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TRAUMATIC DISLOCATIONS OF THE HIP

Follow-Up on Cases from the Stockholm Area

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Traumatic dislocation of the hip is a rare injury, but its incidence is on the increase because of the increasing number of traffic accidents. Most doctors usually have little experience of its treatment and prognosis. The object of the present study is to elucidate certain problems relating to prognosis and treatment.

PREVIOUS INVESTIGATIONS

The first detailed description of traumatic dislocation of the hip was rendered by Bigelow in 1869. Since then, various types of reduction and after-treatment have been recommended. Böhler considers bed rest for a couple of weeks after the reduction to be sufficient, and in his opinion necrosis of the femoral head is a relatively uncommon complication. Watson-Jones recommends a hip cast for 6-8 weeks and states that necrosis of the femoral head occurs at a rate of up to 30 per cent. In Sweden the after-treatment has generally been, as recommended by Palmer, bed rest for 3-4 weeks with the leg in abduction and neutral rotation. Thereafter, weight-bearing is gradually resumed.

The largest material of traumatic dislocations of the hip was collected by Thompson & Epstein (1951) in Los Angeles. It comprises 204 cases, 116 of whom were included in the follow-up. These authors concluded that the ultimate outcome was not influenced by the time at which full weight-bearing was resumed. On the other hand, a certain selection had taken place, the most severe cases having to avoid weight-bearing longest. Necrosis of the femoral head occurred in about 20 per cent. In Scandinavia major studies have been reported by Buus (1938) who collected 109 cases and Paus (1951) who had 76. Buus found that a difference in the duration of bed rest did not affect the therapeutic

results in uncomplicated cases. In his material the incidence of necrosis of the femoral head was 8 per cent and that of nerve injury 4–5 per cent. At follow-up 54 per cent of the patients were symptom-free. In Sweden, Waller (1955), in a thorough study of the dorsal acetabular fractures which so often attend dislocation of the hip, emphasized the importance of surgery in reconstructing the joint surface to prevent posttraumatic osteoarthritis.

In the present study it was attempted to elucidate the incidence of this injury, in particular with a view to the increasing number of traffic accidents. It was endeavoured also to assess the long-term prognosis and to arrive at certain lines for aftertreatment, especially the duration of non-weight-bearing.

MATERIAL AND METHODS

The investigation comprises patients from the Stockholm area who sustained traumatic dislocation of the hip during the period 1945–1964 inclusive. The material does not include traumatic dislocations of the hip in children under 15 years of age, central dislocations, i.e. compression fractures of the acetabulum, or dislocation associated with fracture of the homolateral femoral diaphysis.

The method was as follows: After the case records for all traumatic dislocations of the hip had been picked out from the surgical and orthopaedic departments, they were checked in the archives of the X-ray departments. In this way, the majority of traumatic dislocations of the hip occurring during this period were included. It was taken for granted that all patients had been admitted to hospital. The patients then received a written request to present themselves for clinical examination. Out of the 110 patients 83 (75 per cent) answered the letter, but only 67 (61 per cent) could attend, as 2 were at sea and 14 were living in such distant places that they did not have time or occasion for attending. Nine patients had died and three had emigrated or returned to their home countries after stay in Sweden. The remaining 15 patients could not be traced. All the clinical examinations were performed by the author. The follow-up included X-rays of the injured as well as of the unaffected hip. In most cases Waller's oblique projection was used to assess the acetabular rim. The shortest follow-up period was 3 years and the longest 17 years, average 6.8 years.

