CASE REPORT

DOI: 10.5336/caserep.2019-70224

Polymyalgia Rheumatica Presenting with Fever of Unknown Origin

Aylin ÇALICA UTKU[a], Emel GÖNÜLLÜ[b], Ertuğrul GÜÇLÜ[a], Oğuz KARABAY[a]

[a]Sakarya University Training and Research Hospital, Clinic of Infectious Diseases and Microbiology, Sakarya, TURKEY
[b]Sakarya University Training and Research Hospital, Clinic of Rheumatology, Sakarya, TURKEY

ABSTRACT Fever of unknown origin (FUO) is defined as temperature higher than 38.3°C on several occasions for at least three weeks and undiagnosed after one week of study in the hospital. The most prevalent causes of FUO are infections, connective tissue diseases and malignancies. Connective tissue diseases are seen in elderly patients as temporal arteritis and polymyalgia rheumatica .Polymyalgia rheumatica (PMR) is a rheumatic disease seen after the age of 50 for which the etiology is not precisely known. Almost half of the affected patients frequently have low grade fever, malaise and poor appetite. Typical clinical characteristics are pain in both shoulders and morning stiffness. Along with this case followed up at our clinic with a complaint of fever continuing for three weeks and weakness in the arms, we will review PMR.

Keywords: Fever; pain; fever of unknown origin; polymyalgia rheumatica

Polymyalgia rheumatica (PMR) is a rheumatic disease affecting people over the age of 50 and frequently causing neck, shoulder or muscle stiffness, pain around the pelvis, fever, depression, fatigue, anorexia and weight loss.[1]

An increase in acute phase reactants is typical for PMR. Various diseases, including inflammatory rheumatic and autoimmune diseases, infections and malignancies may mimic PMR.[2] The etiology of the disease is not definite, however, immune activation and possible environmental and genetic factors are thought to be relevant.[3] Many infectious agents causing PMR are suspected: *Mycoplasma pneumoniae, Chlamydia pneumoniae* and *Parvovirus* B19. In addition, PMR has been reported after influenza vaccine.[4]

In 30% of the patients presenting with fever of unknown origin, the etiology is found to be autoimmune or granulomatous disease or a rheumatic disease.[5] PMR is one of the inflammatory diseases frequently seen in older adults and the estimated annual incidence of PMR is 58.7 per 100,000 people aged 50 years and over. It is reported that women are affected more than men and it is seen more in rural regions than in cities.[6]

We present here a case of PMR with complaints of fever and weakness in the arms for three weeks with the patient being nearly unable to raise his arms at all.

CASE REPORT

A 63 year old male patient with complaints of fever, chills, shivering and weakness in both arms for three weeks was admitted to our clinic to investigate the reason for the fever. The patient had complaints of diarrhea 3 weeks ago and had no other known disease except for the left femur surgery that he underwent

Correspondence: Aylin ÇALICA UTKU
Sakarya University Training and Research Hospital, Clinic of Infectious Diseases and Microbiology, Sakarya, TURKEY
E-mail: aylindoctor@hotmail.com

Peer review under responsibility of Turkiye Klinikleri Journal of Case Reports.

Received: 18 Jun 2019 ***Received in revised form:*** 21 Oct 2019 ***Accepted:*** 23 Oct 2019 ***Available online:*** 06 Nov 2019

TABLE 1: Laboratory results during disease.

	WBC K/uL	Hgb g/dL	Hct %	plt	CRP mg/L	ESR mm/h	Pct ng/mL	Urea mg/dL	Creat mg/dL	ALT U/L	AST U/L	CK U/L
First day	7300	9.7	28.1	365	139	117	0.6	26	0.5	25	65	75
Fourth day	5980	8.8	27	431	107	97	0.1	21	0.5	124	203	22
Third day of steroid treatment	4050	8.6	27,3	285	33	97	0.06	24	0.4	108	99	
Sixth day of steroid treatment	5200	9.7	31	227	14	76	0.05	22	0.4	76	46	9

WBC: White Blood Cell, Hgb: Haemoglobin, Hct: Hematocrit, plt: Platelet, CRP: C-reactive protein, ESR: Erythrocyte Sedimentation Rate, Pct: Procalcitonin, Creat: Creatinine, ALT: Alanine aminotranferase, AST: Aspartate aminotransferase, CK: Creatine Kinase.

six months ago. On physical examination, there were limitations of movement and loss of strength in both arms and specifically more significantly in abduction. No specific characteristic was found in the other system examinations.

