Femoral Neck Exposure for the Smith-Petersen Versus the Watson-Jones Approach

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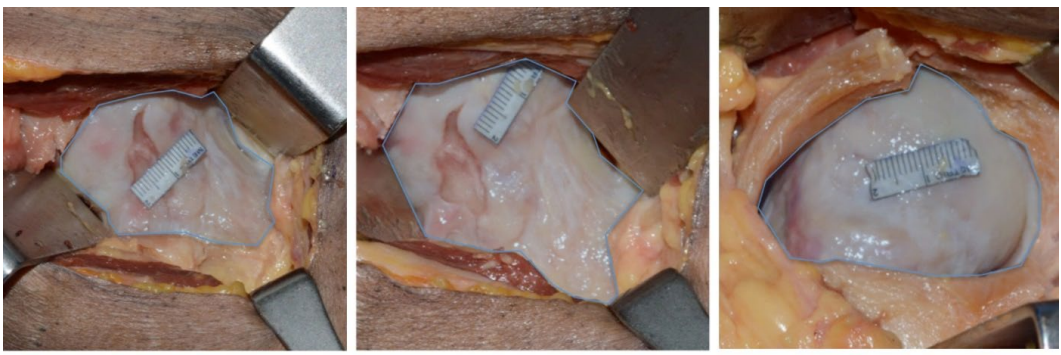
Purpose: The purpose of this study was to evaluate and compare the surgical exposure provided by the Smith-Petersen (SP) and Watson-Jones (WJ) approaches.

Methods: Ten fresh-frozen pelvi underwent standardized SP and WJ approaches. Exposure was measured using calibrated digital photographs from the surgeon's viewpoint with specialized software (Figure 1). SP approaches were evaluated before and after rectus tenotomy (RT). The ability to visualize and palpate relevant anatomic structures (labrum, head, subcapital neck, basicervical neck, medial neck, greater trochanter, and lesser trochanter) was assessed.

Results: The SP approach exposed greater femoral neck than the WJ approach, providing 2.4 cm^2 and 3.3 cm^2 additional exposure with or without RT, respectively. Age, body mass index, height, and gender were not predictors of exposure. The labrum, femoral head, subcapital and basicervical neck, and greater trochanter were reliably visible and palpable in all approaches. The lesser trochanter was visible in 2 and palpable in all SP approaches, but neither visible nor palpable in all WJ approaches. The medial neck was visible and palpable in all SP approaches, while only visible in 1 and palpable in 8 WJ approaches.

Conclusion: An exposure that facilitates reduction and fixation of femoral neck fractures is critical to management. The SP approach, with or without RT, provides superior exposure to the femoral neck and clinically relevant anatomic landmarks.



a b c

Figure 1. Examples of Smith-Petersen without (a) and with (b) rectus femoris tenotomy, as well as the Watson Jones approach (c). Photographs are taken from the surgeon's perspective and retractor placement is standardized. Rulers are included at the level of the surgical field for calibration. Area (in cm^2) was measured with specialized software (Image J, NIH, Bethesda MD).