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FIRST CLINICAL EXPERIENCE: ARTHROCENTESIS WITH THE RECENTLY FDA-APPROVED ONE-HANDED RECIPROCATING PROCEDURE SYRINGE.

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Purpose: To evaluate physician performance in arthrocentesis with the recently FDA-approved one-handed reciprocating procedure syringe.

Methods: Fourteen physicians (8 board-certified rheumatologists and 6 physicians in rheumatology training) performed 50 arthrocentesis procedures. The procedures were randomized to the reciprocating syringe or a conventional syringe under an IRB-approved clinical protocol. Needle control was measured using a needle-based quantitative displacement system. Patient pain and operator satisfaction were determined by analogue intensity scales, and procedure duration was recorded.

Results: Needle control with the reciprocating syringe was markedly enhanced with a 66% reduction in unintended penetration ($p < 0.001$) and a 68% reduction in unintended retraction ($p < 0.001$). In individual syringe procedures the improvement in syringe and needle control translated to a 57% reduction in patient pain ($p < 0.0001$), an 87% increase in operator satisfaction with syringe performance ($p < 0.0001$), and a 30% reduction in procedure duration ($p < 0.05$). No complications were noted. Since the physicians had on average 300 times more practice with the conventional syringe, the marked improvement with the reciprocating syringe could not be attributed to bias from practice effects.

Conclusions: In arthrocentesis the one-handed reciprocating procedure syringe improves control of both syringe and needle, reduces patient pain, improves operator satisfaction, and decreases procedure time. The improved needle control and one-handed operation of the reciprocating syringe suggest great promise in improving arthrocentesis and other syringe-based procedures.