RESULTS

The age distribution shows a marked predominance of the young groups (Table 1). The explanation must be partly that young persons more often take part in activities likely to lead to dislocation of the hip and partly that older people are more apt to sustain fractures, although fracture of the neck of the femur is not a direct alternative to dislocation of the hip. In this connection it may be mentioned that one of the

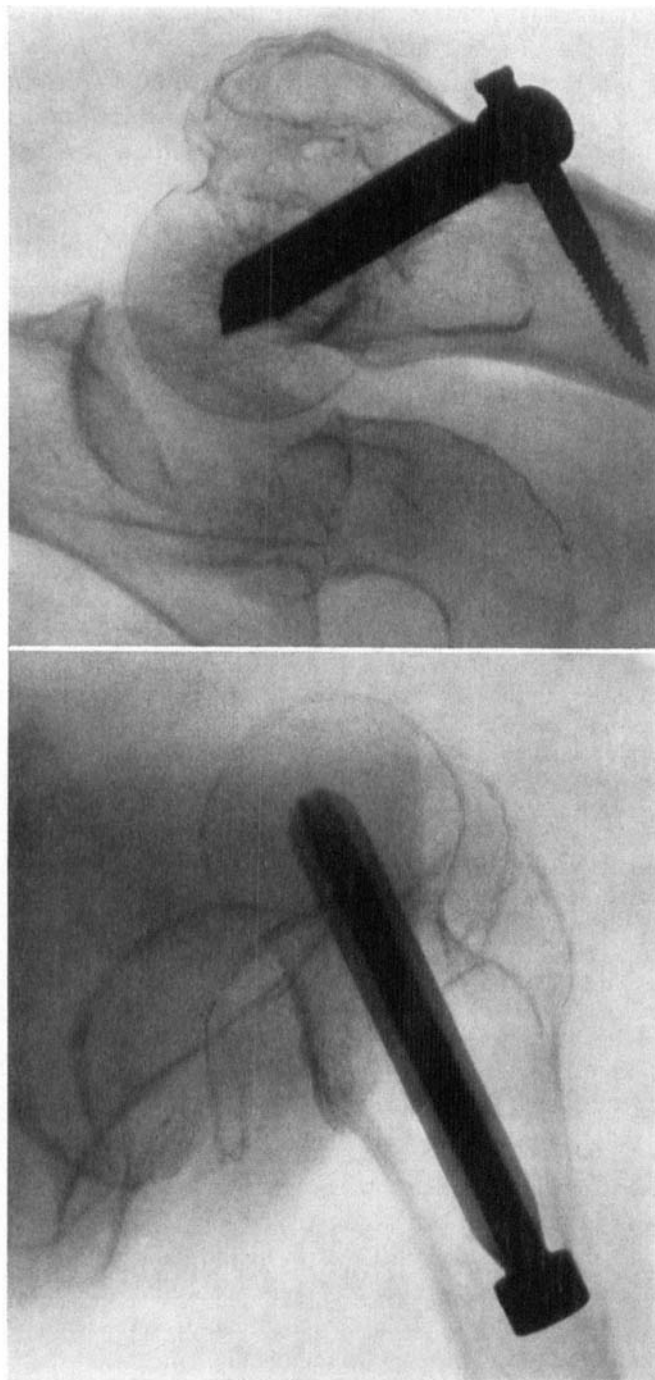


Figure 1. A 71-year-old woman, with a history of nailing of a fracture of the femoral neck, who subsequently sustained dislocation.

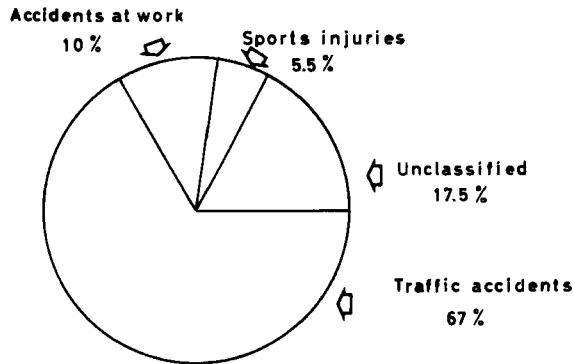


Figure 2. Distribution of traumatic dislocation of the hip by aetiology.

oldest patients of the present material was a 71-year-old woman who sustained dislocation of the hip some years after nailing of a fracture of the femoral neck. The dislocation was successfully reduced, and the patient was symptom-free at follow-up 3 years later (Figure 1). Among the causes traffic accidents predominate, making up 67 per cent (74 cases) (Figure 2). Other causes were occupational in 10 per cent (11 cases), including 6 patients who fell from a height. Sport was responsible in 6 cases (5.5 per cent). The reason why sports accidents have such a small share is probably that in general a very severe trauma is required to cause dislocation of the hip. The sports accidents were distributed as follows: football 2, wrestling 1, tennis 1, riding 1.

