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Fever of Unknown Origin: a Dental aetiology

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ABSTRACT: Fever of unknown origin (FUO) commonly refers to any febrile illness without an obvious aetiology. The spectrum of differentials includes infections, inflammatory diseases, neoplasms and several miscellaneous conditions. This is a case of young male who presented with about 2 weeks history of fever and was diagnosed to have Salmonellosis. However, he continued to be febrile despite treatment. On further examination, he was found to have pericoronitis. A dental cause for FUO is a rare scenario; and this article emphasises the importance of dental examination in all cases of fever.

KEYWORDS: Pericoronitis, Fever of Unknown Origin, Salmonellosis

INTRODUCTION

Fever is one of the most common symptoms encountered in medical practice with a wide range of differentials; and Fever of Unknown Origin (FUO) has been reserved for cases of undiagnosed prolonged fever, despite detailed evaluation and laboratory testing.

CASE REPORT

This is the case of a 26 year old male, engineer, who presented to Medicine OPD with 12 days history of high grade fever. He initially had 3-4 episodes of watery diarrhoea. There were no other associated symptoms. He did not have any comorbidity and was not on any regular medications. He had consulted an outside doctor and was prescribed tablet Cefpodoxime (200 mg twice daily) for 5 days, but there was no relief of symptoms.

On examination, he was conscious and oriented. He was febrile with a temperature of 101^0F. His heart rate was 90/ minute, blood pressure 120/70 mmHg and respiratory rate 22/ minute. He did not have any rashes or eschar. His systemic examinations were normal.

His blood investigations showed leucopenia of 3,200/cumm (4000 - 10000/cumm) and mild thrombocytopenia of 110,000/cumm (150,000 – 450,000). His liver enzymes were elevated i.e. SGOT 76 U/L (12 - 38) and SGPT 84 U/L (7 - 41); but bilirubin, proteins and albumin levels were normal. His renal functions, activated thromboplastin time and prothrombin time were also normal. Malarial smear, Weil Felix test, Dengue, Scrub typhus and Leptospirosis serology were negative. Other viral markers like HIV, HBsAg and Anti HCV were also negative. His ultrasound abdomen showed mild hepatomegaly; and urine microscopy, chest X-Ray and ECG were normal. His blood culture grew Salmonella typhi and urine culture was sterile. He was started on intravenous Cefotaxime (2 gram q8h), as per culture and sensitivity reports, on day 15 of illness.

Despite 5 days of Cefotaxime therapy, he continued to be febrile, but with reduced fever spikes. His ECHO heart and contrast CT neck, thorax and abdomen were normal. Mantoux test was negative. His repeat blood culture was sterile; and repeat complete blood count and liver functions were

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normal. He was given a drug holiday from Cefotaxime for 2 days but continued to have 1 to 2 fever spikes of 100^0F per day.

On re-evaluation, patient gave history of undergoing incomplete root canal procedure at an outside clinic about 1 month ago. Dental opinion was taken and his orthopantomogram showed the presence of secondary caries in relation to right lower right second molar and a mesio-angular impaction in relation to the same side third molar which intra orally revealed the presence of pericoronitis (Figure 1 and 2).

Figure 1. Secondary caries affecting 47 and mesio-angular impaction in relation to 48

Figure 2. Pericoronitis

He was subjected to the surgical removal of the infected second molar and third molar under local anaesthesia without any complications. He was started on oral amoxicillin-clavulanic acid 625 mg thrice daily along with metronidazole oral gel. From the following day onwards he became afebrile. Amoxicillin-clavulanic acid and injection cefotaxime were continued for a total of 7 and 10 days respectively. Patient was discharged with stable vitals and blood reports.

DISCUSSION

Fever is defined as a morning temperature >37.2^0C (> 98.9^0F) or an evening temperature >37.7^0C (> 99.9^0F). When the duration of fever is prolonged and the aetiology is unknown, it is termed as FUO. Petersdorf and Beeson in 1961 had defined FUO as an illness of more than 3 weeks duration with temperature ≥38.3^0C (101^0F) on 2 occasions, with an uncertain diagnosis despite 1 week of inpatient evaluation. This definition has been modified over the years; and today FUO should satisfy the following criteria:

1) Fever >38.3^0C (101^0F) on at least 2 occasions
2) Illness duration ≥ 3 weeks
3) No known immunocompromised state
4) Diagnosis that remains uncertain after a thorough history taking, physical examination, and investigations like ESR, CRP, LFT, CBC, CK, ANA, RA Factor, Urine microscopy, Urine culture, Blood culture, Serum protein electrophoresis, Chest Xray, Abdominal ultrasound, Tuberculin test, Electrolytes.[1]

The differential diagnosis for the aetiology of FUO is vast; ranging from infections, non-infectious inflammatory diseases, neoplasms, thermoregulatory disorders and some miscellaneous conditions. Our patient presented with almost 2 weeks history of fever, and blood culture grew Salmonella typhi. However, despite 5 days of therapy with Cefotaxime, he continued to be febrile; thereby satisfying the criteria for FUO.

Cefotaxime is a third generation cephalosporins, widely used in the treatment of Salmonellosis. Hypersensitivity reactions and disulfuram like reactions are some of the adverse effects noticed with cephalosporins.[2] There has been reports of drug induced fever with Cephalosporins [3], and hence, the antibiotic was withheld for 2 days. But the patient continued to have the same fever pattern. Further history and clinical evaluation revealed secondary caries at the lower right second molar and associated pericoronitis. Because of the root canal procedure, the patient did not experience dental pain in the course of his illness. Following the surgical removal

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of the infected second and third molar and the commencement of amoxicillin-clavulanic acid with metronidazole oral gel, he became afebrile. The course of his illness has been depicted in Figure 3.

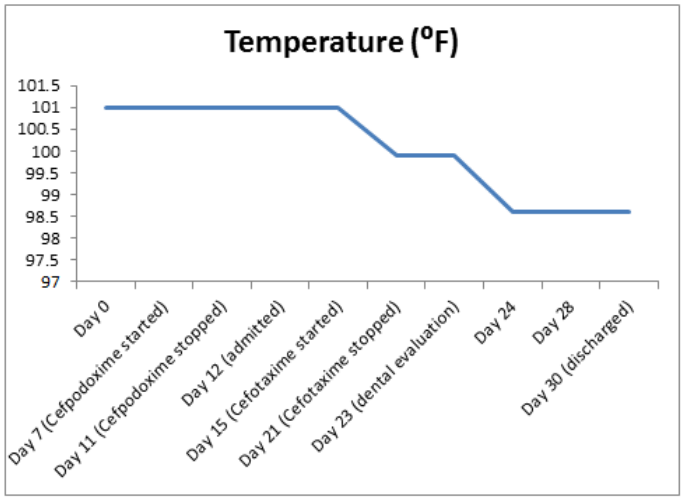

Figure 3. Course of illness

CONCLUSION

FUO, because of a wide spectrum of differentials, remains a diagnosis of challenge. Thorough history and physical examination forms the mainstay of diagnosis, along with investigations. In this case the cause for FUO was mainly pericoronitis along with Salmonella typhi coinfection. This must be one of the few cases where a dental aetiology turned out to be the cause of FUO. This case also emphasises on the importance of dental examination in all cases of fever.

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