Available online at **www.ijmrhs.com**

ISSN No: 2319-5886

International Journal of Medical Research & Health Sciences, 2017, 6(1): 66-70

Acute Chikungunya Fever Presenting as Migratory Polyarthritis

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ABSTRACT

The tropical arthritogenic chikungunya virus has become an increasingly medical and economic burden in affected areas as it can result in long term disabilities. Thus, the current challenge for physicians in epidemic areas is to "timely" identify and diagnose chikungunya rheumatic disorders and to provide the optimal treatment..

Keywords: Chikungunya arthropathy, CHIKV, migratory polyarthritis, synovial fluid examination

INTRODUCTION

Chikungunya virus, an RNA arbovirus, also referred to as CHIKV, is a member of the alphavirus genus, and Togaviridae family. Chikungunya may cause long-term symptoms following acute infection. Most Common symptoms of CHIK infection are sudden onset with high fever with a saddleback pattern and severe arthralgia, accompanied by chills and constitutional symptoms, and rash. Other symptoms may occur, including headache, fatigue, digestive complaints, and conjunctivitis. Migratory polyarthritis mainly affects the small joints of ankles, feet, hands, and wrists, but the large joints are not necessarily spared. Common predictors of prolonged symptoms are increased age and prior rheumatological disease. Currently, the cause of these chronic symptoms is not fully known. Markers of autoimmune or rheumatoid disease have not been found in people reporting chronic symptoms. We are reporting one such case of migratory polyarthritis in young female.

CASE REPORT

A 30-year young female patient presented with history of sudden onset of fever and joints pain. Fever was high grade, continuous in nature associated with chills and rigors. It wasn't associated with burning micturition, no history of cough with productive sputum, constipation, diarrhoea, pain abdomen, sore throat or vaginal discharge was present. Fever was relieved only by taking antipyretic. There was no diurnal variation. Along with fever, patient developed joints pain which was involving small joint of hands. After third day of fever, patient developed pain and swelling in left sacroiliac region and on the sixth day swelling disappeared from left side and appeared on right knee. Swelling and pain was as intense as it made the patient bed ridden. There was no history of polyarthritis in the past. There was no history of multiple sexual partners. Patient had no history of photosensitivity, malar rash, oral ulcerations, no history of spontaneous abortions. General physical examination was insignificant except for tachycardia, anaemia and shining warm swelling on right knee and left sacroiliac region. Keeping in mind fever with joints pain and swelling, blood work up was done. Complete hemogram revealed, Hb 7 gm%, TLC 16,000, DLC (N85%, L08%, M06%, E01%, B00%), platelet count 60,000/ul. RA factor was negative. Inflammatory markers were elevated with ESR 88 mm/1st hr and C-reactive protein reading 147. ASO titers were done to rule out rheumatic fever which were in normal range 165IU/ml (0.0-200). ECG was insignificant except for tachycardia. Throat swab and blood culture showed no growth of any organism. Hepatitis-B, C and HIV were found non-reactive. Urine complete was also normal. Vaginal swab and urine cultures also showed no growth of any organism.

Synovial fluid examination was done to rule out septic arthritis which showed turbid appearance, total cell count 24,500/cumm (0-550), differential cell count polymorphs 90% and lymphocyte 10%. ANA were also negative which

ruled out SLE.

Patient didn't have any history of enteritis in recent past 2-3 weeks as well as there were no skin and eye lesions. The earlier possibility of reactive arthritis was ruled out from history (Reactive arthritis usually have oligo asymmetrical arthritis) as well as blood, urine and vaginal swab cultures were found sterile.

Keeping in view of recent epidemic of dengue and chikungunya in northern part of India, serology for dengue and chikungunya was sent. Dengue serology was negative but IgM Mac ELISA for chikungunya was detected positive. On that basis, the provisional diagnosis of chikungunya fever with migratory polyarthritis was made.

Patient was managed conservatively with IV antibiotics and NSAIDS for relieving pain. After fifth day of admission swelling subsided from left sacroiliac region, but it developed on right knee which was again tense and shiny red colour. Same treatment was continued with encouraging effects. The patient continues to be on NSAIDS, is recovering well and continues to be under follow up.