Laboratory test results were as follows on his admission: WBC: 7300 K/uL hgb: 9.7 g/dL hct: 28.1% plt: 365000 CRP:139 mg/L ESR: 117 mm/h procalcitonin: 0.6 ng/mL Urea: 26 mg/dL creatine: 0.5 mg/dL ALT: 25 U/L AST: 65 U/L, CK: 75 U/L (Table 1). The other urine and blood results were normal. No growth was determined from blood, urine or throat culture.

Rose Bengal and Wright tests were negative. Splenomegaly (13 cm) and cyst were determined in both kidneys on abdominal ultrasonography.

Computed tomography of thorax and abdomen and cervical magnetic resonance imaging were performed, but a focus of infection was not determined.

Rheumatology consultation was requested due to weakness and limitation of movement in both arms with inability of abduction of the arms, and PMR was considered for the patient. After excluding other infection reasons, prednisolone was started. After cortisone treatment, limitation of movement and weakness in the arms of the patient started to regress and the patient was discharged with partial healing and was then followed in the rheumatology polyclinic.

DISCUSSION

Fever is among the common symptoms in PMR patients. Fever usually limits itself or continues without a specific underlying etiology being revealed.[5] With these patients, it is possible to be caught in the middle of many cases and infectious disease specialists may easily think of a septic arthritis in such patients consulting with fever and joint movement restriction. However, joint restriction on both sides of the patient should be considered to be a situation with a systemic disease.

In the research conducted, it is reported that the rate of diagnosis of PMR made by physicians who are not rheumatologists is 24% and that many improper processes are used in the diagnosis.[7] These data indicate that PMR is not well known apart from physicians working on the musculoskeletal system. In PMR patients, there may also be findings other than pain and stiffness. It is possible that a physician will be consulted with findings such as morning stiffness, shoulder and/or pelvic girdle pain, tendinitis, bursitis, sleep disorder, night pain, fatigue, fever, anorexia or weight loss continuing for at least 2 weeks. Infectious diseases specialists should consider PMR in the differential diagnosis in patients consulting specifically with fever and joint limitation. PMR is an inflammatory disease common in older adults. It mostly appears at ages between 50 and 80. It is seen two to three times more frequently in women than men. The disease appears classically with systemic characteristics such as bilateral

myalgia/pain starting suddenly in the shoulders and femur with weight loss, nausea and fever.[8]

There are indications that an environmental factor or a virus may play a role in triggering the disease. Infections and vaccinations (e.g. influenza) are also associated with a slightly higher PMR risk, although these studies have not yet reached a definitive conclusion.[9] Relevant to the periodic nature of PMR, it is suspected to be related to infection. Fluctuations of PMR have supported a relationship with *Mycoplasma pneumoniae, Parvovirus* B19 and *Chlamydia pneumoniae*. Many theories are asserted, and an interesting study emphasizes the relation between geomagnetic activity (solar cycle) and sudden increases in PMR cases.[10] We could not detect a relationship between the history of diarrhea occurring 3 weeks previously and the disease in our patient.

There is no single test or defined criteria to identify PMR. It is generally identified by clinical and general criteria including the following:

1. >50 years of age;

2. Proximal, symmetric morning stiffness starting suddenly;

3. Proximal arm, hip, proximal femur stiffness in 2 of 3 regions (neck, body, shoulder most frequently, pain in activity and sleep) including stiffness and after inactivity periods of <30 minutes;

4. ESR>40 for 2 weeks;

5. Rapid resolution with low dose oral steroids[11]

The good response of our 65-year old patient with stiffness and pain in both shoulders and arms to ESR<40 and steroids complies with these criteria.

