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TRAUMATIC DISLOCATION OF THE HIP

Results of Conservative Treatment

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Traumatic dislocation of the hip is occurring with an increasing incidence but still it is a rare injury. Former investigations on the subject are frequently based on materials collected from several hospitals, representing varying methods of treatment. The limited number of cases, in connection with the variety of therapeutic methods employed, complicates the assessment of the different methods of treatment. The main purpose of the present study is to evaluate the results obtained by conservative treatment.

MATERIAL

There were 49 patients with 49 non-central traumatic dislocations of the hip treated in the Copenhagen County Hospital, Glostrup, during the 10-year period from October 1959 to October 1969. At the time of the follow-up, 4 of the 49 patients were living outside Denmark and could not be traced. The remaining 45 patients were examined clinically by the authors, and in 38 cases X-rays were made of both hips, with frontal, lateral and if possible Lauenstein's projection.

The minimum follow-up period was 2 years, the maximum 11, and the average 4.5 years. During the first 5 years of the survey there were 17 cases, whereas during the second half of the survey there were 32 cases, an increase of 88 per cent. The youngest patient was 2 years and the oldest 68 years old; nearly half the patients were aged 21–40 at the time of trauma (Table 1).

There were 42 males and 7 females. 42 patients had posterior dislocation and 6 anterior, whereas one case could not be grouped. In 33 cases the left hip was dislocated, in 16 cases the right hip.

In 40 cases the dislocation was caused by traffic accidents, dashboard dislocation occurring in 27 cases i.e. 60 per cent. Among drivers there was a marked predominance of left hip dislocations; of 22 drivers 17 sustained a left hip dislocation. Other causes were accidents at work (6 cases) and sports (one case). In 2 cases the dislocation was caused by a fall in the street.

There were 12 cases of dislocation only; in the remaining 37 cases (76 per cent) the dislocation was complicated by fracture of the acetabulum (31 cases) or

Table 1. Distribution of 49 cases of dislocation of the hip by age.

Age at time of trauma	No.
2–20	8
21–40	23
41–60	13
61–68	5
Total	49

fracture of the femoral head (6 cases) (Table 2). Complete sciatic-nerve injury occurred in one case; in 2 cases there was injury to the peroneal nerve. However, these 2 patients had a comminuted fracture of the homolateral fibular head. Significant associated injuries to other parts of the body occurred in 30 cases.

TREATMENT

In all cases closed reduction was performed. In 2 patients with multiple injuries, the reduction was delayed 2 days because of lack of recognition of the dislocation. Apart from these 2 cases the reduction was performed within 6 hours, in most cases within 2 hours after trauma. In 2 cases closed reduction was followed by an operation, fixing a large acetabular fragment.

The routine method of treatment after closed reduction was skeletal traction on the tibial tuberosity for approximately 8 weeks. Because of the high incidence of other injuries, the routine method of treatment was not employed in all cases. Of the cases followed up, 30, including the 2 operated cases, were treated with traction for 6–12 weeks, 9 cases were treated with traction for 1–4 weeks, and 6 cases with bed rest for 4–8 weeks, including one case with hip spica. Thereafter, weightbearing was gradually resumed over approximately 4 weeks. During the whole period of treatment, active mobility was maintained in hip and knee joints. The period off work was 2–12 months, average 4 months.

RESULTS

Follow-up

The results were judged by clinical methods and the patients were divided into four groups A, B, C and D, according to the result at the time of the follow-up. The clinical criteria for evaluating the results are summarized in Table 3. If the criteria disagreed as to the result, the case was assigned to the poorer group.

The group of completely recovered patients (group A) makes up 36 per cent (Table 4). In 11 of the 20 cases in group B, the only finding was a subjective complaint of occasional, slight sensations in the hip. Patients in groups A and B were considered to have acceptable results,

Table 2. Distribution of 49 dislocations of the hip by type.

	Type of dislocation	No.
I	Dislocation only	12
II	With minor avulsion-fracture of acetabular edge	6
III	With other acetabular fracture	25
IV	With fracture of femoral head	6
	Total	49

while in groups C and D the results were considered poor. Eighty per cent had acceptable results (Table 4), characterized by: no complaints or insignificant subjective complaints, no limitation or at most 10° limitation of movement in the hip, and occupation unchanged. Twenty per cent had a poor result, characterized by: bothering or severe pains, limitation of movement in the hip of more than 10°, and occupation changed or receiving disablement pension. Omitting the 2 operated cases, the percentages shift to 79 and 21 respectively, thus representing the results in the cases treated by conservative methods.

Of the 45 patients followed up, 38 were X-rayed. In Table 5, the X-ray findings are compared with the clinical grouping of results. All patients, except one, with either no changes or capsular calcification only had clinical results in groups A and B. Many patients had one or more of the following X-ray changes: exostosis, sclerosis and cyst-formation in the acetabulum or femoral head. In some cases these changes possibly represented posttraumatic arthritis, while in others the changes were due to an acetabular fracture which healed with excessive formation of callus. However, the results were not influenced to any large extent by these X-ray changes.

There were no cases of total necrosis of the femoral head, while in 4 cases X-rays showed localised changes in the weightbearing part of the

Table 3. Criteria for evaluating results.

Result	Subjective complaints	Limitation of movement in hip	Occupation
A	none	none	unchanged
B	insignificant	10° at most	unchanged
C	bothering pains	10–30°	changed
D	severe pains	more than 30°	changed or patient disabled

Table 4. Results in 45 cases of dislocation of the hip.

