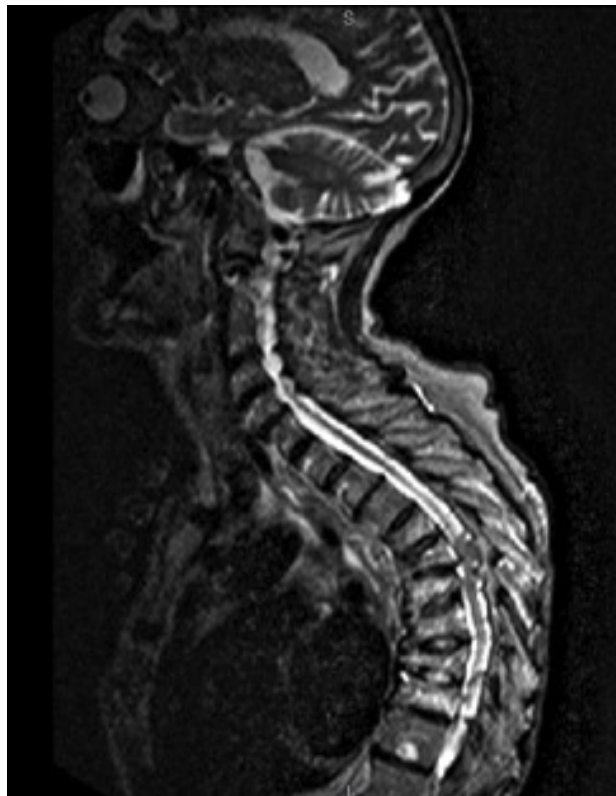


Figure 3 MRI head and spine showing occipital lesion. Note multiple vertebral fractures.



Figure 4 Sagittal MRI showing occipital lesion. (Site of lesion would make it adjacent to upper end of cervical spinal brace).

The fractured bone is replaced by gelatiniform, which is a reddish and unctuous substance^[4]. Hence the bone lesions are ‘soft’ and can easily be eroded further by physical pressure.

Learning points

(1) Multiple myeloma presents with widespread bony lesions; (2) Skull lesions are common; (3) However myeloma should be differentiated from areas of high signal that represent normal variants. This adds emphasis to the importance of managing these complex patients in units with access to specialist spinal imaging and surgical services; (4) Spinal bracing is commonly used to treat vertebral lesions

Author contribution

SM (1st author): Writing up manuscript, literature review, obtaining permission from patient, proofreading. DB: Conception, proof reading. SM (senior): Supervision, proof reading.

REFERENCES

1. Antonio Palumbo, Kenneth Anderson. Multiple Myeloma. Massachusetts Medical Society. *N Engl J Med* [Internet]. 2011 Mar 17; [cited 2017 Oct 4]; **364**(11): 1046-60. [PMID: 21410373]; [DOI: 10.1056/NEJMra1011442]
2. Wolfgang Dähnert. Radiology review manual. Lippincott Williams & Wilkins; 2003. 1202 p.
3. Robert Kyle, Vincent Rajkumar. Multiple myeloma. American Society of Hematology. *Blood* 2008 Mar; **111**(6): 2962-72. [PMID: 18332230]; [DOI: 10.1182/blood-2007-10-078022]
4. Vanessa Munhoz Bitelma, Joselia Alexandra Dinis de oliveira Lopes, Ariel Barreto Nogueira, Fernando Periera Frassetto, Amaro Nunes Duarte-Neto. "Punched out" multiple myeloma lytic lesions in the skull. *Autops Case Rep.* 2016 Jan-Mar; **6**(1): 7-9. [PMID: 27284535]; [DOI: 10.4322/acr.2016.020]