PMR is generally treated with medium, low dose oral glucocorticoids tapered or stopped in a few years.[1] In case of relapse with prednisolone, methotrexate may be used. In glucocorticoid resistant patients with PMR, the effectiveness of biological agents is not clear.[2] Our patient responded to steroid treatment, and weakness and limitation of movement in the arms is completely gone.

Consequently, PMR is a rheumatic disease not rarely seen and diagnosed clinically. It should be kept in mind in the differential diagnosis of cases followed up with fever of unknown origin.

Informed Consent

The patient has given written consent for this case report.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Aylin Çalıca Utku, Emel Gönüllü, Ertuğrul Güçlü, Oğuz Karabay;* ***Design:*** *Aylin Çalıca Utku, Emel Gönüllü, Ertuğrul Güçlü, Oğuz Karabay;* ***Control/Supervision:*** *Aylin Çalıca Utku, Oğuz Karabay;* ***Data Collection and/or Processing:*** *Aylin Çalıca Utku, Emel Gönüllü;* ***Analysis and/or Interpretation:*** *Aylin Çalıca Utku, Emel Gönüllü, Ertuğrul Güçlü, Oğuz Karabay;* ***Literature Review:*** *Aylin Çalıca Utku;* ***Writing the Article:*** *Aylin Çalıca Utku, Oğuz Karabay;* ***Critical Review:*** *Aylin Çalıca Utku, Emel Gönüllü, Ertuğrul Güçlü, Oğuz Karabay;* ***References and Fundings:*** *Aylin Çalıca Utku, Emel Gönüllü, Ertuğrul Güçlü, Oğuz Karabay;* ***Materials:*** *Aylin Çalıca Utku, Emel Gönüllü, Ertuğrul Güçlü, Oğuz Karabay.*

REFERENCES

1. Partington R, Helliwell T, Muller S, Abdul Sultan A, Mallen C. Comorbidities in polymiyalgia rheumatica: a systematic review. Arthritis Res Ther. 2018;20(1):258. [Crossref] [PubMed] [PMC]
2. González-Gay MA, Matteson EL, Castañeda S. Polymyalgia rheumatica. Lancet. 2017;390(10103):1700-12. [Crossref]
3. Raheel S, Shbeeb I, Crowson CS, Matteson EL. Epidemiology of polimyalgia rheumatica 2000-2014 and examination of incidence and survival trends over 45 years: a population-based study. Arthritis Care Res (Hoboken). 2017;69(8):1282-5. [Crossref] [PubMed] [PMC]
4. Iwata K, Mizuno Y. A case of polymiyalgia rheumatica following influenza B infection. Int J Gen Med. 2015;8:345-7. [Crossref] [PubMed] [PMC]
5. Mulders-Manders CM, Simon A, Bleeker-Rovers CP. Rheumatologic diseases as the cause of fever of unknown origin. Best Pract Res Clin Rheumatol. 2016;30(5):789-801. [Crossref] [PubMed]
6. Kermani TA, Warrington KJ. Advances and challenges in the diagnosis and treatment of polymiyalgia rheumatica. Ther Adv Musculoskelet Dis. 2014;6(1):8-19. [Crossref] [PubMed] [PMC]
7. Bahlas S, Ramos-Remus C, Davis P. Utilisation and costs of investigations, and accuracy of diagnosis polymyalgia rheumatica by family physicians. Clin Rheumatol. 2000;19(4):278-80. [Crossref] [PubMed]
8. Pipitone N, Salvarani C. Update on polymiyalgia rheumatica. Eur J Intern Med. 2013;24(7):583-9. [Crossref] [PubMed]
9. Tshimologo M, Saunders B, Muller S, Mallen CD, Hider SL. Patients' views on the causes of their polymiyalgia rheumatica: a content analysis of data from the PMR Cohort Study. BMJ Open. 2017;7(1):e014301. [Crossref] [PubMed] [PMC]
10. Tracey G. Diagnosis and management of polymiyalgia rheumatica. Prescriber. 2018;29:24-7. [Crossref]
11. Docken WP (author), Matteson EL (section editor), Curtis MR (deputy editor). Clinical manifestations and diagnosis of polymiyalgia rheumatica. UpToDate 2017. [Link]