Result	No.	Per cent of followed-up patients	
A	16	36	80
B	20	44	
C	5	11	20
D	4	9	
Total	45	100	

head. The changes consisted of flattening and irregularity of the articular surface, combined with subchondral sclerosis and cystic areas of decreased density. Two patients developed these changes in 2 years, one patient presented the changes 7 years after trauma, and in one case the dislocation was complicated by an avulsion-fracture of the lower third of the femoral head. These 4 patients (10.5 per cent of X-rayed cases) were over 45 years of age at the time of trauma.

Results in different types of dislocations

A comparison between types of dislocations and results is shown in Table 6. Patients with dislocation only (type I), or dislocation complicated by minor avulsion-fracture of the acetabular edge (type II), all had acceptable results (groups A and B), whereas an increasing proportion of cases with other acetabular fractures (type III), or femoral head fracture (type IV) had a poor result (groups C and D). This difference in outcome between types I and II and types III and IV is statistically significant (Fisher's test; *P:* 0.05).

Table 5. Results compared with X-ray findings in 38 cases.

X-ray changes	Result				Total
	A	B	C	D	
normal hip	9	6	–	–	15
capsular calcification	1	2	–	1	4
acetabular fracture not healed	–	–	2	–	2
exostosis, sclerosis, cysts	4	8	–	1	13
necrosis of femoral head	–	–	2	2	4
Total	14	16	4	4	38

Table 6. Results in different types of dislocation.

Type of dislocation	Result				Total
	A	B	C	D	
I	7	4	–	–	11
II	4	1	–	–	5
III	4	14	4	2	24
IV	1	1	1	2	5
Total	16	20	5	4	45

Results related to methods of treatment

In order to compare the influence of the various conservative methods of treatment upon the results for the different types of dislocations, we divided the therapeutic methods into three groups (Table 7). The table shows that all patients with dislocations types I and II had acceptable results (groups A and B combined), regardless of the treatment. In patients with dislocations types III and IV the results were better in the group treated with traction over 6–12 weeks. The number of cases in the two other groups, however, was too small to allow any definite conclusions. The 2 operated cases are omitted from Table 7; both had a result in group B.

DISCUSSION

As a result of the increase in traffic accidents, traumatic dislocation of the hip is encountered more frequently.

Table 7. Comparison between type of dislocation, result and type of conservative treatment following closed reduction.

Type of dislocation	Result	Treatment			Total
		Traction 6–12 weeks	Traction 1–4 weeks	Bed rest or plaster 4–8 weeks	
I+II	A+B	10	3	3	16
	C+D	–	–	–	–
III+IV	A+B	13	4	1	18
	C+D	5	2	2	9
	Total	28	9	6	43

More than half of the cases in the present study were dashboard dislocations, sustained by drivers or front-seat passengers. Funsten et al. (1938), who introduced the term dashboard dislocation, found that front-seat passengers were liable to get right-hip dislocations, whereas we found a marked predominance of left-hip dislocations in drivers.

Considering that in the majority of our cases the dislocation was due to the usually severe traumas sustained in traffic accidents, it is not surprising that 76 per cent had complicating fractures of the acetabulum or femoral head, and 61 per cent had significant injuries to other parts also. The incidence of complicating acetabular or femoral head fractures is high compared with other series, in which it has ranged from 40 to 60 per cent (Buus 1938, Böhler 1954, Lamke 1970).

The prognosis may be said to be on the whole favourable; 80 per cent of the patients had acceptable results, 36 per cent were entirely free of symptoms. All cases of dislocation only, or dislocation complicated by minor avulsion-fracture of the acetabular edge had acceptable results, but other acetabular fractures and especially femoral head fractures were poor prognostic signs. This is in accordance with the findings of other writers (Thompson & Epstein 1951, Lamke 1970).

X-ray changes judged to be partial necrosis of the femoral head were found in 4 patients; all of these had a poor clinical result. In most other cases the X-ray findings were in poor accordance with the clinical findings.

In the case of dislocations only, the treatment usually described in the literature consists of closed reduction followed by bed rest or traction for 2–4 weeks, most writers (Böhler 1954, Jarne 1950, Lamke 1970) being unable to demonstrate any beneficial effects from prolonged non-weightbearing. Our findings do not differ from the findings of these writers. In dislocation complicated by acetabular fracture some authors recommend closed reduction followed by traction (Böhler 1954, Aston 1971) or plaster spica (Charnley 1965). Charnley states that the acetabular fractures usually reduce themselves when the hip is reduced. However, in a few cases where the acetabular fragment is large or redislocation occurs, open reduction and osteosynthesis may be necessary. Other investigators (Epstein 1961, Waller 1955) recommend operation in all cases of acetabular fractures except minor ones.

In the present study the predominantly conservative methods of treatment gave acceptable results in 80 per cent of all cases.

SUMMARY

Of 49 patients with traumatic non-central dislocation of the hip, 45 were examined after a lapse of 2–11 years, average 4.5 years. Sixty per cent were dashboard dislocations. Of these cases, drivers were found more liable to sustain injury to the left hip. There was a high incidence of complicating fracture of the acetabulum or femoral head, such injury occurring in 76 per cent of the cases. All patients were treated with closed reduction, in most cases followed by 6–12 weeks traction, and 4 weeks of gradually increasing weightbearing. At the follow-up 80 per cent had acceptable clinical results, and 36 per cent were entirely free of symptoms. Acceptable results occurred in all cases of dislocation only, or dislocation complicated by minor acetabular avulsion-fracture, whereas other acetabular fractures and especially femoral head fractures were poor prognostic signs.

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