During the period of the study the incidence of dislocations increased quite appreciably (Figure 3). At the outset, it was only 2 cases a year, but during the latter part of the period it has been 10 a year.

Table 1. Age distribution in 110 cases of dislocation of the hip.

Age at time of trauma	Number
15-29	43
30-44	29
45-59	26
60-85	12
Total	110

102 patients sustained posterior dislocation (93 per cent) and 8 anterior (7 per cent). This is in quite good conformity with previous reports. Furthermore, it may be mentioned that in 42 cases (39 per cent)

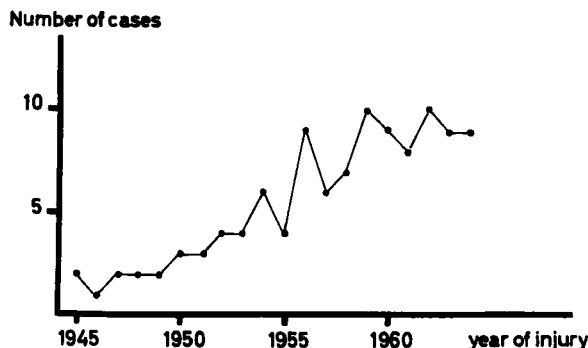


Figure 3. Number of cases with traumatic dislocation of the hip in the Stockholm area during period 1945-1964.

there was an acetabular fragment. However, most were rather small and of Waller's type 1 (fracture of the upper posterior part of the acetabulum with no or little displacement).

Considering that the great majority were traffic accidents or working accidents, it is not surprising that about half the patients had injuries to other parts also. The average stay in hospital was 19 days, longest stay 5 weeks and shortest 3 days for patients having dislocation only. The period off work was difficult to check, in particular for patients who sustained their accidents in the 1940's. Therefore, no statistical analysis was performed in this respect. Most of the patients were off work for a couple of months.

FOLLOW-UP

The 67 patients included in the follow-up study had been treated as follows: Reduction had been performed in all cases and thereafter 12 had been protected from weight-bearing for less than 2 weeks, 41 for longer than 2 weeks, 4 had been in plaster casts after the reduction, and 7 had undergone operation fixing the posterior fragment to the acetabular rim. Two patients had been treated by traction and one by traction as well as operation.

In order to be able to compare the results of the various therapeutic methods, in particular with a view to the duration of non-weight-bearing, the author divided the patients into 3 groups:

Group I: Dislocation only.

Group II: Associated primary injury to the hip joint, e.g. acetabular fragment or injury to the femoral head.

Group III: Other primary injury due to the dislocation, e.g. injury to the sciatic nerve, avulsion of the greater trochanter.

Thereafter, the patients were divided into groups according to the result at follow-up.

Group A: Good: No subjective complaints or limitation of movement, and no X-ray signs of posttraumatic changes.

Group B: Fair: Mild subjective complaints or slight limitation of movement (less than 10° in any direction as compared with the contralateral hip) or mild X-ray changes. The patient has not had to change his occupation.

Group C: Poor: Considerable subjective complaints and limitation of movement. Receiving disablement pension or has had to change his occupation. Pronounced X-ray changes.

The analysis showed that in patients with dislocation only the prognosis is considerably better (Table 2) than in patients with associated injuries due to the dislocation. Nerve damage and damage to the femoral head are particularly poor prognostic signs. No patient with such damage could be assigned to the good group.

Table 2. End result in different types of dislocation of the hip.

