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Current practice in Perthes disease



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Legg-Calvé-Perthes disease: surgical treatment by femoral osteotomy

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The management of Perthes disease is still debated between authors who advocate the validity of the surgical treatment and those authors who support the non surgical one.

Each method has the aim to aid the most congruent reconstruction of the femoral head avoiding subsequent deformities which is the beginning of an articular degeneration.

When weightbearing is considered to be responsible for synovitis and epiphyseal collapse, nonweightbearing methods including bed-rest with or without traction or some kind of braces are suggested as the treatment of choice (2, 13, 18).

When the weightbearing is not considered as an important factor, containment methods are chosen; they can be realized either unsurgically, by plasters, orthosis, or by surgical procedures.

Surgery in Perthes disease basically consists of femoral (3, 9, 11, 14-16, 19, 25) or pelvic osteotomies, both aiming to improve hip's congruency and the femoral osteotomy in the early stages has the advantage to reduce the forces of the abductor muscles across the hip joint. For some authors (6, 20), it shortens the healing time.

Whichever containment method is employed, its goal is to maintain the femoral head within the acetabulum permitting ultimately anatomical articular reconstruction.

Intertrochanteric osteotomy, in this disease, was first proposed by Soeur and De Racker (26), 1952, but later publicized by Axer (10, in 1965).

However, recently as in the past, the validity of surgical techniques in improving the roentgenographical features of the necrosis in a very short time (7, 10, 12, 15, 17, 22) versus the efficacy of the nonsurgical methods of containment (2, 13, 18, 24) is the object of discussions at meetings.

All various anatomical-radiological classifications of Legg-Calvé-Perthes seem to have a

prognostic value but every case always has a combinations of factors which differently influence the final results, to that no classification has an absolute value.

In this paper we are referring to our experience with interthrocanteric femoral osteotomy, and we present our results of long-term follow-up. The results are related with all the factors that seem to influence them as sex, age at operation, Catterall's group, acetabular angle, presence of risk factors, anatomical-pathological stage and, finally, physis involvement in the necrotic process.

MATERIAL AND METHODS

From 1974 to 1988, ninetyfive cases of Perthes disease were seen in our department, out of which a total 39 hips have been operated on by femoral osteotomy in 34 patients. Twenty-eight were male and six were female; the left side was more involved than the right side.

At the time of the operation 5 hips were Catterall's group 2, 16 were group 3 and 15 were group (Table I); according to the anatomical-pathological phase, eight hips were in avascular stage, 19 were in fragmentation, 9 in regenerative stage and 3 were sequelae (Table II). The average age at the onset of the disease was seven years (range 4-11 years) and the average age at operation was seven and half years (range 5-10 years) with a medium of six months interval between the time of the diagnosis and surgery. During this interval the patients were treated in bed rest with skin-traction to relieve the synovitis and the muscle contracture.

The main indication for the surgical procedure was the articular incongruency with lateralization of the proximal femoral epiphysis, not taking into account the extension of the necrosis present, as some authors (10, 12) do, nor of the risk-factors' presence.

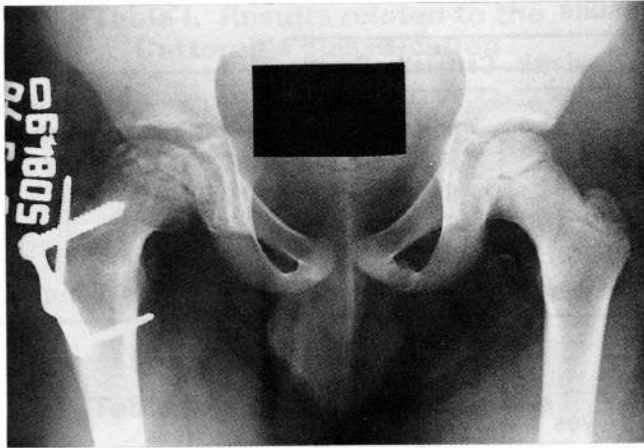


Figure 4. X-ray of the hip in reparative stage.



Figures 5-6. X-ray of the hip at 9 (Figure 4) and 14 (Figure 5) follow-up with a perfect reconstruction of the femoral head.

age, while in those older than seven years of age the rate of good results was 18,8% and the poor results was much higher.

In relation with the anatomical-pathological stage the best results (Table II) were obtained when the surgery was performed during the avascular phase; with regard to the presence or absence of the risk's factors (Table IV) it was noted that a strict correlation existed between these factors and the poor results.

Finally, the results appeared to be worst (Table I) when the necrotic process was more extensive, as Catterall's classification suggests.

DISCUSSION AND CONCLUSIONS

Trying to summarize all the previous considerations we should conclude that statistically as usually observed the best result can be obtained when the operation is performed in very young patients, at the avascular stage of pathology in absence of risk's factors; but that seems to be very easy and none can exclude that in the same identical conditions any other treatment can give the same results!

Or else, how do you explain the good results in older than seven years patients with Catterall group 4, risk's factors present and operated on during the regenerative stage?

Although every classification, firstly the Catterall one (4, 5), has a prognostic role, we maintain that the large difformity of resulting from any treatment has mostly to be attribute to the involvement of the physis which can be directly damaged by the ischemic process or altered secondarily to the biomechanical compression. Our feeling is that when it is primary, no treatment will be able to influence and eliminate its effects, on the contrary if it is determined by the compression's forces, an early treatment can prevent it and its extension to the metaphyseal area.

A uniform data reported in the literature has to be underlined: it concerns the increase in the satisfactory results of containment methods when they are applied in the early stages of the disease, before the reossification phase has started. We agree with the authors (27) who propose to discontinue the treatment during the reossification phase because the biological plasticity of the femoral head has been eliminated. It can be attributed that in certain cases an early treatment, whichever it is, is able to prevent physeal involvement with subsequent severe deformities of the epiphysis.

Physeal concern cannot be detected by plain x-ray but it can be easily visualized by MRI, with all the related disadvantages (necessity of anesthesia, high cost).

In conclusion, the treatment of Perthes disease remains controversial.

Our experience on 39 hips treated by intertrochanteric osteotomy leads to the consideration that any management has a real advantage when it is instituted at an early stage and that the prognosis not only depends on the extent of the epiphyseal damage but even on the physeal damage which is too late as evident through the risk's factors.

BIBLIOGRAPHY

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