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“Hip Salvage Surgery in Non-Ambulatory Cerebral Palsy: A Systematic Review”

Purpose: Individuals with severe cerebral palsy (CP) at Gross Motor Function Classification System (GMFCS) levels IV and V are at high risk of hip displacement causing pain, reduced sitting tolerance, and hygiene challenges. Salvage procedures such as proximal femoral resection, hip arthrodesis, or total hip arthroplasty are often required. This review evaluated preoperative characteristics, intraoperative variables, and postoperative outcomes of salvage hip surgery in non-ambulatory children and young adults with CP.

Methods: PubMed and Embase were searched to October 1, 2024, following PRISMA guidelines and a registered PROSPERO protocol. Eligible English-language cohort studies and case series were included. Data were extracted in duplicate and quality assessed using Methodological Index for Non-Randomized Studies (MINORS). A narrative synthesis was used due to lack of consistent quantitative outcomes reported.

Results: Of 3004 records screened, 42 studies (793 patients, 1014 hips) were included. Excision was most common (n=34 studies), followed by arthroplasty (n=8) and arthrodesis (n=4). Most patients were male (56%) and 81.6% were GMFCS V. Excision procedures had the lowest operative times (mean 2.5 h) and blood loss (mean 232 mL). Pre-operative indications included pain (93% of studies) and caretaker concerns including transfer ability, hygiene and quality of life (83% of studies). Overall peri-operative complication rates were 13.9%. Heterotopic ossification occurred in 69% of studies, proximal femoral migration in 52%, and 80% reported need for secondary procedures.

Conclusions: Salvage surgery provides consistent pain relief and functional benefits in non-ambulatory CP but remains associated with frequent complications and repeat surgery.