

Pyrexia of unknown origin: A diagnosis and treatment challenge in a resource-limited setting

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Abstract

The term pyrexia of unknown origin (PUO) was first described by Petersdorf and Beeson in 1961. It is characterized by a temperature of more than 38.3°C on several occasions lasting for more than 3 weeks or for more than 1 week of inpatient investigation. The etiology of PUO is extensive but could be broadly classified into infectious and noninfectious causes. Infection accounts for 34% of cases; the case of a 6-month-old boy who presented with fever of 2 months duration is reported. He had series of investigations without the etiology identified. Furthermore, he was placed on empiric antibiotics on admission but the fever persisted; however, he was discharged after 3 weeks; and while on follow-up visit, the fever resolved. This report highlights how bizarre PUO may present.

Key words: Antibiotics, child, fever, investigations, pyrexia of unknown origin

INTRODUCTION

The term pyrexia of unknown origin (PUO) was first described by Petersdorf and Beeson in 1961.^[1,2] It is characterized by a temperature of more than 38.3°C on several occasions lasting for more than 3 weeks or for more than 1 week of inpatient investigation.^[3,4] The etiology of PUO is extensive but could be broadly classified into infectious and noninfectious causes. Infection accounts for 34%^[5] of cases. Common presentation of PUO includes atypical presentation of common infectious agent such as tuberculosis and Epstein-Barr viral infection while uncommon organisms which are not routinely sought for in our investigative search such as catch-scratch disease may also be implicated whereas, noninfectious causes include atypical presentations of diseases such as collagen vascular

diseases and other connective tissue disorders, neoplasm, and endocrine diseases.^[6] This could pose a diagnostic challenge in a setting with limited investigative resources.^[3] Therefore, this communication highlights the travails of a 6-month-old boy who had fever for 2 months without any identifiable cause and persisted despite series of antibiotics but later resolved after discharge.

CASE REPORT

A 6-month-old boy presented with fever of 2 months and this was of high grade; however, there was no history of convulsion, vomiting or diarrhea and no history of a cough or difficulty with breathing; the physical examination was not remarkable except for the documented fever which hovered between 38.5°C and 39°C. He had series of investigations; the full blood count showed leukocytosis with neutrophilia and erythrocyte sedimentation rate was also persistently elevated; the urinalysis and urine culture

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were not remarkable. Blood cultures on two occasions grew *Staphylococcus aureus* and *Enterococcus faecalis*, respectively. Their sensitivity patterns were established and he was placed on appropriate antibiotics, which also included vancomycin, while on vancomycin, he developed generalized redness of the skin (Redman syndrome), for which the medication was withheld, despite these antibiotics, fever persisted. The chest X-ray, lumbar puncture and echocardiography reports were not remarkable. After 3 weeks on antibiotics without resolution of fever, the drugs were withheld for 3 days but fever persisted and all investigations were repeated; However the blood culture became negative while the thyroid function test was normal. At this point, the parents were exhausted and requested for discharge; parents were adequately counseled to ensure compliance with instructions. He was discharged on oral medication (cefixime) and was followed up on short appointment visits. The parents were taught how to take and document the patient's temperatures, which were reviewed on every follow-up visit. Fever subsequently subsided on the 3rd week after discharge.

DISCUSSION

Fever is elevation of core body temperature as a result of a reset of the hypothalamic temperature regulatory thermostat; it is body's response to stress such as trauma and infection and one of the body's defenses against microbial invasion.^[7] However, fever could be a useful indicator of benign and as well as a lethal medical disorder, and a common indication for hospital visit in children; this is because infection such as malaria is still prevalent in Nigeria^[8] and the "fever phobia" whereby caregivers associate it with the risk of neurologic damage is still rife.^[9] This constitutes a huge burden on the health-care system. Although it is common practice for caregivers in resource-limited settings to institute home management for fever^[10] and those who fail to respond present late to the hospital, this practice also involves the indiscriminate use of antibiotics, hence increasing the risk of antibiotic resistance. More worrisome and challenging is treating cases that fail to respond to conventional therapy. Therefore, managing PUO is challenging where diagnostic test is limited. Our case initially had a positive blood culture on two occasions but failed to respond to the conventional medications based on the sensitivity pattern, which made the possibility of the incriminated organisms from the culture reports as contaminants. However, the fever subsided 3 weeks later after discharge on oral antibiotics; the reason for this response is not clear and will be difficult to attribute the resolution to the antibiotics, rather the disease might have followed its natural course and resolved spontaneously, hence the possibility of a viral infection

cannot be overruled. However, spontaneous resolution of PUO is not uncommon.^[5] Our patient improved on outpatient care; therefore, cases of nonlife-threatening prolong febrile illnesses could be managed on an outpatient basis, provided the red flags are absent. This will involve a highly selected group of patients with no other complaints other than fever. This may relieve the level of anxiety experienced by both caregivers and physicians with prolonged hospital admission and also eliminate the risk of nosocomial infection.

Effective counseling at every patient/caregiver contact increases patient compliance with medical therapy; this will also avoid caregivers unnecessarily attending multiple health facilities for the same illness, hence resulting in patient confusion and poor compliance with health instructions.^[11] The parents of the index cases were adequately educated on the concept of "fever phobia;" this allayed their worries, therefore ensuring honoring follow-up visits.

CONCLUSION

Managing PUO is challenging, especially where extensive diagnostic facilities are not readily available. However, home management can still be an option in patients without life-threatening features; this will go a long way in limiting parental anxiety associated with prolonged hospital stay. Furthermore, parental counseling in dealing with the menace of "fever phobia" which may result in parents visiting multiple health facilities is important in ensuring compliance with treatment.

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Conflicts of interest

There are no conflicts of interest.

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