Acta orthop. scand. 52, 633–638, 1981

THE IRRITABLE HIP SYNDROME IN CHILDREN

A Long-Term Follow-up

P. F. SHARWOOD

Department of Orthopaedic Surgery, Mater Misericordiae Hospital, Brisbane, Queensland, Australia

This paper gives the results of a long-term follow-up study of 101 children with "Irritable Hips" who were admitted to the Mater Children's Hospital, Brisbane, Queensland, between 1962 and 1972.

The case notes and the laboratory data from their original presentation have been reviewed and all the children were recalled for clinical and radiological examination. Clinical abnormalities were found on eighteen occasions but none could be proved to be related to the child's episode of transient synovitis. Radiological changes were found on four occasions. Two of these were related to the disease in question, but two were probably coincidental findings. One case of Perthes' disease was found and one case of coxa magna, and these long-term complications are more likely to be found in patients with prolonged symptoms or radiological abnormalities on admission.

Key words: coxa magna; irritable hip syndrome in children; Legg-Calvé-Perthes' disease; synovitis of the hip

Accepted 8.iii.81

The irritable hip was first described by Lovett & Morse in 1892 as a short-lived form of hip disease which resembled tuberculosis. However the symptoms lasted for a few weeks, not years. The aetiology and prognosis of the condition has been described at length by many authors since, and several different views have been expressed as to the eventual outcome. Salter (1970) in his text book, and Jacobs (1971) claim that between 5 and 20 per cent of patients with irritable hips subsequently develop Perthes' disease, while other authors, McMurray (1947) and Valderrama (1963), found a high incidence of coxa magna. Many attempts have been made to determine the aetiology of this condition, infection, trauma and allergy being the most common causes mentioned.

Hardinge (1970) investigated in detail the aetiological factors associated with transient synovitis and "failed to establish any connection with infection by staphylococci or streptococci, with allergy, viral infection or trauma". The purpose of this study was to examine the natural history of the disease, its aetiology, clinical signs and prognosis, and to try to find any factor in the history or clinical course that may indicate long-term complications of the disease.

PATIENTS AND METHODS

The records of the Mater Children's Hospital in Brisbane were examined. Where it was found that a diagnosis of irritable hip hade been made, the child was recalled to hospital for re-examination and radiographs of the hips. In the period 1962 to 1972, 173 children were admitted to hospital with this condition and 101 have been subsequently reviewed. Contact with the remaining patients has not been possible for geographic reasons, or they could not be traced. Two children had since died of unrelated causes.

Of the 101 children reviewed, one hip was involved

0001-6470/81/060633-06 $02.50/0

on one occasion in 96. One child had bilateral disease and in four children the opposite hip was involved subsequently. This made a total of 105 episodes. The length of time of follow-up ranged from 5 to 15 years with an average of 8.2 years.

A close study of both inpatient and outpatient records of these patients was made for possible aetiological factors and seasonal variation. The nature and duration of the symptoms both prior to admission and subsequently were noted as were the laboratory data and radiological findings.

When the patient was reviewed, careful examination was made of the gait, range of hip movement and leg length, and radiographs of the hips, both in A.P. and frog lateral positions were taken.

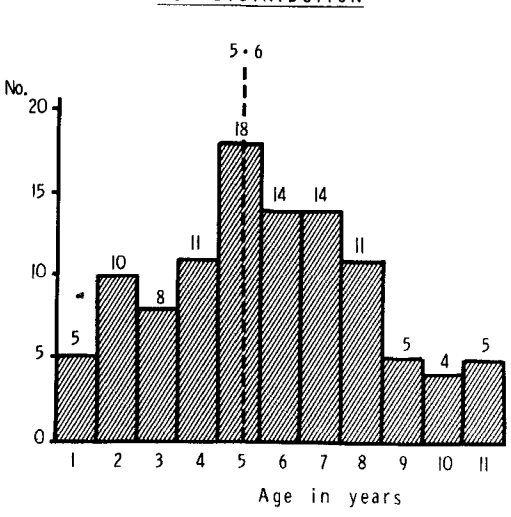

Figure 2. Age distribution. Ages in years.

RESULTS

Infection, trauma and allergy could have been associated with 59 cases in this Queensland series, but no cause was found in the remaining 46 and no seasonal variation in the onset of the symptoms could be demonstrated (Figure 1).

