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Original Research Article

# Evolutionary Aspects of Febrile Acute Polyarthritis

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**Abstract:** The diagnosis of febrile acute polyarthritis is difficult given the multiple etiologies. The infectious origin is a diagnostic and therapeutic emergency. The purpose of this study is to determine the etiologic and evolutionary profile. This is a retrospective study concerning the records of patients hospitalized for acute febrile polyarthritis over a period of 10 years, using an information sheet including demographics, characteristics of arthritis, biological data and the final diagnosis. It was about 31 cases, including 21 women, mean age was 42 years [16-76 years]. Diagnoses were: infectious polyarthritis in 18 cases (58.1%) including 10 cases (32.27%) of gonococcal origin; a post-streptococcal arthritis in 4 cases (12.90%); a gout in 3 cases (9.7%); sarcoidosis in 2 cases (6.44%), one associated with Sweet's syndrome; lupus in one case (3.22%); the Sharp syndrom in one case (3.22%); a seronegative rheumatoid arthritis in one case (3.22%); the Still disease in one case (3.22%). All patients received antibiotic therapy. In 3 cases, we had to change to an empiric antibiotic therapy. The evolution was generally good except for one patient who died from septic shock pustular psoriasis. The acute febrile arthritis is a very common symptom requiring a better knowledge of different etiologies for a better management. The priority is to eliminate the septic emergency that could compromise the vital prognosis, especially as it is the most common.
**Keywords:** Acute polyarthritis, fever, infection.

## INTRODUCTION

Polyarthritis corresponds to an inflammatory disease of four joints or more. The diagnosis of acute arthritis is difficult given the multiple etiologies. The infectious origin is a diagnostic and therapeutic emergency.

## OBJECTIVE OF THE STUDY

The aim of this study is to determine the evolutionary and etiologic profile of this acute febrile arthritis.

## METHODS

This is a retrospective study spanning 10 years, from 2005 to 2014. We have included all patients hospitalized with febrile acute arthritis in rheumatology department at CHU Mohamed VI. Data were collected from patient records according to an information sheet including demographics, type of arthritis, biological data, the final diagnosis, and evolution. The statistical analysis software used was SPSS 16.0-statistics.

## RESULTS

These were 31 cases, including 21 women (67, 7%), the middle age was 42 years [16-76 years]. The extension of time in which arthritis occurs, varies between 2 days and 1 month. Arthritis is located in the small joints in 60% of cases, and the large joints (knees) in 76% of cases. 77.5% of cases were affected symmetrically, and additives in 91% of cases. The arthritis was evolving in a context of impaired general condition in 36% of cases. The fever was averaged 38.8°C, and was present in all patients. The arthritis was accompanied in 14 cases by tenosynovitis; mucocutaneous signs (maculopapular rash, erysipelas, vasculitis, vulvar ulceration, erythema nodosum) in 11 cases; cardiac signs (friction, breath) in 2 cases, tonsillitis in 3 cases, polyadenopathies in a case.

On the plane paraclinique; the infectious results were achieved in all cases. The inflammatory syndrome was present in all cases: sedimentation rate = 94.71 mm / 1 hour [54-135] (+/- 49), and C-reactive protein = 150 mg/l [37-263] (+/- 78). The study of joint fluid was made in 13 (41.9%) cases: it is mechanical in 1 case, inflammatory in 12 and with the identification of

Gram-positive cocci in diplococcus in a case, microcrystals sodium urate in 2 cases. Cytobacterioligical urine exam was infected in 1 case with isolation of Escherichia coli. The vaginal sampling executed for 9 patients was sterile. The urethral sampling was executed in 5 patients and had highlighted the Neisseria gonorrhoeae in 2 cases. Throat sampling was executed in 7 patients, and had highlighted the Beta hemolytic streptococcus in 2 cases. The immunological tests done according to clinical orientation were positive in 2 cases (the first one: antinuclear (ANA), and anti- native DNA antibodies were positive; the second one: antinuclear (ANA), and antiribonuclear protein (anti-RNP) antibodies were positive). The hemocultures and the serology for hepatitis B and C tests were negative in all cases. Echocardiography was executed in all cases and did not reveal bacterial endocarditis; standard radiographs showed erosions of the hands in a patient.

Diagnoses were retained **(Table-1)**. All patients received antibiotic therapy. In 2 cases we had to change to an empirical antibiotic therapy. The first patient was treated by Ceftriaxon for gonorrhea, and on the 6th day of treatment he presented filled sinuses and was switched to amoxicillin-clavulanic acid, the second patient was treated with amoxicillin-clavulanic acid, and urine culture was positive with isolation of Escherichia coli sensitive to C3G. The evolution was generally good except for one patient who died from septic shock pustular psoriasis. The seventeen patients with infectious origin was retained keep a favorable development at a mean of forty months follow-up.