Group	Type of injury	Good	Fair	Poor
I	Dislocation only	24	8	2
II	Associated injury to hip joint			
	a. acetabular fracture	8	10	3
	b. injury to head of femur		1	5
III	Other injury			
	a. nerve injury		2	3
	b. avulsion of fragment from greater trochanter	1		
Total		33 (49 %)	21 (31 %)	13 (20 %)

Moreover, it was found that the group of completely recovered patients predominates, comprising 49 per cent. This predominance is even more marked if we select patients with dislocation only and no injuries to other parts either. In this category 54 per cent were entirely symptom free (Table 3). Mild complaints were found in 27 per cent of

those with dislocation as the only injury. Re-dislocation occurred in 2 cases, necrosis of the head in 8 (7 per cent), and serious nerve injury in 5.

Table 3. Patients having dislocation of the hip as the only injury.

Group	Number of patients	Per cent
Good	14	54
Fair	7	27
Poor	5	19

In order to compare the influence of the various therapeutic methods upon the results in the various groups the author divided the material by type of treatment. With a view to the duration of non-weight-bearing, the group with dislocation only was divided into 2 subgroups: Patients who were allowed early weight-bearing and patients who had late weight-bearing. The limit was set at 2 weeks (Table 4). It is apparent from this table that methods using operation, traction, or plaster casts have in fact given poorer results than reduction and non-weight-bearing. However, it should be pointed out that these active methods were used mainly in the groups with associated injuries due to the dislocation. Moreover, it must be borne in mind that these groups are too small to be compared statistically. In respect to early or late weight-bearing, the group with early weight-bearing even seems to show a somewhat better result than the group with late weight-bearing. It is further apparent from the table that no patient with uncomplicated dislocation of the hip had been treated by the plaster cast recommended by Watson-Jones. This treatment seems to have been reserved for cases having acetabular fragments or injury to the femoral head. The use of operative treatment, in particular of the acetabular fragment, appears to have increased somewhat during recent years, presumably because of Waller's study of this group. However, operative treatment does not appear to have influenced the end result to any major extent as compared with conservative treatment when considering the group as a whole.

DISCUSSION

As already mentioned, the incidence of dislocations of the hip is on the increase, presumably because of the increasing traffic.

The prognosis may be said to be on the whole favourable, as about

Table 4. Final results in different groups compared with different types of treatment.

Treatment	Group I			Group II			Group III		
	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Reposition and full weight-bearing before 2 weeks	8	2	1	1					
Reposition and full weight-bearing after 2 weeks	16	6	1	5	5	6		1	1
Reposition and plaster				1	1		1	1	
Reposition and operation of acetabular fragment				1	3	1			2
Reposition and traction					1	1			
Reposition traction and operation of acetabular fragment					1				

49 per cent of our patients had completely recovered at follow-up and 31 per cent had only minor complaints, a minimum of 3 years after the accident. The material included only 8 cases of necrosis of the femoral head, i.e. 7 per cent. This is a low incidence compared with most other series in which it has ranged from 5 to 30 per cent. The explanation why this incidence varies so widely in other materials may be different radiological criteria of such necrosis and that most of the materials are rather small, so that merely a couple of cases having necrosis of the head may shift the percental distribution. Out of the cases with necrosis in the present material 3 had to be designated as partial fractures in the area of the head with subsequent necrosis (Figure 4). Out of the remaining cases 2 were suspected of fracture lines in the head, and only 3 occurred without definite primary injury. In these cases, however, it cannot be excluded that there may primarily have been fracture lines in the femoral head: only, these lines have not been visible on X-rays. Myositis ossificans did not occur in this material; this is remarkable, considering that it has occurred in most other reported series. I am unable to explain this phenomenon.

