

## Letters to the Editor

## Autologous Adipose Tissue-Derived Stem Cells Induce Persistent Bone-Like Tissue in Osteonecrotic Femoral Heads: Not Bone-Like, But Fat-Like Tissue

### TO THE EDITOR:

I started to read with great interest the case report entitled "Autologous adipose tissue-derived stem cells induce persistent bone-like tissue in osteonecrotic femoral heads" by Pak (1). However, the contents of the report were greatly disappointing.

The most critical fault of this report is that the area in which the author observed magnetic resonance imaging (MRI) signal change after injection was not the necrotic area, but the living bone area outside the outer margin of the necrotic lesion. The outer margin of the necrotic lesion is called "reactive interface" and appears as a low signal intensity band on T1 weighted MR images (2-4). The injection site is a very dynamic area. When subchondral fracture occurs, bone marrow edema develops in this area making its signal intensity low on T1 weighted images (5). As time passes, bone marrow edema decreases and the low signal intensity of the area turns high on T1 weighted images.

The other mistake the author has made is that he interpreted the high signal intensity change on T1 weighted images as new bone formation. On T1

weighted images, the cancellous bone area shows high signal intensity because of its high fat content. Bone tissue itself appears low signal intensity both on T1 and T2 weighted images (6). Therefore, if some tissue was induced by the stem cells, it should be described as fat-like instead of bone-like.

The author injected the femoral head posterolaterally with a 22-gauge needle. In osteonecrosis of the femoral head, the necrotic lesion is usually located in the anterosuperior aspect of the femoral head as in the 2 cases described in this case report. Therefore it was not possible to reach the necrotic area even if the author could penetrate the cortical bone with a 22-gauge needle.

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