Radiation Prophylaxis for Hip Salvage Surgery in Cerebral Palsy – Can We Reduce the Incidence of Heterotopic Ossification?

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OBJECTIVES
Heterotopic ossification (HO) is a well-recognized complication of proximal femoral head resection (PFHR) surgery in cerebral palsy. The purpose of this study was to assess the efficacy of single dose radiation prophylaxis (SDRP) in patients with cerebral palsy undergoing PFHR.

RESULTS
HO was seen in 6 of the SDRP hips (6/17, 35%) and 16 of the non-SDRP hips (16/19, 84%). The average size of HO at maturity was 272.7 mm² in the SDRP group compared to 1221.5 mm² in the Non-SDRP group (p <.05).

1. Non-SDRP hips had 21X higher odds of developing HO (P=0.019).
2. Radiation treatment is associated with a 1080mm² decrease in HO size at maturity (p< 0.001).
3. There were no differences in infection rates between the two cohorts and no radiation-associated complications.

METHODS
• Retrospective case control
• Patients were dichotomized (1) SDRP group (2) Non-SDRP group
• Preoperative radiation (dose of 7.5 Gy)
• The size of HO lesions compared using Wilcoxon test.
• McCarthy, Brooker and Anatomic Classifications of HO were compared using Likelihood ratios.

DISCUSSION
Preoperative SDRP is effective at lowering the rate of HO in children with CP hip salvage surgery.

Patients who received SDRP developed HO less frequently, which was smaller in size compared to non-SDRP children, demonstrating the utility of SDRP as an adjunct CP children undergoing salvage hip surgery.

CONCLUSIONS
Single-dose radiation prophylaxis is a safe and efficacious intervention in decreasing the incidence and size of heterotopic ossification in children with cerebral palsy undergoing proximal femoral head resection.

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