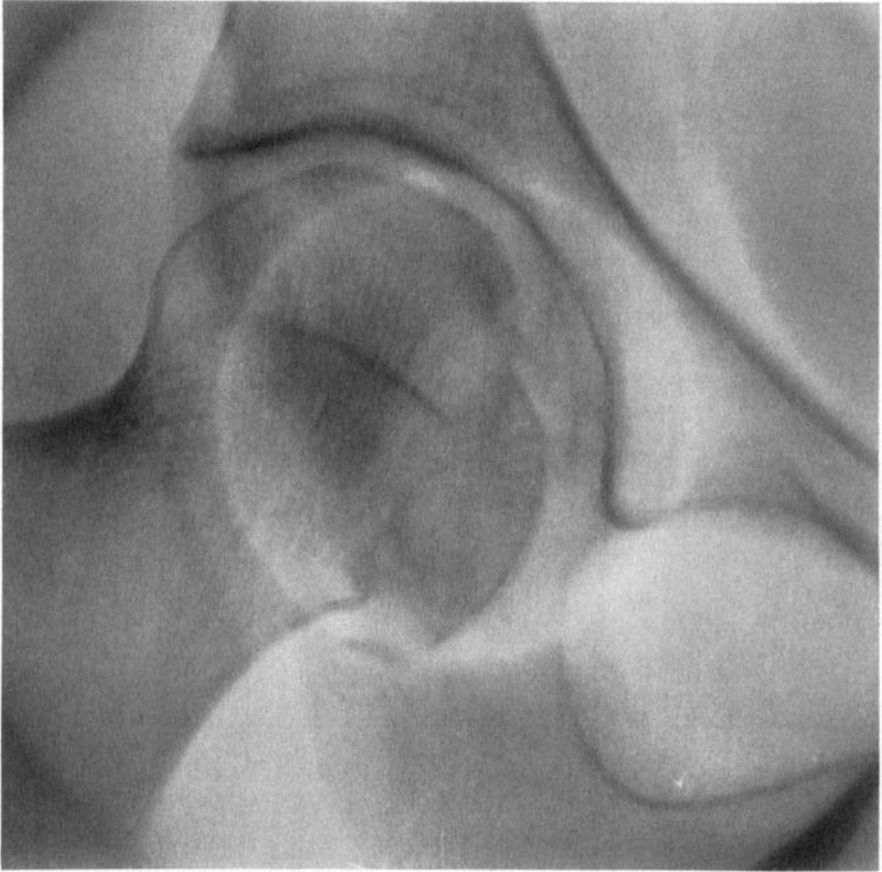


Figure 4. Head of the femur with fracture complicating dislocation.

Prolonged non-weight-bearing seems to have predominated formerly, in spite of the fact that several previous studies have hardly been able to demonstrate better results from this treatment. In the present study it was found that in uncomplicated dislocation of the hip it is unnecessary to force the patient to long-lasting bed rest and crutches for months. This accords also with the findings of Rydell (1966). By an electrical pressure transducer applied to a femoral-head prosthesis he demonstrated that lifting of a non-weight-bearing, extended leg results in equally great pressure actions in the hip as during weight-bearing. From the present studies it was apparent also that it was the type of the primary injury more than the subsequent treatment which decided the prognosis.

Re-dislocation occurred in 2 cases of the present material. This is a fairly high incidence, most previous series having had no instances of re-dislocation. Therefore, it would hardly seem necessary to expect this complication, and the risk of re-dislocation does not make up an indication for long-lasting non-weight-bearing, plaster cast, or traction.

Thus, in the ordinary case, without other complicating injuries to the region of the hip joint, it seems sufficient to protect the injured hip joint from weight-bearing for a period of up to 2 weeks.

SUMMARY

This is a report on 110 cases of traumatic dislocation of the hip with a minimum follow-up period of 3 years. Out of these patients 67 were after-examined by the author. The results show that the prognosis of simple dislocation is favourable, about 50 per cent of the patients being symptom-free at follow-up and about 30 per cent having only mild complaints. The type of an associated injury in the hip joint, such as injury to the femoral head, an acetabular fragment, or nerve damage, is the most important prognostic factor. It was not possible to demonstrate any definite difference between the results in patients who had short-lasting and patients who had long-lasting non-weight-bearing. Therefore, early weight-bearing is recommended.

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