

PEDIATRIC PELVIC OSTEOTOMIES: INDICATIONS, CONTRAINDICATIONS AND TECHNIQUES

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Pelvic osteotomies are common procedures in pediatric orthopaedics. They are used to correct acetabular deficiency, improve femoral head coverage, stimulate normal acetabular growth and development, and decrease high contact stresses between the femoral and acetabulum. They can be classified as redirectional, reshaping and salvage/augmentation procedures. Redirectional osteotomies change the orientation of the acetabulum. These include the Salter, Sutherland, Dega and periacetabular osteotomies (Steel, Tonnis and Ganz). Reshaping osteotomies reduce the volume and shape of the acetabulum. They include the Pemberton, PemberSal and San Diego osteotomies. Salvage/augmentation osteotomies, such as the Chiari osteotomy and shelf procedure, improve the coverage of deformed femoral heads. Redirectional and reshaping osteotomies are physiologic procedures as they maintain normal contact between the hyaline cartilage at the femoral head and acetabulum. The salvage/augmentation osteotomies are non-physiologic as they depend on fibrocartilagenous metaplasia of the interposed capsule to provide a stable weight bearing surface. These can be effective in stabilizing a deformed, dysplastic hip but will not permanently arrest the development of degenerative osteochondritis. The common indications for these procedures include developmental dysplasia of the hip (acetabular dysplasia, subluxation and dislocation), avascular necrosis of the capital femoral epiphysis (LCPD), and neuromuscular/syndromic hip instability. There are no definite criteria for each osteotomy. However, as a general guideline the Salter, Sutherland, Dega and Pemberton are used for mild to moderate acetabular dysplasia while the Steel (triple) and Tonnis osteotomies are for more severe dysplasia. The Ganz osteotomy is for residual dysplasia after skeletal maturity. The Dega, Chiari, and San Diego osteotomies and shelf procedures are primarily for neuromuscular hip instability. Understanding the indications and contraindications are important. Most pediatric orthopaedic surgeons should become expert in performing one or two of the osteotomies from each of the three categories.