Total Hip Arthroplasty in Patients with Morquio's Syndrome

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INTRODUCTION: Mucopolysaccharidosis (MPS) is a group of inherited lysosomal storage disease in which the body is unable to break down mucopolysaccharides leading to the accumulation of glycosaminoglycans (GAGs) in tissue throughout the body. MPS type IV, or Morquio's syndrome, manifests as spondylo-epiphyseo-metaphyseal dysplasia, including dysplasia involving the femoral neck. This femoral deformity increases the incidence of early onset osteoarthritis of the hip necessitating reconstructive intervention. Total hip arthroplasty (THA) in this population is exceedingly rare and reports of postoperative complications and outcomes are scarce. This study seeks to investigate the postoperative outcomes of THA in patients with MPS.

METHODS: A retrospective review of patients with Morquio's syndrome who underwent THA at a tertiary pediatric hospital from 2004-2025 was conducted. Patient demographics, operative reports, and clinic note details were collected. Descriptive statistics were used to characterize outcomes.

RESULTS SECTION: Four patients (7 hips) were included with a mean age of 16.6 years and a mean follow-up of 13.6 months (Table 1). The cohort included 1 female (25%) and 3 males (75%). Five hips (71.4%) were implanted with Wagner Cone Stems, one (14.3%) with a Taperloc High Offset Femoral Stem, and one (14.3%) with an S-ROM. Acetabulum and femoral head sizing is described in Table 2. An augment was used in 6 hips (85.7%).

Two intraoperative complications (28.6%) were reported, including one calcar crack requiring the placement of a cable above the lesser trochanter and one acetabular implant fixation failure requiring a revision of fixation intraoperatively. Additionally, one postoperative complication was noted which included foot drop, pain, and lack of sensation to the lower extremity; however, this complication resolved within 11 months. Notably, two complications occurred in one patient.

DISCUSSION: This is one of the largest series documenting the use of THA in patients with Morquio's syndrome. In this cohort, two intraoperative complications and one postoperative complication were reported. Despite the challenges of poor bone quality in patients with skeletal dysplasia, all complications were resolved within 11 months of surgery, demonstrating the feasibility of this procedure. Given there is no cure for this disease, further research is needed to investigate the safety, efficacy, and outcomes of supportive treatments in this patient population.

SIGNIFICANCE/CLINICAL RELEVANCE: (1-2 sentences): This study describes the intraoperative and postoperative outcomes of patients with MPS who have undergone THA, a rare procedure in this population. These findings may help guide physicians when counseling patients and families on the outcomes of THA in patients with MPS.

IMAGES AND TABLES:

Table 1. Patient Characteristics

N = 4 patients	
Sex	
Female	1 (25%)
Male	3 (75%)
Side	
Unilateral	1 (25%)
Bilateral	3 (75%)
Age, in years	16.6 (2.0)
Follow Up, in months	13.6 (8.7)
Height, in cm	150.6 (6.5)
Weight, in kg	54.4 (9.8)

Table 2. Operative Details

N = 7 hips	
Implants Femoral	
Wagner Cone Stem	5 (71.4%)
Taperloc High Offset Femoral Stem	1 (14.3%)
S-ROM	1 (14.3%)
Femoral Head Size	
28mm	2 (28.6%)
32mm	5 (71.4%)
Acetabulum Sizes	
44mm	2 (28.6%)
46mm	1 (14.3%)
48mm	4 (57.1%)
Augment Used	
Yes	6 (85.7%)
No	1 (14.2%)
Amount hip was lengthened	15.2 (5.4)
EBL	385.7 (157.4)
Complications	
Intra Operative	2 (28.6%)
Post Operative	1 (14.3%)
Time in Surgery, in hours: minutes	3:01 (0:45)