**Table-1: Etiologic profile**

| Diagnoses | Number / percentage |
|---|---|
| Gonococcal arthritis | 10 cas (32,27 %) |
| Other infections | 7 cas (22,59 %) |
| post-streptococcal arthritis | 4 cas (12,9 %) |
| Gout | 3 cas (9,7 %) |
| Septic shock pustular psoriasis | 1 cas ( 3,22%) |
| Lupus | 1 cas (3,22 %) |
| Sharp Syndrome<br>Sarcoidosis + Sweet's syndrome | 1 cas (3,22 %)<br>1 cas (3,22 %) |
| Sarcoidosis | 1 cas (3,22 %) |
| Seronegative rheumatoid arthritis | 1 cas (3,22 %) |
| Disease still | 1 cas (3,22 %) |

**DISCUSSION**

Polyarthritis corresponds by definition to an inflammatory disease of four or more joints. The diagnosis of acute arthritis (less than a month) is difficult because of the multiple etiologies. The infectious origin is a diagnostic and therapeutic emergency and must be a priority even if the usual picture is rather that of a mono or oligoarthritis.

Eighteen patients in our series presented an infectious arthritis which ten presented a table showing suspected gonococcal etiology before anamnestic arguments: the young age, history of sexual risk behavior, urethritis and clinical, febrile tenosynovitis without suggestive skin lesions. The skin lesions on gonococcus are described in 40 to 70% of cases [1]. The positivity of Urethral sampling was noted in 2 patients, it is only positive in 60% of cases [1].

The first line therapy remains ceftriaxone and rapid response may constitute a diagnostic test. The response to treatment is usually favorable.

The post-streptococcal arthritis was retained in 4 patients (12%) of our series to the notion of repeated tonsillitis, increased ASLO and isolating beta-hemolytic streptococci in the throat. Arthritis beta hemolytic streptococcus group B are considered rare but may represent 10% of septic arthritis reported in the latest series. They are characterized by polyarthritis in over a third of cases, associated with clinical symptoms sometimes frustrating, may delay diagnosis [2]. Three patients in our series showed a gout which is the most common inflammatory rheumatic disease in developed countries [3,4]. The typical gouty access is located in the metatarsophalangeal joint of the big toe. The mono-articular involvement is most common in acute gout with a percentage of 85% [5].

Sarcoidosis is a systemic granulomatous disease of unknown etiology, characterized by its clinical polymophisme, this diagnosis was made in 2 patients associated with the disease of Sweet; especially in the form of Löfgren combining mediastinal lymphadenopathy and / or bilateral hilar, erythema nodosum and arthritis or acute arthralgia or subacute generally good prognosis, with seasonal and touching with favorite female population [6].

Sweet's syndrome is a neutrophilic dermatosis. It may associate in about 50% of cases with inflammatory or neoplastic disease [7]. The association

with sarcoidosis remains exceptional, and the diagnosis was histologically proven before the biopsy of the salivary glands which shows a sialadenitis granulomatous epithelioid and giant cell non caseating, bronchial biopsy showed epithelioid and giant cell granuloma without caseating, and skin biopsy showed a neutrophilic infiltration without signs of leukocytoclastic vasculitis, compatible with the diagnosis of Sweet syndrome.

One patient in our series had a lupus revealed by a bilateral symmetric polyarthritis. This mode of revelation is present in 80% of patients at diagnosis according to the literature. Its evolution is either acute willingly fluxionnaire or subacute with morning stiffness [8].

The sharp syndrome was retained in a patient before the positive antinuclear antibody with specificity for anti-RNP. According to literature the arthritis in this syndrome is seen in 89% of cases and fever in 27.3% [9].

One patient in our series had rheumatoid arthritis, leader of inflammatory rheumatism. This is a systemic inflammatory disease whose onset is usually gradual, in the form of a poly-articular affection with predominant pain and stiffness at the ends. But only in 20% of cases, rheumatoid arthritis begins as an acute febrile arthritis with significant impairment of general condition, willingly evokes an infectious condition [10].

One patient presented the Still disease. This diagnosis should be considered in febrile arthritis, leukocytosis, an increase in liver enzymes unrelated to a medication case, an absence of ANA and rheumatoid factor, strong hyper-ferritinemia and especially a glycosylated fraction to 3%. This is always a diagnosis of exclusion [11].

**Our study certainly has limits:**

First, the retrospective nature of the study which implies the lack of some data.

Then, the delay of certain biological assessments as immunological assessments involves a probabilistic therapeutic approach pending the results of immunology.

Third, lack of specific test, the diagnosis of infection ideally based on the isolation of the pathogen. However this is not always obvious except for urine culture and joint aspiration for which direct examination is readily available; and so, the infectious arthritis diagnosis was made on clinical and biological argument beam, affirmed by the favorable development in the seventeen patients with infectious origin was selected at a mean of forty months follow-up.

Differentiate between a possible infectious and inflammatory disease would have been easier in case of availability of the procalcitonin. This test has been used in any of our patients for ways reasons. Procalcitonin is a prohormone of calcitonin, undetectable in healthy subjects (<0.5 ug / l), the serum concentration is high sensitive and specific way during severe bacterial and parasitic infections, but only slightly increases or not in viral infections or other inflammatory processes. Nevertheless, there are false positives (such diseases and inflammatory syndrome that Sd hemophagocytic) and false negatives (atypical pneumonia has germs, Lyme disease ...) [12].

## CONCLUSION

The acute febrile arthritis remains a very common symptom that requires a better understanding of different etiologies; this will allow a better management. Our study confirms the priority of eliminating the emergency: septic arthritis, this not only from the point of view prognosis but also the epidemiological one as shown in our series.

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