DISCUSSION

Identifying the cause of polyarticular joint pain can be difficult because of the extensive differential diagnosis [1]. In the absence of definitive rheumatologic laboratory tests, the history and physical examination are key to the early diagnosis and treatment of conditions that cause polyarticular joint pain. The differential diagnosis can be narrowed through investigation of six clinical factors: disease chronology, inflammation, distribution, extra-articular manifestations, disease course, and patient demographics.

Algorithm for musculoskeletal complaints

As our patient presented with history of acute (duration is less than 6 weeks) onset of migratory polyarthritis, work up was done according to that. It is important to understand the causes of migratory polyarthritis in order to be able to treat it accurately. Some of the common causes include infections with Bacterial causes (Rheumatic fever, Bacterial endocarditis*, Gonococcus* and *Staphylococcus infections*), Viral causes (Hepatitis B and C, parvovirus B19, rubella and occasionally accompany infection due to adenoviruses, entero-viruses, herpes viruses, and mumps virus. Arthropod-borne alpha viruses (Barmah forest virus infection, chikungunya virus disease, Ross river disease, and Sindbis virus infection) [2] are also common causes of arthritis, AIDS, SLE and Whipple's Disease.

Acute rheumatic fever (ARF) with arthritis is common presentation in young females, it shows objective evidence of inflammation, with hot, swollen, red, and/or tender joints and involvement of more than one joint (i.e., polyarthritis) which is typically migratory, moving from one joint to another over a period of hours, almost always affects the large joints-most commonly the knees, ankles, hips, and elbows-and is asymmetric [2]. The pain is severe and usually disabling (Figure 1).

One another common cause of migratory polyarthritis in young sexually active women is gonococcal [3] infection as septic arthritis. Septic arthritis should be considered whenever one is assessing a person with rapid onset of joint pain. Usually only one joint is affected, however in seeding arthritis, several joints can be affected at the same time; this is especially the case when the infection is caused by *Staphylococcus* or *Gonococcus* bacteria. The bacteremic form of gonococcal arthritis comprises the classic triad of migratory polyarthritis, tenosynovitis, and dermatitis. Migratory arthritis has an asymmetric distribution, most commonly affecting wrists, ankles, and elbows.

Synovial fluid examination is very important while evaluation of patient with arthritis. In the joint aspirate, the typical white blood cell count in septic arthritis is over 50,000-100,000 cells per 10^{-6}/l (50,000-100,000 cell/mm^3) [4] (Figure 2).

One most common autoimmune disease which can represent as migratory polyarthritis in adults is SLE. Arthritis and arthralgia have been noted in up to 95 per cent of patients with systemic lupus erythematosus (SLE).The arthritis and arthralgia of SLE tend to be migratory; symptoms in a particular joint may be gone within 24 h. SLE was ruled out, as our patient didn't have any history of photosensitivity, no history of spontaneous abortions, no oral ulcerations, alopecia, neurological manifestations, PBF didn't show any evidence of haemolysis, urine complete examination was negative for proteinuria, ANA levels were also normal [5].

Chikungunya is generally transmitted from mosquitoes to humans. The incubation period of the chikungunya virus ranges from one to twelve days, and is most typically three to seven [6]. Characteristic symptoms include sudden

