

OBSERVATION HIP

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“Observation Hip” is a provisional diagnosis. Although transient arthritis is the most frequent pathology, it is important to establish a diagnostic routine to consider the various types of hip pathology. Physical examination and clinical evolution are the most important factors in making a specific diagnosis.

Key words: arthritis; hip; synovitis

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The term “Observation Hip” was first used in the medical literature by Butler (1933), who used it in children admitted for observation with clinical features characterized by limp, pain and limited motion of the hip joint, but with normal radiographs.

The importance of a more specific diagnosis of hip pathology in children was stressed by Lovet & Morse (1892), Miller (1931) and Miller (1965) who felt the need for differential diagnostic tools for the various forms of arthritis of the hip, so as to ensure an accurate final diagnosis and appropriate treatment. Valderama (1963) reviewed the sequelae described in patients with the initial diagnosis of “Observation Hip”. Edwards (1952) and Donaldson (1955) contributed towards a better understanding of this syndrome.

In cases of “Observation Hip”, it is important to establish promptly a diagnostic routine to consider the various types of hip pathology.

PATIENTS

Sixty-eight cases diagnosed initially as “Observation Hip”, admitted to the Hospital de Base do Distrito Federal over the past 10 years, were reviewed. The following routine was established. All emergency cases with non-traumatic pain in the hip were either admitted

and placed in Russell’s traction or sent home and followed up in the outpatient clinic.

Both groups were examined repeatedly according to an established programme and a record card was devised for the follow-up.

X-ray examination of the hip on admission was always carried out in two positions: antero-posterior and Lowenstein position (flexion abduction and external rotation of the hip). Radiographic changes were studied according to the criteria of Hermel & Sklaroff (1954), Vidigal (1970) and White (1962), placing special emphasis on the level of pericapsular fatty tissue, increase in the joint space and osteoporosis of the proximal end of the femur. Radiographs of the thorax were taken to detect possible associated pathology. A complete blood count and sedimentation rate were done routinely; blood culture tests were carried out only in patients with a temperature above 39°C. Laboratory tests of rheumatoid activity were done. Whenever aspiration of the hip or an exploratory arthrotomy was necessary to substantiate the diagnosis, the synovial fluid was studied and fragments of the synovial membrane were removed for histopathological studies. All patients were examined repeatedly during the first month after the onset of symptoms. Routine X-ray of the hip was carried out once a fortnight in the first month and once a month for up to 6 months thereafter.

RESULTS

The most common signs and symptoms of the syndrome when the patient was first seen were:

- 1) Limitation of internal rotation – 56
- 2) Limp – 68
- 3) Trendelenburg sign – 10
- 4) Tenderness in the groin – 6
- 5) Local warmth over the joint – 2

In 48 patients the clinical manifestations of the hip disappeared in the first week, and normal function was regained; these cases were given a final diagnosis of transient synovitis, this being the most frequent pathology. The other 20 cases resulted in other types of arthritis as follows: rheumatic fever with mono-arthritis of the hip, 6; Legg-Perthes' disease, 4; tuberculous synovitis of the hip, 2; psoas inflammation, 2; septic arthritis of the hip, 4; abscess of the proximal end of the thigh, 2. Of the 4 cases of septic arthritis of the hip only one had psoas inflammation.

In transient arthritis of the hip the most frequent infection-associated pathology is shown in Table 1.

Radiographic studies during the first clinical examination of patients with "Observation Hip" showed, in a descriptive analysis of all 48 cases of transient arthritis, that 46 had no X-ray changes at the time of admission: one had increase in the joint space and another had osteoporosis of the proximal end of the femur. Of the 20 cases with the non-transient type of arthritis, 16 had no X-ray changes at the time of admission, two had an increase in the joint space, one had bulging of the gluteus medius, and one had haziness in the soft pericapsular tissue of the joint (Table 2).

Table 1. The infection associated pathology found in 48 cases of transient arthritis of the hip

Infection associated pathology (Transient arthritis)	No. of cases
Tonsillitis	13
Pneumonia	4
Cold	2
Bronchitis	2
Impetigo	2
Conjunctivitis	1
Measles	1
Pyodermitis	2
Total	27

Table 2. The observed and expected frequencies for the types of arthritis and radiographic changes. The expected frequencies were calculated by the theory of contingency tables

$$\chi^2 = 4.4274$$

$$\chi^2_{0.05} (1) = 3.84$$

$$\chi^2 > \chi^2_{0.05} (1)$$

Types of arthritis	No radio-graphic changes	Radiographic changes	Total
Transient arthritis	46 (43.75)	2 (4.24)	48
Other types of arthritis	16 (18.24)	4 (1.76)	20
Total	62	6	68

White cell count and sedimentation rate were above normal in all cases of transient arthritis, Legg-Perthes' and those with associated infection. Septic arthritis of the hip, psoas inflammation, abscess of the proximal end of the thigh, rheumatic fever and specific synovitis of the hip presented their particular characteristic features. However, blood culture was consistently negative.