Children of all ages were affected by this condition and the average age in this series was 5.6 years (Figure 2). Whilst boys were slightly more commonly affected than girls, both sides were involved equally. Pain, either at rest or with movement or walking, is the most common symptom, and a limp or refusal to walk was often observed (Figure 3). In all but four cases the movement of the affected hip was restricted by muscle spasm.

The period of time from the onset of symptoms to admission was found to be short with only 18 cases having symptoms for more than 7 days prior to admission. In most cases the symptoms settled within 16 days but there were 12 patients whose symptoms lasted more than twice the average time. Two of these cases developed complications and are described: one developing Perthes' disease (Case 1) and one coxa magna (Case 4). Of the remaining, four suffered symptoms for more than 4 weeks prior to admission, and six were placed in a plaster of Paris hip spica. None of these developed complications.

Most of the cases in the present series had a white cell count and erythrocyte sedimentation rate performed on admission. The results of these tests are shown in Table 1. It can be seen that 30 cases had an elevated white cell count and 20 had an elevated E.S.R., but usually some other cause such as a respiratory infection could well account for these abnormal results.

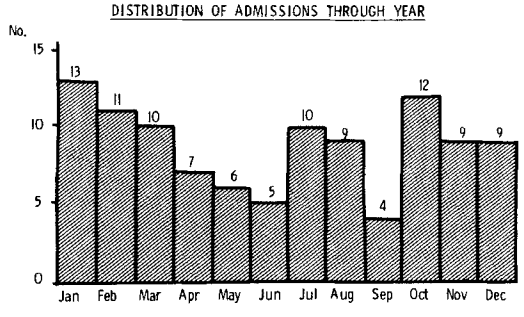

Figure 1. Month of onset of symptoms.

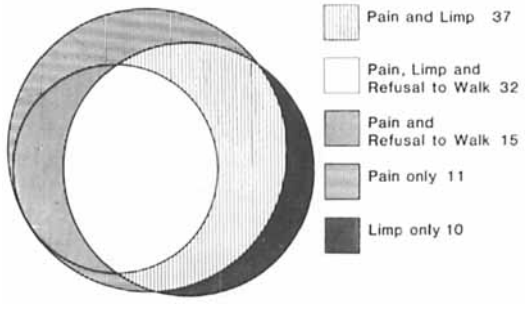

Figure 3. Symptoms and signs on admission.

Table 1. Laboratory data on admission

Laboratory data		
White Cell Count		
Normal		73
Greater than 10,000		30
Greater than 10,000		
with neutrophillia	13	
with lymphocytosis	4	
with eosinophillia	1	
Not performed		2
Erythrocyte Sedimentation Rate		
Normal (0 to 20)		74
Greater than 20		20
Not performed		11

Of the radiographs taken on admission 18 were found to be abnormal. In 10 there was evidence of swelling or effusion similar to that described by Hermel & Sklaroff (1954). Alteration in the width of the joint space was noted in six patients but in only one (Case 1) was it greater than 2 millimetres. One child had a fibrous cortical defect and one (Case 4) showed osteoporosis.

A clinical examination of the hip joints was made on all patients in this series when seen 5 to 15 years later. Abnormalities in hip joints were found on 18 occasions. These were mainly alterations in the arc of rotation in 17, and one patient had a definite decrease in all ranges of movement of one hip joint although his radiographs were normal. He was playing sport, suffered no handicap and denied having pain in the joint. Eight patients complained of slight intermittent pain in their hip joints but of these on only one occasion (Case 4) was there any radiological abnormality. This patient had a full range of movement, normal gait and leg length.

Fifteen cases had recurrence of symptoms following discharge from hospital, and in one case Perthes' disease developed following the initial presentation (Case 1). This case differs from those recorded by other authors in that his symptoms did not settle for 8 weeks after onset, and problems developed later in other joints. At review on two occasions (Cases 2 and 3) radiological evidence of bilateral slipped upper femoral epiphysis was found. This had been asymptomatic but two cases in 101 patients would appear to be a higher incidence than in the average population.

Variation in the joint space on follow-up radiographs occurred in eight cases. None was greater than 2 millimetres and the variation did not bear any relation to the affected side. Five were wider on the opposite side and three on the affected side.