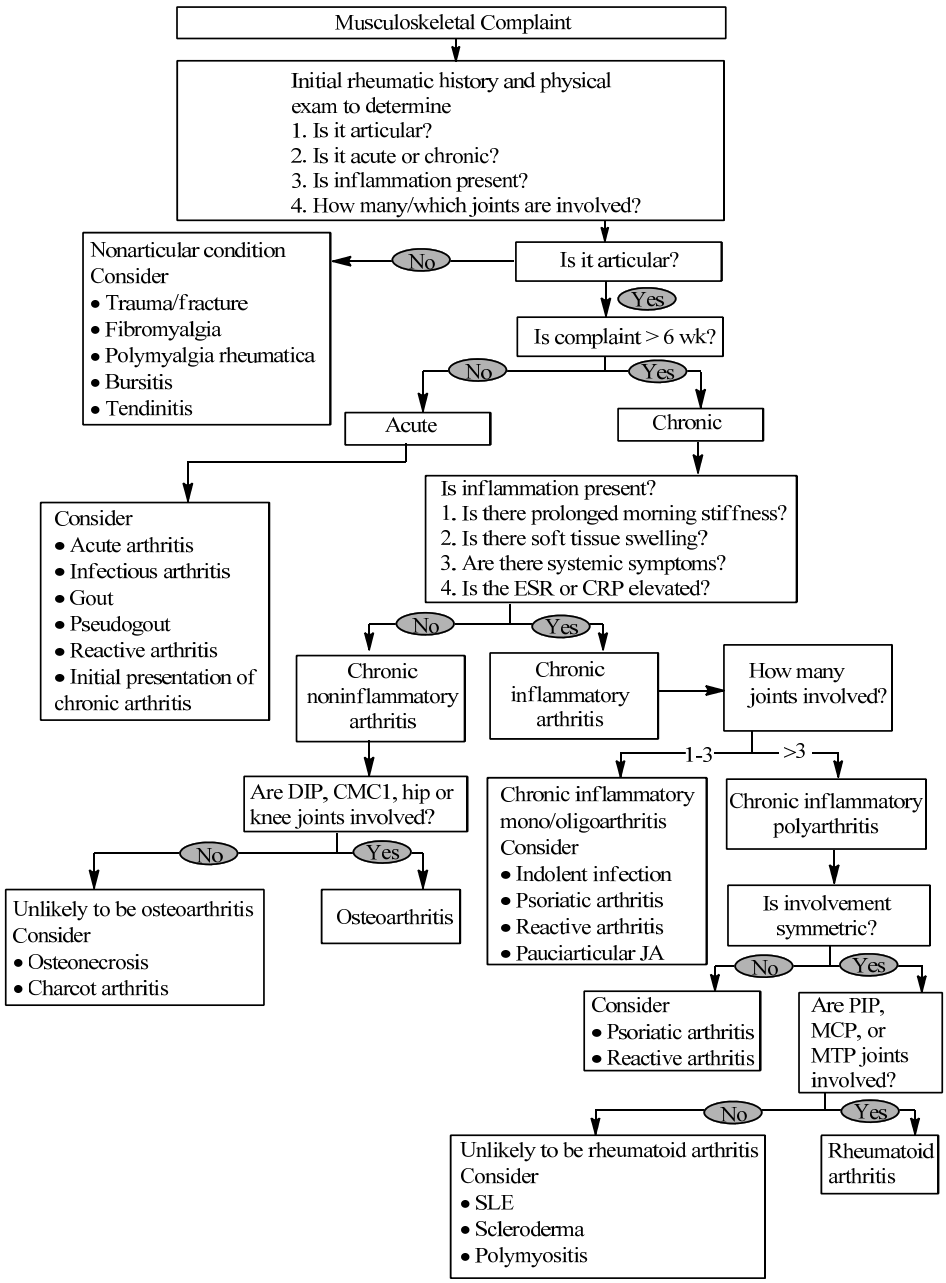

Figure 1 Algorithm for musculoskeletal complaints [2]

onset with high fever (often severe) with a saddleback pattern and severe arthralgia are accompanied by chills and constitutional symptoms, and rash. Other symptoms may occur, including headache, fatigue, digestive complaints, and conjunctivitis. Migratory polyarthritis mainly affects the small joints of ankles, feet, hands, and wrists, but the large joints are not necessarily spared [2].