Treatment of transient arthritis was restricted to bed rest, analgesics and Russell's traction of the leg. When there were associated infections such tonsillitis, pneumonia or pyodermitis, specific treatment was given for each case.

In 46 cases of transient arthritis, X-rays after 1 month showed no changes. In 41 cases after a few days there was no abnormality on physical examination of the hip; of the seven remaining cases, four showed persistent limp and three had limitation of internal rotation which disappeared during the second week. None of the cases of transient arthritis developed long-term articular sequelae. All cases with rheumatic fever and monoarthritis of the hip showed signs or symptoms in the hip which lasted for 2 weeks, e.g., a limp, Trendelenburg sign, although there were no X-ray changes. In four cases with Legg-Perthes' disease the initial symptoms did not subside during the first 4 weeks after diagnosis. The average age of the patients with transient arthritis was 5.1 years. There was one death.

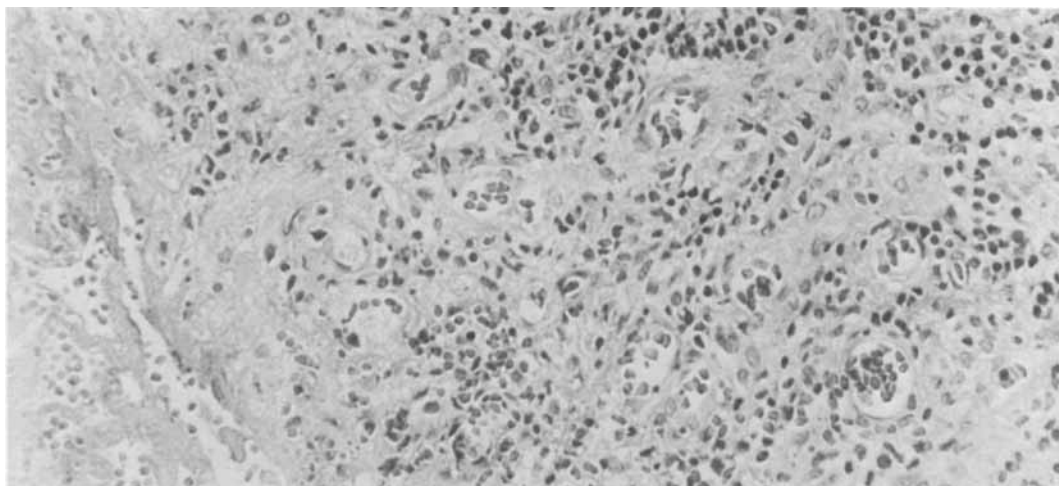


Figure 1. Case 1. Microphotograph showing synovial thickening and vascularity, and infiltration of lymphocytes (H.E. \times 60).

CASES REPORTS

Four representative cases of "Observation Hip" are summarized below:

Case 1. S.R.M., 2-year-old male, admitted with limp of the left leg, limitation of internal rotation of the hip to 10 degrees. X-ray examination of the left hip showed widening of the joint space. Blood count showed 11,200 leucocytes with 79 segmented and sedimentation rate of 52 in the first hour. X-ray of the thorax was normal. Mouth and throat examination showed hypertrophy of palatal tonsils. A negative hip puncture increased the difficulty of differential diagnosis of septic arthritis of the hip. An exploratory arthrotomy was performed. The incision of the capsule produced 5 ml of synovial fluid, with diminished viscosity, but without opacity. Cytometry revealed 600 leucocytes and 2000 erythrocytes; the leucocyte count showed 70 per cent neutrophils and 30 per cent lymphocytes. Culture was negative. Histopathological examination of the synovial membrane was characteristic of acute synovitis (Figure 1). Subsequent X-ray examination over a period of 5 years showed no osteocartilaginous changes in the hip.

Case 2. E.C., 6-year-old male admitted with pain in the right hip, limp and limitation of internal rotation to 20 degrees. On admission he was treated with Russell's traction of the lower limbs. After 4 days, hyperthermia (39°C) and abdominal distention developed with disappearance of the hip symptoms. X-ray of the abdomen showed diffuse distention of the small and large bowel diagnostic of paralytic ileum. The next day dyspnoea and shock were present. X-ray of the thorax showed confluent areas of consolidation spread over both lungs,

but more pronounced on the right; it also showed cavities suggestive of haematogenic staphylococcal pneumonia. The patient died the same day and permission for autopsy was refused.

