Case Report

Hypereosinophilia a Rare Cause of Ascites

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ABSTRACT

Hypereosinophilic syndromes (HES) are a group of divergent disorders united by overproduction of eosinophils and the several organ damages ascribed to this persistent eosinophilia. We here are reporting a 45-year-old female who presented with ascites. Bone marrow aspiration revealed granulocytic hyperplasia with marked eosinophilia. After ruling out other common causes of hypereosinophilia, diagnosis of idiopathic hypereosinophilic syndrome was made. Patient was discharged on high dose corticosteroids and advised to follow up.

Introduction :

Hypereosinophilia can be primary (neoplastic) or secondary (nonneoplastic). Secondary eosinophilia is by far the most frequent cause of eosinophiliaand is often associated with infections, especially those relatedto tissue-invasive helminths; allergic / vasculitic diseases; drugs; andmetastatic cancer.

First described by Hardy and Anderson in 1968[1], hypereosinophilia of peripheral blood and infiltration of these cells into different organs causing potentially serious complications. This incessant eosinophilia is associated with spectrum of end organ dysfunction. Of these, cardiac involvement is the leading cause of mortality in these patients[2]. Cutaneous lesions may be the only presenting symptom in some patients[3]. Less than 20 percent of HES manifest with gastrointestinal symptoms[4].

Case Report :

This 45 years old female was admitted to Government Medical College & Hospital, Nagpur on 24th April 2018 with complaints of distension of abdomen since last 2 months, abdominal pain and burning micturition. There was no history of palpitations, shortness of breath, haematemesis, black coloured stools and yellowish discoloration of eyes and urine was there. She was admitted to a private hospital with same complaints and was referred to GMC&H, Nagpur for further evaluation of persistent eosinophilia. Patient had past history of development of ascites 4-5 years back which was then tapped but no documentary evidence was available with patient.

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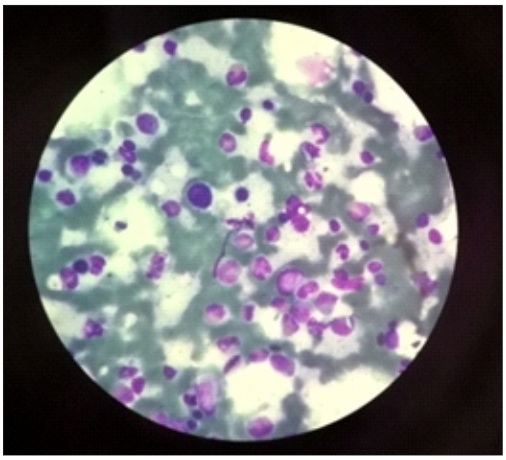
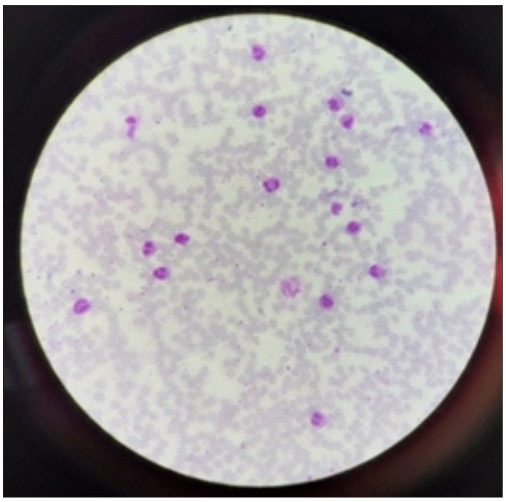
On examination patient was conscious, oriented, average built, pulse was 90/min regular, BP was 130/80 mm Hg, JVP was not raised, mild pallor present, edema feet present, no icterus, cyanosis, clubbing. Her abdomen was distended, fluid thrill was present along with a dull note all over abdomen. Her cardiovascular, respiratory and neurological examinations were within normal limits.

Investigations :

PS showed leukocyte count of 40,000 with 82% eosinophils, CBC - TLC - 39.69 x 10^3, mild microcytic anaemia, Hb 10.4g/dl, MCV 74 fl, MCH 23 pg, platelet count 341 x 103/ul. Renal and liver function tests were within normal limits. Serum hepatotropic viral markers were negative. Urine routine microscopy and AFB was negative, stool examination for ova/cyst was negative. Microscopic analysis of ascitic fluid showed total leukocyte count of 5,000 cells/cumm with 70% eosinophils, 25% of neutrophils with 5% lymphocytes. Biochemical analysis of ascitic fluid showed 3.1 gm of albumin and 40 mg/dl of sugar with SAAG value of 0.6, ADA was 34 IU/l. The sonography of abdomen and pelvis was suggestive of fatty liver with mild to moderate ascites. ECG, X-Ray Chest and 2-D echo were normal. Bone Marrow Aspiration samples revealed normocellular marrow with increase in eosinophils with no abnormal cells suggestive of Hypereosinophilic syndrome.



