Reviewer’s report

Title: Heterogeneous Bone Marrow Uptake on interim 18F-FDG PET scan for Lymphoma mimicking disease progression: a case report

Version: 1 Date: 29 July 2014

Reviewer: Eva A Wegner

Which of the following best describes what type of case report this is?: An unexpected event in the course of observing or treating a patient

Has the case been reported coherently?: Yes

Is the case report authentic?: Yes

Is the case report ethical?: Yes

Is there any missing information that you think must be added before publication?: Yes

Is this case worth reporting?: Yes

Is the case report persuasive?: Yes

Does the case report have explanatory value?: Yes

Does the case report have diagnostic value?: Yes

Will the case report make a difference to clinical practice?: Yes

Is the anonymity of the patient protected?: Yes

Comments to authors:

Thank you, this is a very interesting case, which alerts the clinicians to remain open-minded and cautious when reporting scans, especially if unusual findings are detected. An excellent case presentation.

Could you please address the following points:

1. What was the site of the initial bone marrow biopsy? Was this site non-avid on the initial PET? Patchy bone marrow regeneration with a "flip-flop" phenomenon has been observed in high grade lymphoma and has been previously reported (EC Lin, Clin Nucl Med. 2006 Dec;31(12):803-5, Textbook: Atlas of Clinical Positron Emission Tomography, ed Sally Barrington). It can be quite striking especially after the use of GCSF. A low grade non-metabolically active lymphoma involving the bone marrow appears to be the most likely explanation.
for the scan appearances, possibly resulting in a "partial flip-flop" variant. This possibility is not adequately explored in the discussion. A statement is made that there may be a "slightly" heterogenous appearance. In fact, this appearance is often "significantly" heterogenous with cold areas of prior disease and very avid regenerating bone marrow.

2. Figure 2 should be referenced in the text.

3. If possible, could you provide additional, more detailed images of the bone marrow. A midline sagittal view of the spine on the three PET scans (added to Figure 1) would be most helpful to view the bone marrow findings.

4. Could you please add a very brief description of the initial scanning protocol: camera brand, injected dose, uptake period and if there were any significant changes to this protocol on the subsequent scans.

Thank you again for reporting this interesting case.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Declaration of competing interests:**

I declare that I have no competing interests.