Chikungunya fever may result in a chronic phase as well as the phase of acute illness. Within the acute phase, two stages have been identified: a viral stage during the first five to seven days, during which viremia occurs [7], followed by a convalescent stage lasting approximately ten days, during which symptoms improve and the virus cannot be detected in the blood. Fever occurs with the onset of viremia, and the level of virus in the blood correlates with the

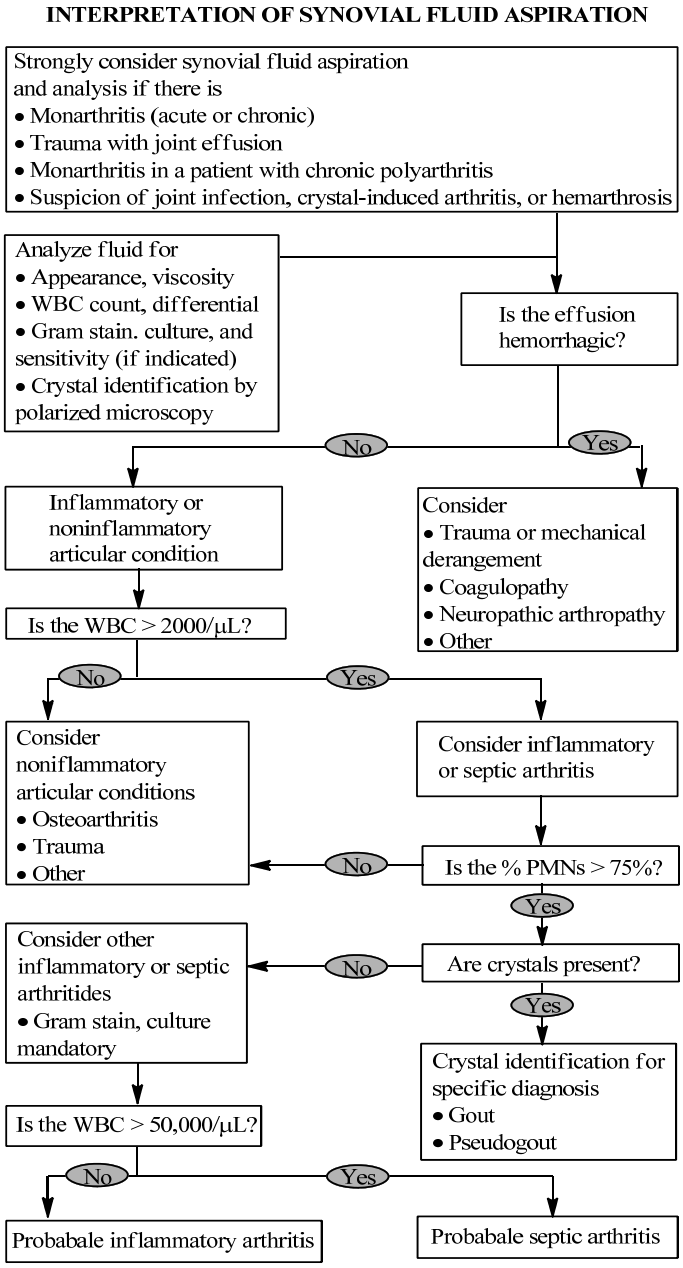

Figure 2 Interpretation of synovial fluid aspiration

intensity of symptoms in the acute phase. When IgM, an antibody that is a response to the initial exposure to an antigen, appears in the blood, viremia begins to diminish. However, headache, insomnia and an extreme degree of exhaustion remain, usually about five to seven days. chikungunya may cause long-term symptoms following acute infection, condition termed chronic chikungunya virus-induced arthralgia.

CONCLUSION

Currently, no specific treatment for chikungunya is available. Supportive care is recommended, and symptomatic treatment includes the use of NSAIDS drugs naproxen, non-aspirin analgesics such as paracetamol (acetaminophen) and fluids. Aspirin is not recommended while; corticosteroids are not recommended during the acute phase of disease since they may cause immunosuppression and worsen infection.

In those who have more than two weeks of arthritis, ribavirin may be useful. The effect of chloroquine is not clear

[8]. Methotrexate has been shown to have benefit in treating inflammatory polyarthritis resulting from Chikungunya, though the drug mechanism for improving viral arthritis is unclear [9].

North India just had their first epidemic of CHIK and more are expected in the future. Identification and diagnosis of chikungunya with its complications like arthropathy can impose a challenge to the physicians of the region due to the relative scare knowledge about this "new to the region" disease. Perpetuation or progression to a potentially destructive disease can be halted if we can keep a high index of suspicion regarding the same while coming across fever with migratory arthropathy.

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