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The Influence of Early Surgical Intervention in Patients with Perthes Disease

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Introduction: This retrospective review aimed to examine the influence of early surgical intervention in patients with Perthes disease.

Materials and Methods: Children with Perthes disease treated between 1995 and 2013 in our institution were reviewed. The age of onset, gender, severity of disease, and the treatment details were retrieved from patient records. Herring classification was used to classify the hips. Modified Elizabethtown staging was used to stage the disease at the time of intervention. The final outcomes of both operative and non-operative groups were assessed using Stulberg classification (S) at skeletal maturity.

Results: A total of 28 children (29 hips) were identified. Among these, 22 were boys and 6 were girls. The mean age of onset was 7 years in girls and 6.5 years in boys. The disease healed in the range of 1.5 to 4.4 years, with a mean of 2.5 years. In all, 21 patients reached skeletal maturity. The operative and non-operative groups comprised 18 (19 hips) and 10 patients, respectively. Among these 21 skeletally matured patients, 50% of the operative group (8/16) had an outcome of S class I or II. In the non-operative group (n = 5), only 1 (20%) recovered to S class II hip. Besides, 100% of the hips with Herring B that were operated at early fragmentation (IIa) achieved S class I outcome and 57% of Herring C had S class I / II outcome. In those operated in late fragmentation stage (IIb) with Herring C, they either became S class III / IV hips.

Conclusion: Early surgical intervention exerts positive influence in the recovery of the hips in patients with Perthes disease.

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A Simple and Practical Method to Determine the Timing of Peak Height Velocity Based on Thumb Skeletal Maturity Only — An Analysis of Hand and Wrist Radiograph from 100 Chinese Children with Idiopathic Scoliosis

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Introduction: Curve magnitude at peak height velocity (PHV) has high predictive value for progression of idiopathic scoliosis as reported in recent literature. Radiological method of identifying the capping morphology of epiphysis of phalanges shows high correlation with this essential period. However, practical problem in application of this method includes difficult interpretation from improper radiological view, learning curve of the technique. In this study, we explored the potential of using thumb skeletal maturity to predict the period of PHV.

Methods: We retrospectively reviewed the hand and wrist radiograph of 100 children with idiopathic scoliosis attended from 2007 to 2011, aged 8 to 12 years, with visits early and adequate enough to calculate the PHV accurately. Morphology, size (longitudinal axis), development sequence of adductor sesamoid, fusion status of epiphysis in thumb and its relationship to timing of capping, fusion in epiphysis of phalanges from other digits were thoroughly studied. The results were matched with the period of PHV in order to determine the time relationship among them. A protocol based on this thumb skeletal maturity assessment system was used and tested.

Results: In all, 90% of our patients demonstrated that the key radiological morphology of thumb correlated best with the period of PHV and the capping status suggested by literature.

Conclusion: This is a simple and practical method to help determine PHV quickly using the thumb maturity information on a hand radiograph.