ILLUSTRATIVE CASE HISTORIES

Case 1

A boy aged 7 complained of pain in the left hip, thigh and knee for 3 weeks prior to admission. He had had tonsillitis for 2 weeks but this had settled. He had a limp and all movements of his hip were restricted by pain and spasm. He was afebrile, he had a normal blood picture and an E.S.R. of 15 millimetres in 1 hour. Radiographs showed a widening of the joint space on the left side (Figure 4). He was treated with bed rest and simple traction to his left leg for 10 days and discharged home to rest in bed. Two weeks later it was noted he was still limping, and further restriction was imposed for 3 more weeks. At this time no abnormality could be detected clinically, but the radiological changes were still present. He underwent tonsillectomy

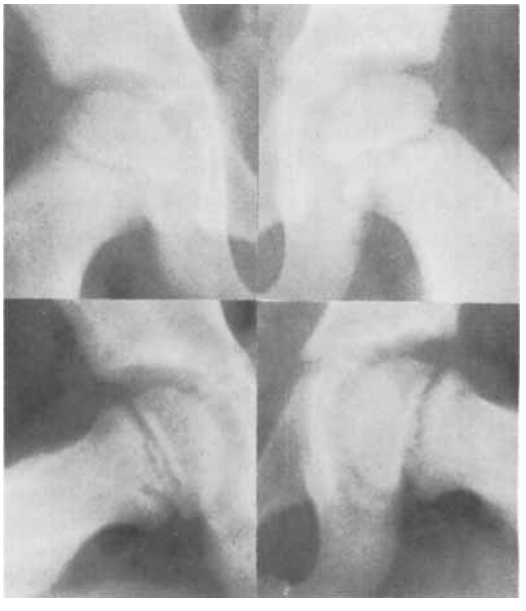

Figure 4. Case 1. Age 7. Radiograph of the hips showing widening of the joint space on the left side.

Figure 5. Case 1. Age 8. Four months after his original presentation, showing Perthiform changes in the left hip.

the next month, and his limp recurred 4 months later, at which time Perthes' disease was diagnosed (Figure 5). At the age of 11 he suffered an acute slip of the right upper femoral epiphysis (Figure 6) which was treated surgically. Three years after this he developed Osgood Schlatter's disease of the left knee. When reviewed at the age of 18 for this survey, he was found to have coxa vara of the right hip which lacked 10° of flexion and that leg was half an inch short. Radiographs revealed that his Perthes' disease had resolved (Figure 7).

Case 2

A boy aged 11 complained for 1 week of pain in his right hip on walking. He had had a fall on the affected hip 1 month before admission but had no limp. He was febrile but his haematological profile and radiographs were normal. He was treated with bed rest and skin traction, discharged 8 days later to rest in bed at home

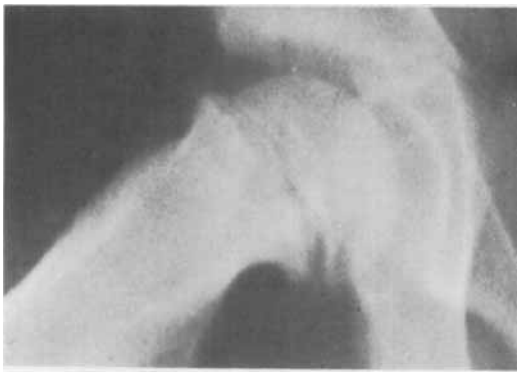

Figure 6. Case 1. Age 11. Radiograph showing an acute slip of the right upper femoral epiphysis.

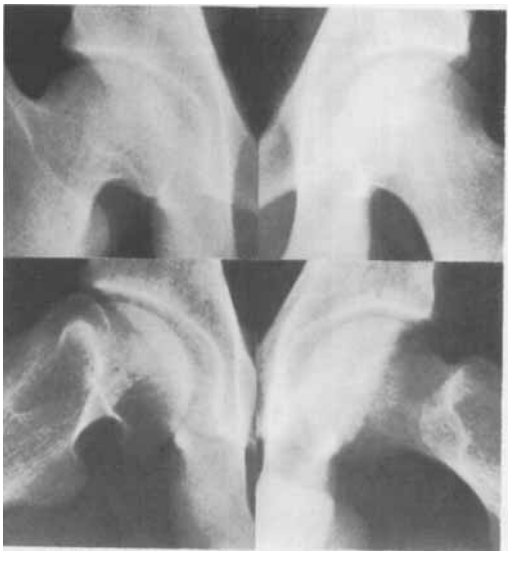

Figure 7. Case 1. Age 18. Radiograph of the pelvis showing coxa vara on the right and a normal hip joint on the left.

and had no subsequent trouble. Clinical examination 8 years later revealed no abnormality but radiographs show that he suffered from bilateral slip of the upper femoral epiphyses (Figure 8).

