Reviewer’s report

Title: Concomitant septic arthritis and osteomyelitis of the hip in young children; a new pathophysiological hypothesis suggested by MRI enhancement pattern

Version: 2
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Reviewer: Toshihiro Akisue

Reviewer’s report:

This manuscript presents a case-series of 10 children with concomitant septic arthritis (SA) and osteomyelitis of the hip. The authors evaluated all 10 patient using enhanced MR images as well as T1 and T2 weighted images at the presentation to the hospital. This study included the patients with isolated septic arthritis at the initial evaluation, which then developed osteomyelitis in the metaphysis. The authors found hypointense in epiphysis of the hips on Gd-enhanced MRI images, compared with contralateral aseptic hips. Based on the current findings and previous studies, the authors proposed their hypothesis that SA may be a primary lesion which then develops osteomyelitis through the mechanism that bacteria may translocate from epiphysis to metaphysis via blood vessels across the growth plate. I think that the current study is unique and original, so worth being published. However, I found some problems in this manuscript. Therefore, I think that the current manuscript is suitable for publication after Minor Essential Revisions.

1. Page 5, line 9
“IV” should be spelled out as “intravenous”.

2. Page 7 lines 6
A space need between “without” and “MRI”.

3. Page 7 and 8, Figures, and Figure legends
The number of figures is not consistent through the manuscript. For example, “Fig1a” in page 7 and page 12 (legend), but “1A” in Figure 1.

4. Discussion
The authors first proposed two hypotheses in page 8. Then they declined the hypothesis that osteomyelitis in the epiphysis is a primary lesion which develops SA, based on the current findings. The authors advocated the other hypothesis that SA may be a primary lesion which then develops osteomyelitis through the mechanism that bacteria may translocate from epiphysis to metaphysis via blood vessels across the growth plate. Although no case in the current study had an initial septic lesion in metaphysis of the hip which developed SA, I think it difficult to conclude to decline the former hypothesis with the small number of cases available. The authors should note limitations of the current study more specifically when the hypothesis is discussed.
Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.