Femoral Head Avascular Necrosis Is Not Caused by Arthroscopic Posterolateral Femoroplasty

To the Editor:

Rupp and Rupp conducted a retrospective study to identify the risk of avascular necrosis (AVN) of the femoral head following arthroscopic femoroplasty extending to the posterolateral femoral neck in 14 patients with femoracetabular impingement. The operative procedure started in the peripheral compartment. Traction was applied only during inspection and treatment of the central compartment. During inspection of the peripheral compartment, synovial folds were identified with the lateral retinacular vessels penetrating the posterolateral cam deformity. The authors emphasized that contouring of the posterolateral region of the femoral head and neck necessitated removal of the penetrating vascularity in this region. The patients underwent postoperative magnetic resonance imaging of the affected hip. Magnetic resonance imaging showed no evidence of femoral head AVN. The authors concluded that posterolateral femoroplasty with necessitated violation of the penetrating vascularity is a safe procedure and does not cause AVN.

The femoral head blood supply has been thoroughly investigated and the primary role of the superior retinacular arteries (3 to 5 branches) confirmed. Three years ago, Matsuda and Hanami described a technique of arthroscopic posterior cam decompression without compromise of the posterolateral vasculature. They advised that the hip be maintained in relative extension (10° of flexion) for adequate assessment of posterolateral cam deformities. Furthermore, they transiently reapplied hip traction to improve access to the proximal extent of the femoroplasty if covered by the acetabular rim. As these maneuvers were not mentioned by Rupp and Rupp, it would be interesting to obtain additional information about the femoroplasty they performed.

Reichenbach et al introduced bidimensional coordinates to describe the vascular foramina and radial extension of the head–neck junction deformity (omega angle) on preoperative and postoperative radial magnetic resonance imaging. Because the vascular foramina extended into the anterolateral sector of the femoral neck overlapping the anterior cam lesion in 44% of patients, the use of retinacular vessels as an intraoperative landmark might be misleading. It would be interesting to see these methods applied to magnetic resonance imaging to clarify the exact location of the cam deformity and vascular foramina and the extent of femoroplasty.

However, the main issue for debate is the “safe” violation of extraosseous posterolateral vasculature called “the source of the primary blood supply to the femoral head.” Matsuda and Hanami’s approach allows complete arthroscopic posterior femoroplasty while respecting the extraosseous posterolateral vasculature by remaining proximal to the vessels. On the contrary, Rupp and Rupp explicitly condoned disrupting these vessels despite the fact that neither localization nor extension of the femoroplasties was adequately defined. One could assume that violation of a single retinacular vessel would not cause AVN of the femoral head, but it should serve as a warning to surgeons to cease further violation of the posterolateral vascularity. It is interesting that institutional ethical approval for this research was not presented by Rupp and Rupp. Finally, it remains reasonable to question whether a gain in posterior cam decompression is worth the potential risk of femoral head AVN.

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REFERENCES


Editor’s Note: The authors declined to comment on this letter.

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