Case 3

This boy at the age of 5 years complained of acute pain in his left hip for 1 day. He had a limp and all movements of his hip were restricted by spasm. Radiographs and blood picture were normal and his E.S.R. was 8 millimetres in 1 hour. He had a positive Mantoux and his mother had had tuberculosis. He was treated with bed rest and skin traction for 17 days, then discharged to rest in bed at home. No further radiographs of his hip

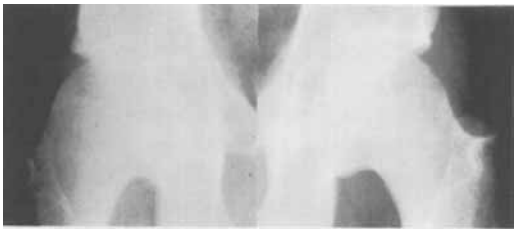

Figure 8. Case 2. Age 19. Radiograph of hips taken when the patient was reviewed 8 years after admission for a painful right hip, showing the result of bilateral, slipped upper femoral epiphyses.

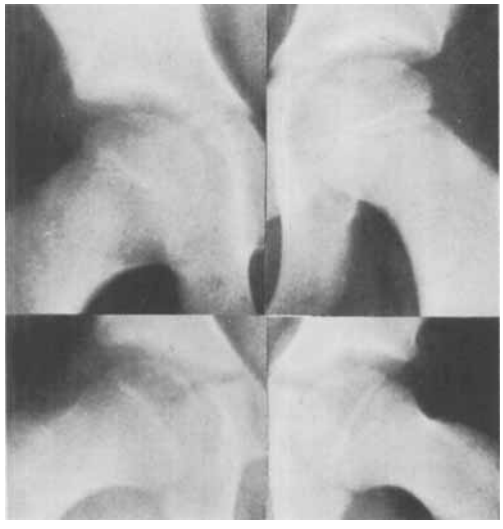

Figure 9. Case 4. Age 8. Radiograph of both hips, showing osteoporosis of the right hip which had been painful for 5 weeks.

joints were taken and he cannot recall any symptoms related to his legs since that time. Thirteen years later, clinically, he had no abnormality but radiological examination showed that he had suffered from bilateral slipped upper femoral epiphyses.

Case 4

A girl aged 8 years complained of pain at rest in the hip for 5 weeks prior to admission. A limp had been present for 2 weeks and there was no history of trauma or infection. The child had restriction of movements of the hip due to pain and spasm. She was afebrile and had a normal haematological profile. E.S.R. was 6 millimetres in 1 hour and radiographs although reported as normal revealed osteoporosis of the head of the right femur (Figure 9). Her treatment was bed rest and skin traction for 10 days and she was not restricted on discharge from hospital. She was followed up for 3 months as an outpatient, then discharged. She had a recurrence of pain for 1 day 4 months later but was not admitted as her symptoms settled prior to her coming to hospital. Radiographs taken on this occasion confirmed the presence of coxa magna in the right hip. Three years later she was admitted for treatment of the left hip which had become irritable. She had pain in the hip for 1 day but no limp; she was afebrile and the pain and spasm caused restriction of all the movements of the left hip. Haematological profile was normal as was her E.S.R. of 6 millimetres in 1 hour. She still had radiological changes of coxa magna of the right hip, but there was no osteoporosis present on this occasion. Her symptoms settled in 3 days and she returned home to rest in bed. When examined 3 years later (6 years after the original symptoms), she complained of slight intermittent pain in her right hip, but no restriction of movement or any other abnormality was found. Radiological findings confirmed the presence of coxa magna in the right hip (Figure 10).

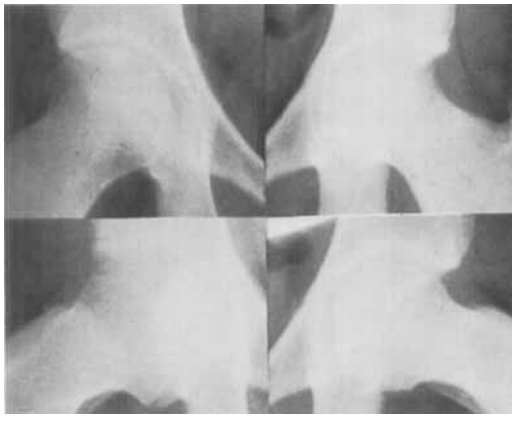

Figure 10. Case 4. Age 14. Radiograph of the child's hips demonstrating persistent coxa magna on the right side.

