



POSNA

The Core Curriculum

Coxa vara

Objectives

1. Define developmental coxa vara, and clinical signs accompanying this disorder
2. Describe the natural history of developmental coxa vara
3. List 4 additional causes of coxa vara in children
4. Describe the goal of treatment for coxa vara
5. Describe the most commonly used radiographic angle used to assess results of treating coxa vara

Discussion point

1. How does coxa vara alter hip joint mechanics?

Discussion

Coxa vara has been classified by Beals as developmental, congenital, or traumatic. It can result from disturbances to a variety of structures about the growing proximal femur. Infantile or developmental coxa vara is estimated to affect 1:25,000 live births. It is bilateral in about 1/3 of cases. Clinically, there is shortening of the limb in the 2 cm range, with weakness of the abductors and thigh atrophy. Radiographically, developmental coxa vara is characterized by a triangular metaphyseal fragment of the inferior femoral neck. This is in an "inverted Y" pattern and is diagnostic of developmental coxa vara. The natural history of developmental coxa vara is variable, and appears related to the Hilgenreiner physeal angle, or sometimes simply the physeal angle. This is the angle between a line along the physis and the floor line (which Hughes felt was more accurate) or a line between the triradiate cartilages. Obviously, the greater the angle, the more propensity toward shear stress on the physis, and the less chance of spontaneous recovery. Proximal femoral osteotomy is the only effective intervention, and sufficient valgus must be achieved to reduce shear forces along the physis.

In general, unless the angle is less than the 35 degree range, worsening of the coxa vara (or recurrence after osteotomy) can be expected.

Other causes of coxa vara are congenital, dysplastic, or traumatic. Congenital coxa vara per se is the least affected form of congenital short femur, and can accompany all degrees of severity of congenital short femur. A number of skeletal dysplasias are characterized by coxa vara, rickets (from any cause) is another form of dysplasia resulting in coxa vara. Traumatic coxa vara can obviously result from femoral neck fracture, or proximal femoral physeal insufficiency with resultant relative overgrowth of the greater trochanter. The latter can follow hip sepsis or avascular necrosis of the femoral head. Coxa vara resulting from relative overgrowth of the greater

trochanter is treated by physeal arrest of the greater trochanter or distal transfer of the greater trochanter to improve hip mechanics.

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