

## A Case of Hypereosinophilia of Unknown Significance

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**Abstract:** Hypereosinophilia is a condition which is encountered frequently in a clinical practice. The causes of hypereosinophilia are sometimes difficult to establish which ranges from parasitic infestations to neoplasms. In the present report, 55 years old male patient with hypereosinophilia of unknown significance is described. These patients should be evaluated properly to establish causes of hypereosinophilia and needs to be treated properly and regular follow-ups should be done so that it does not progress to hypereosinophilic syndrome.

**Keywords:** Hypereosinophilia, Unknown Significance.

### INTRODUCTION

Eosinophils are multifunctional leukocytes that become active during allergic reactions, infections and many other medical conditions. Hypereosinophilia is defined as blood eosinophil counts more than  $0.5 \times 10^9/L$  eosinophilia [1]. Three levels of eosinophilia have been defined as follows mild  $0.5-1.5 \times 10^9/L$ , moderate  $0.5-5 \times 10^9/L$ , and severe  $>5 \times 10^9/L$ . Blood hypereosinophilia (HE) is one of the frequent findings encountered in clinical practice of different fields of medicine. Under various conditions, eosinophils may produce and release a variety of biologically active substances which may invade target organ and lead to its dysfunction and/or damage [2]. Levels of blood eosinophilia are an imperfect correlate of the potential for eosinophil-mediated tissue damage. On the one hand, blood eosinophil numbers may be normal in the face of significant eosinophil recruitment into organs, as found in acute and chronic eosinophilic pneumonias. On the other hand, eosinophilia may be present without evidence of tissue damage. The somewhat arbitrary threshold of hypereosinophilia of  $1.5 \times 10^9/L$  is classically considered as the level above which organ damage is more likely to occur, but there is no reliable level of blood eosinophilia that precisely reflects the capacity of eosinophils recruited and activated within tissues to cause organ damage [1, 3]. The focus is more on idiopathic hypereosinophilic syndrome and often the patients with hypereosinophilia of unknown significance are neglected and very few studies are available on hypereosinophilia of unknown significance as long term follow up is required for these cases.

### CASE REPORT

A 55 years male, Professor by occupation is a resident of Amravati, Maharashtra. Patient came for the routine blood investigation on 19<sup>th</sup> March 2014 and he was found to have Eosinophilia with Differential count 52% Eosinophils and absolute count of 10,972/cumm. All other counts were within normal limits. The WBC Count was 23,800/cumm. Further investigations were done to evaluate causes of eosinophilia. On history, the patient was found to be asymptomatic. There was no history of fever, weight loss, fatigue, loose stools, vomiting, allergy, epigastric pain, headache, cough, myalgia, chest pain, dyspnoea, giddiness. No history of pets around house. The patient was on homeopathic medications since last six months for rhinitis.

On physical examination, Patient was conscious, afebrile, not pale, anicteric. The Pulse was 76 beats/min and blood pressure was 120/80 mm Hg. There was no lymphadenopathy. On respiratory system examination, air entry was equal on both sides and no added sounds were present. On cardiovascular examination, normal heart sounds were heard and no added sounds. There was no palpable mass felt on per abdominal examination. No CNS abnormality detected.

Other investigations were done for the evaluation of the case. A complete blood count and clinical biochemistry tests were performed to screen for primary or secondary organ dysfunction, and to establish baseline to monitor progression or regression of disease. The widal test was done to rule out typhoid and the values were within normal range. Blood sugar levels, both fasting and post prandial, were measured and urinalysis was done which was within normal range. X-ray Chest was done to investigate for primary

or metastatic pulmonary disease which showed no abnormality. Abdominal ultrasound was done to rule out any abnormality related to abdominal organs and CT scan brain was done to rule out any metastasis which showed no abnormality. Patient was started on course of Tablet Heterazan 100mg tds for 21 days and Albendazole 400mg for 3 days. After that repeat blood investigations were done on 29/03/2014, which showed 9% eosinophils (657/cumm). A complete blood count

was done after interval of 4 months on 07/08/2014, which showed 13% eosinophils, slightly raised from the previous value. The patient was given repeat course of Heterazan and Albendazole. The patient is currently asymptomatic and is not on any medications. The Blood investigation was repeated on 14/06/2014 which showed absolute eosinophil count of 1060 per cumm (10%). The patient has eosinophil counts more than the normal values.

**Table 1: Follow up Eosinophil count of patient on Complete Blood Count**

Eosinophils	19/03/2014	29/03/2014	7/08/2014	14/10/2014	Normal count
Eosinophils (%)	52	9	13	10	1-6
Absolute Eosinophil Count (per cumm)	10,972	657	1150	1060	40-500

\*Haemoglobin and all other parameters except for eosinophil count on Complete Blood Count were within normal range.

## DISCUSSION

When the cause of eosinophilia is unknown and clinical manifestations are absent, patients with hypereosinophilia are considered to have hypereosinophilia of unknown significance.

In the above mentioned case, the person is healthy individual with no complaints and the results of all investigations are within normal range. Hence, above mentioned case is a case of Hypereosinophilia of unknown significance (HEUS).

Patients with HEUS meet the criteria for hypereosinophilia but there are no clinical symptoms and signs and laboratory values suggestive of reactive, inflammatory, immunologic disease, hereditary disease or haemopoietic neoplasm that could explain hypereosinophilia.

If hypereosinophilia goes unattended and untreated then clinical manifestations may develop in a patient with HEUS, the diagnosis will change to idiopathic HES by definition or to single-organ involvement, depending on the identification of an underlying cause found during re-evaluation. It has been observed that patients with HEUS can remain asymptomatic for some time in the absence of treatment without evolution to HES or a hematologic or immunologic disorder [4]. Further understanding is required to clarify the pathogenesis of HEUS and to define risk factors predicting evolution to HES or an overt (eosinophil) neoplasm. Finally, a diagnosis of HEUS requires a comprehensive evaluation to exclude HES, an underlying condition responsible for HE, or both. It is also important to examine these patients carefully during follow-up to exclude or document the development of an underlying (neoplastic or reactive) condition (disease), HES, or both [4]. Most patients have benign short term outcomes, but longer monitoring is required to assess long-term outcomes from untreated eosinophilia [5]. Blood eosinophils not meeting the

criteria for HE must also be investigated and followed by the physicians, especially when the condition is persistent and unexplained and accompanied by signs and symptoms suggesting the presence of an underlying disease or organ damage.

## CONCLUSION

It is concluded that Hypereosinophilia of unknown significance should be evaluated thoroughly to rule out primary or secondary causes and to establish the underlying organ damage and these patients should not be neglected and should be given proper treatment and must be followed up at regular interval.

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