DISCUSSION

Many workers have tried to ascertain the cause of irritable hips in children, but most have not been able to demonstrate a single cause. In this series, again, no single factor could be blamed, and there did not appear to be any seasonal variation. A study has been made of the length of time the symptoms were present in the children from Brisbane and this has been compared with the reports of some other authors. In this condition the onset is acute with the symptoms settling quickly. It would appear that complications are more likely to be encountered in those cases who have more chronic symptoms and those who show alteration to the bone structure radiologically.

Most of the case histories of patients with complications recorded in the literature, especially those of McMurray (1947) and Valderrama (1963) who describe the development of coxa magna, state that the symptoms usually were present for some weeks before admission and radiographs revealed osteoporosis at that time. Both of the patients who subsequently developed

complications in this series had symptoms several weeks prior to admission. Adams (1963) found that children who had developed Perthes' disease had suffered symptoms for an average of 121 days before seeking medical advice as opposed to 28 days in the case of transient synovitis. A similar pattern is seen in Case 1.

Variation in the width of the joint space has been described by Waldenström in 1938 as an early sign of Perthes' disease. Eyring et al. (1965) examined 1,070 hip joints of normal people and found that a 2 millimetre difference was normal but a difference greater than that probably indicated joint pathology.

In this Queensland series only two patients have suffered long-term complications of their hip pathology, which is at variance with the findings of other workers. No apparent relationship between this disease and Perthes' disease, as suggested by both Salter (1970) and Jacobs (1971), could be demonstrated. It would appear that if there is definite radiological evidence of bone or joint deformity on admission, or if the child's symptoms are prolonged, then it is possible that there will be long-term complications in these patients.

ACKNOWLEDGEMENTS

I gratefully acknowledge the help and advice of Dr. Robert Cooke, Senior Lecturer in Orthopaedic Surgery, University of Queensland and Mr. C. H. Wynn Jones, Consultant Orthopaedic Surgeon, Orthopaedic Hospital, Hartshill, Stoke-on-Trent, in the preparation of this paper. Also thanks are due to Dr. Les Masel, Visiting Radiologist Mater Misericordiae Hospital, for reporting radiographs, Dr. Graham Cavaye, Senior Lecturer in Surgery, University of Queensland, for advice on statistics and Margaret Lynch and Mrs. K. Huber for secretarial assistance.

I would also like to thank Dr. A. McSweeny, Dr. M. J. Gallagher, Dr. F. R. Wilson, Dr. J. N. A. Livingstone, Dr. W. J. Crawford and Dr. T. P. McGuire for permission to review their patients.

REFERENCES

Adams, J. A. (1963) Transient synovitis of the hip joint in children. *J. Bone Joint Surg.* **45**-B, 471–476.

Eyring, E. J., Bjornson, D. R. & Peterson, C. A. (1965) Diagnostic and prognostic signs in Legg-Calvé-Perthes' disease. *Am. J. Roentgenol.* **93**, 382–387.

Hardinge, K. 1970) The etiology of transient synovitis of the hip joint in childhood. *J. Bone Joint Surg.* **52**-B, 100–107.

Hermel, M. B. & Sklaroff, D. M. (1954) Roentgen changes in transient synovitis of the hip joint. *Arch. Surg.* **68**, 364–368.

Jacobs, B. W. (1971) Synovitis of the hip in children and its significance. *Pediatrics* **47**, 558–565.

Lovett, R. W. & Morse, J. L. (1892) A transient or ephemeral form of hip disease, with a report of cases. *Boston Med. Surg. J.* **127**, 161.

McMurray, B. (1947) A report of six cases of coxa magna following synovitis of the hip joint. *Br. J. Radiol.* **20**, 477–481.

Salter, R. B. (1970) *Textbook of disorders and injuries of the musculo-skeletal system,* p. 187. Williams and Wilkins, Baltimore.

de Valderrama, J. A. F. (1963) The "Observation Hip" syndrome and its late sequelae. *J. Bone Joint Surg.* **45**-B, 462–470.

Waldenström, H. (1938) The first stages of coxa plana. *J. Bone Joint Surg.* **20**, 559–566.

Correspondence to: Dr. P. F. Sharwood, 23 Halland Terrace, Camp Hill, Queensland 4152, Australia.