

Diagnostic issue on spontaneous osteonecrosis of medial tibial plateau

Jun Jiang, Jian Chen

Arthritis Clinic and Research Center, Peking University People Hospital, Beijing 100044, China.

To the Editor: I read with great interest the recent report of Yang *et al*^[1], “Clinical Characteristics and Treatment of Spontaneous Osteonecrosis of Medial Tibial Plateau: A retrospective case study” (published on November 5, 2018, Chin Med J, page 2544–2550), because there have been very few reports on isolated spontaneous medial tibial plateau osteonecrosis and little is known about osteonecrosis of the tibial plateau. I would like to comment on diagnostic issues in this letter.

Osteonecrosis of the knee can be a devastating disease that leads to end-stage arthritis of the knee. The knee is the second most commonly affected site after the hip.^[2] Spontaneous osteonecrosis of the knee (SPONK) involving medial femoral condyle was described as a distinct entity by Ahlback *et al* in 1968^[3] and is also called idiopathic or primary osteonecrosis to distinguish it from secondary osteonecrosis, which is associated with corticosteroid therapy, blood dyscrasias, Gaucher disease, caisson disease,^[4] and other rare conditions, for example, laser-assisted arthroscopic chondroplasty.^[5] The condition usually involves a single condyle, most often the medial femoral condyle, affected in 94% of the cases and can also occur in the lateral femoral condyle or in the tibial plateaus.^[6] Involvement of the tibial plateau, which was first reported in the French literature by d’Angelijan *et al*^[7] in 1967 and was described in the English literature by Houpt *et al*^[8] is less common. Only 2% of osteonecrosis around the knee may affect the tibial plateau. The medial tibial plateau is more frequently affected than the lateral.^[9] Therefore, to our knowledge, it remains a rare cause of knee pain. In the article, the case group contains 22 patients in 15 months (from March 2015 to June 2016), it means real prevalence may be underestimated.

Magnetic resonance imaging (MRI) is both sensitive and specific for recognizing SPONK of both medial femoral condyle and tibial plateau and recommended for detection of the disease, due to its high sensitivity in detecting bone

marrow edema.^[10] MRI characteristics include a diffuse area of hyperintensity widespread into the metaphysics on T2-weighted images, the focal subchondral area of low signal intensity adjacent to the subchondral bone plate on T1-weighted images and focal epiphyseal contour depressions. But the MRI-detected subchondral bone marrow lesion, comprised of fibrosis, necrosis, edema, and bleeding into fatty marrow in different proportions as well as abnormal trabeculae, is also a common finding in patients with OA.^[11] In the article, the MRI images showed in Figures 2 and 5 have no typical MRI signs of spontaneous medial tibial plateau osteonecrosis, MRI T1 and T2 images show cartilage degeneration, narrow of joint space, focal bone marrow edema and formation of subchondral cysts in medial knee compartment. We think it is more likely anteromedial osteoarthritis of knee, not a typical SPONK of medial tibial plateau. Although medial unicompartmental knee arthroplasty is also appropriate surgical indication. We also noted that in the series, there are 17 patients (77%) with a Level III medial meniscus posterior root tears (MMPRT) and the lesions of 68% patients involved the central tibial plateau. Subchondral marrow edema deep to the MMPRT was described as a harbinger of meniscal root failure. Ipsilateral tibiofemoral compartment bone marrow edema and insufficiency fractures are commonly noted in the presence of posterior meniscal tears.^[12] Therefore, differential diagnosis is important and the condition has not been clearly discussed.

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Conflicts of interest

None.

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Correspondence to: Prof. Jian Chen, Arthritis Clinic and Research Center, Peking University People Hospital, No. 11, Xizhimeng South Street, Beijing 100044, China
E-Mail: chenji301@sohu.com

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