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Plating Other than Where They Are Designed to Be Placed

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Most periarticular plates are designed for their own specific fracture sites. But sometimes they are being used other than where they are supposed to be placed. The report 'PHILOS Plate Osteosynthesis in Metaphyseal Fractures of the Distal Humerus through an Anterolateral Approach' by Park et al.[1] is one of the good examples, where the authors placed PHILOS plates on distal humerus fractures, which was designed originally for proximal humerus fractures. The authors claim that the well-conformed anatomical framework between the plate and the anterior surface of distal humerus make it possible to fix the fracture suitably. And they stated that multi-directional locking screws provide adequate power for fixation.

There are a few more similar examples. We can apply hooked lateral malleolar plate to the olecranon fracture or medial clavicle fracture. And we can use distal femoral plate for proximal femur fracture.[2,3] In one paper, they reported the adequacy of PHILOS plates for distal medial tibial fixation or ankle arthrodesis.[4] And plating of lateral clavicle plate for medial clavicle fracture was also reported.[5]

Periarticular plates are designed for each anatomical place with almost perfect conformity. So when we try to apply them to other place, some degree of mismatch between the plate and the cortex of the bone would be inevitable, which could deteriorate the fixation security. It could get worse if we have to use conventional cortical screws instead of locking screws. And it usually is difficult to modify the shape of the periarticular plates for more perfect fitting by bending of twisting. Even if the modification is possible, it could change the mechanical property of the plates and locking screws cannot be locked properly.

Almost all articles of this kind of plating report good results with limited number of cases. However, we feel that using the plate in other places rather than its primary design might not achieve optimal fitting and fixation. So we might as well be very cautious when we select proper plate for fracture fixation.

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