Slipped Capital Femoral Epiphysis Physeal Stabilization with a Single Screw

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Objective: To evaluate the outcome of in situ pinning with a single screw fixation for the treatment of Slipped Capital Femoral Epiphysis (SCFE).

Design: It is a retrospective review of 40 patients (54 hips) in the age range of 9-14 years and with an average follow up period of 30 months.

Setting: The Children Hospital, Temple Street, Dublin, Ireland.

Results: The time required for physeal closure was variable but it averaged 16 months. No patients had further progression of the slip and the complications were low.

METHODS

We retrospectively studied patients with SCFE treated with a single screw between 1991-1995 at the Children Hospital, Temple Street, Dublin. This included 40 patients (54 hips). The degree of slip was evaluated by Southwick method5. All admitted children underwent pinning in situ using a single cannulated Richard’s screw (Smith & Nephew) with the use of image intensifier.

RESULTS

Fifty four hips in 40 patients were included in the review. The mean age was 12 years (range 9-14 years). There were 13 male and 27 female. Three cases were acute and 37 were chronic slip. The average duration of symptoms in the chronic cases was 9 weeks. Only in 13 cases a history of trauma was identified and this did not correlate with neither the duration of symptoms nor the degree of slip.

Thirty two patient had mild slip, 4 moderate and 4 severe slip. The incidence of bilaterality was 27% (11 cases). All children were evaluated at 1 month, 6 months and 12 months interval. The average follow up was 30 months with a range of 12-48 months. Complications were as follows: screw breakage 1, chondrolysis 1, avascular necrosis 1 and a haematoma in one patient. The length of time required for physeal closure ranged 12-30 months with an average of 16 months. Follow up radiographs showed no patient had further progression of the slip.

DISCUSSION

In situ fixation using cannulated screw is the standard technique of treatment of SCFE. Walters and Simon suggested the presence of a radiological blind spot that cannot be visualised adequately and this could be the site of penetration of the femoral head by a pin during fixation6. The incidence of pin penetration can be minimised by the use of a single central pin7. Biomechanically, resistance to further slip is not proportional to the number of screws6. The time required for physeal closure is variable6. In this study physeal closure was determined on plain radiographs showing a bridging bone across the physis. Although in our series it averaged 16 months to achieve physeal arrest, physeal stabilisation is probably achieved earlier.

CONCLUSION

In conclusion, in situ fixation using a single cannulated screw can achieve physeal stabilisation in patients with SCFE and can minimizes the risk of penetration to the joint. The complication rate was low.
REFERENCES