Bone marrow aspirate smear



Peripheral smear

Patient was planned for upper GI scopy which was well within normal limits and biopsy was taken from the gastric folds of stomach. Histopathological study of biopsy from stomach revealed bits of gastric mucosa with mild congestion with no significant pathology. CT Abdomen (P+C) study revealed cystitis and circumferential wall thickening in antro-pyloric junction and 1st part of duodenum without significant luminal compromise with gross ascites.

Patient was treated with Diethyl carbamazine for 21 days and high dose prednisolone (40 mg once a day) tapered over a period of 1 month , supportive care. She was advised to follow up with CBC and PS reports.

Discussion :

Eosinophils arise from hematopoietic CD34+ stem cells in the bone marrow. They acquire IL-5Rá on their surface at a very early stage during eosinophilopoiesis, and differentiate under the strong influence of interleukin (IL)-5; they then exit to the bloodstream. The hypereosinophilic syndrome (HES) are a heterogeneous group of rare disorders characterized by the sustained overproduction of eosinophilic series.

Originally presented in 1975 by Cushid[6] and subsequently modified, the diagnostic criteria Include presence of persistent peripheral blood eosinophilia = 1.5×10^9/L, the absence of a secondary cause of eosinophilia.

The common organ systems involved in HES are hematologic (100%), cardiovascular (58%), cutaneous (56%), neurologic (54%) and pulmonary (49%) systems. Liver and gastro-intestinal tract are involved in less than 20% of patients.[4] HES with a predominant GI symptom are very rare.[7]

Considerable eosinophilia is commonly associated with allergic and hypersensitivity conditions, parasitic (helminthic) infections, autoimmune and collagen vascular disorders, malignancies and certain types of immunodeficiency.[5] Regardless of the cause, when eosinophilia becomes chronic it leads to a spectrum of end organ damages largely attributable to eosinophil derived mediators which have toxic effects on organ tissues. Hypereosinophilia may induce thrombosis in various organs. Although the exact mechanism is unknown but this might raise from the actions of eosinophil peroxidase in forming hypothiocyanous acid, a compound which diffuses into endothelial cells and strongly induces tissue factor expression by these cells.[8] Tissue factor, believed to be crucial in thrombus formation, is also expressed by eosinophils directly.

The prevalence of HES was not clearly described, but in one study, Crane et al. reported an estimated prevalence of 0.36 to 6.3 per 100,000. HES is seen most commonly in the 2nd to 4th decade of life with a men to women ratio of 9:1 and a few cases reported

in children.[9] Although it is a syndrome of unknown aetiology, recent investigations have led to newly emerging theories about the possible causes such as primary molecular defects or the role of eosinophilspecific interleukin (IL)-5.

The so called[10] "neoplastic hypereosino-philic syndromes" are a subtype of hypereosino-philic syndromes with myeloproliferative features in which the patients usually demonstrate a chromosomal abnormality, namely- The FIP 1 L1 - PDGFRA fusion which displays extensive tyrosine kinase activity. This fusion was believed to be associated with a poor prognosis and was commonly seen in pediatric patients.[11] Idiopathic hypereosinophilic syndrome is a diagnosis by exclusion, thus all other possible causes of eosinophilia such as infections, malignancies (especially Hodgkin's and non-Hodgkin's disease and acute lymphocytic leukaemia) have to be ruled out before making a certain diagnosis. Attempts to discover systemic organ involvements such as Endomyocardial damage are to be taken into account using proper diagnostic methods.

By virtue of the lack of large multicentric clinical trials, treatment options for HES were principally based on case reports and case series; however, general consensus is that initial treatment should be commenced with high dose corticosteroids. Addition of a secondary agent is considered if the desired clinical improvement is not reached with steroids, but the selection of this second agent is challenging and usually controversial.

Imatinib as one of the widely used additional agents was thought to have a response rate of 14-60% in patients with FIP1L1/PDGFRA - negative HESS.[11] Since early diagnosis and treatment is the key for improving the outcome of HES patients and regarding the wide scope of signs and symptoms, a high clinical suspicion is indispensable in the diagnosis of HES.

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