Comments

These cases illustrate the changing clinical picture of "Observation Hip". The first one shows the typical evolution of transient arthritis, according to our interpretation. Although there were radiographic changes in the soft tissues and an increase in articular content, there were no long-term osteocartilaginous changes. The second case developed in a non-characteristic manner, since the initial manifestation of serious fatal pulmonary pathology began as transient arthritis.

Case 3. R.F.C.N., 6-year-old male was first seen in the paediatric section with pain in the right hip and otitis media for 48 hours. Physical examination of the hip showed limitation of internal rotation to 15 degrees and Trendelenburg sign. X-ray of the hip was normal. After 24 hours of observation, the symptoms became worse and the patient was unable to walk. Blood count showed 13,000 leucocytes with 74 segmented and sedimentation rate of 77 mm in the first hour. Although puncture of the hip was negative, the obvious signs of infection indicated an arthrotomy. Opening of the articular capsule revealed a small amount of synovial fluid with neither micro- nor macroscopic changes and negative culture. Histopathological examination of the synovial membrane showed chronic non-specific synovitis (Figure 2).

Case 4. R. S., 7-year-old female, admitted with pain in the left hip and limp for 4 days. Axillary temperature 37.5°C, limitation of internal rotation to 20 degrees. Blood count showed lymphocytes and decrease in segmented cells. Sedimentation rate was 30 mm in the first hour. X-ray of the hip and thorax were normal. Strongly positive Mantoux test. Biopsy of the hip was performed and tuberculous synovitis was diagnosed.

Comments

These cases, initially diagnosed as "Observation Hip" show the diversity of pathology in this syndrome.

DISCUSSION

"Observation Hip" is a provisional diagnosis. It is characterized in children by limp, with or without pain in the knee, thigh and groin, and limited motion of the hip joint, which may or may not be associated with systemic reactions. Its clinical manifestations are due to synovitis of the hip and occasionally to inflammation of the psoas muscle. The aetiology is initially unknown but may be clarified by diagnostic tests and by clinical observation of the condition. The syndrome may have a variety of causes and a specific diagnosis is mandatory.

Transient arthritis is the most frequency underlying pathology (48 out of 68 cases), differing clinically from the synovitis observed in rheumatic fever, tuberculous synovitis (Butler 1933),

Perthes' disease (Ferguson 1964, Jacobs 1960) and septic arthritis of the hip. On physical examination of the hip, limp and limitation of internal rotation were present in all cases of transient arthritis and, in the great majority of patients, the symptoms disappeared during the first week, signifying remission of the hip synovitis. The synovitis of transient arthritis can be attributed to: allergic hypersensitivity of the synovial membrane to a focal point of infection at a distance (Edwards 1962, Hermel & Sklaroff 1954, Tudor 1970), a virus (Hardinge 1970) or local infection. In our series, statistical tests showed a relationship between infection-associated pathology and transient arthritis of the hip; on the other hand, the other types of arthritis (rheumatic fever with mono-arthritis, Legg-Perthes' disease, tuberculous synovitis of the hip, psoas inflammation, septic arthritis of the hip and abscess of the proximal end of the thigh) also showed this relationship (Table 3).

Radiographic changes in transient arthritis are rare. They were observed in approximately 4 per cent of the 48 cases (Table 2) and merely signified an increase in intra-articular content or osteoporosis of the proximal third of the femur. This low incidence was also observed by Hermel & Sklaroff (1954) and White (1962). Caravia (1965) studied 46 patients with transient arthritis of the hip and did not find a single X-ray change.

The ilio-psoas bursa which normally is re-



Figure 2. Case 3. Synovium shows vascularity and some lymphocyte infiltration (H.E. $\times 100$).

Table 3. The observed and expected frequencies of the types of arthritis and infection-associated pathology

Types of arthritis	With infection associated pathology	Without infection associated pathology	Total
Transient arthritis	27 (30.35)	21 (17.65)	48
Other types of arthritis	16 (12.65)	4 (7.35)	20
Total	43	25	68

$$\chi^2 = 3.4196$$

$$\chi^2_{0.05} (1) = 3.84$$

$$\chi^2_{0.10} (1) = 2.71$$

$$\chi^2_{0.10} (1) < \chi^2 < \chi^2_{0.05} (1)$$

stricted to the lesser trochanter may extend to the hip (Testut 1932, Staple 1972). This was responsible for a case of psoas inflammation causing septic arthritis of the hip through continuity.

The initial synovitis present in the great majority of cases of "Observation Hip" can also be found in other hip diseases and it is of value to identify the type of pathology. However, it may be a single initial manifestation of a severe systemic reaction, as observed in case 2 in the case reports.

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