

Early osteoarthritis after slipped capital femoral epiphysis: cartilage degeneration, residual deformity and patient reported outcome

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Background

Slipped Capital Femoral Epiphysis (SCFE) results in a more or less pronounced deformity of the proximal femur sometimes causing impingement and early osteoarthritis. Arthroscopic bumpectomy and more extensive femoral or pelvic realignment osteotomies can be performed. However the indications and prerequisites for successful surgery is not clear.

The purpose was to study early osteoarthritis after SCFE and the association with deformity and self-reported hip function, pain and quality of life.

Methods

Delayed-Gadolinium-Enhanced-Magnetic-Resonance-Imaging of Cartilage (dGEMRIC) quantifies and locates cartilage degeneration. Plain radiographs were used to measure deformity, alpha-angle. Oxford hip score, Hip Groin Outcome score and EQ-5D-Visual scale, were used.

Results

Nine women and 16 men, mean age 32 years (range 21-50), 19 with unilateral and 6 with bilateral SCFE participated. In the 19 unilateral SCFE on the slip side dGEMRIC mean value was 533 (112 SD, range 357-649) compared to mean 589 (125 SD, range 320-788) on the non-slip side, $p=0.010$. The dGEMRIC correlated negatively to the alpha angle, $r=-0.599$, ($p=0.002$). Oxford hip score, pain and EQ-5D-Visual scale correlated to dGEMRIC $r=0.432$ ($p=0.031$), $r=0.402$ ($p=0.046$) and $r=0.490$ ($p=0.013$) respectively.

Interpretation

We found cartilage degeneration even with relatively mild residual deformity in this small study group, compared to previous reports. Symptoms were partly identified by the Oxford hip score although participants had not sought medical care prior to the study. Quality of life was strongly associated with cartilage degeneration.

Conclusion

Objective assessment of early cartilage degeneration may be useful in follow-up and in treatment decision process after SCFE.

