Section: General Medicine

Case Series

A CASE SERIES OF ATYPICAL CASE PRESENTATIONS WITH EOSINOPHILIA: IS THERE MORE TO IT?

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Abstract

Eosinophilia is characterised by an abnormally high eosinophil count in the blood. We have 4 cases in this case series with various manifestations and underlying eosinophilia. The importance of eosinophilia in the diagnosis and prognosis of this illness has been established. As we have seen, case 1 is actually a headache that is misdiagnosed as an IgG4 disease. Case 2 is an case of IgA nephropathy brought on by a wasp sting, while case 3 is an case of metastasis that manifested as eosinophilia as a paraneoplastic disease. Case 4 is a case of eosinophilic meningitis masquerading as an unexplained fever. As a result, in each of these cases, the presence of marked eosinophilia is either an associated finding or a finding essential for the diagnosis of these patients, and the fact that the eosinophilia decreases as the disease resolves suggests that it is a clinically significant marker of disease severity. Despite being frequently linked to and used to diagnose respiratory and parasite etiologies, eosinophilia may be a sign of a significant underlying cause. As a result, it needs to be thoroughly analysed and the underlying cause must be addressed.

INTRODUCTION

Eosinophilia is defined as an increase in the peripheral blood eosinophilia of more than 500 cells per microliter of blood.[1] The cases of secondary eosinophilia are treated based on the underlying cause. The usual causes of eosinophilia in developing countries include filariasis, other parasitic infestations, fungal infestations, respiratory pathology- bronchial asthma, atopy, drug-induced.[2] Some of the rarer causes of eosinophilia includes Hematological malignancies-lymphoma, myeloid leukemia, and Myelodysplasia syndrome. In this case series, we include 4 cases with different presentations with underlying eosinophilia, as an attempt to recognize the significance of eosinophilia in the identification and prognosis of this condition.

CASE SERIES

Case 1: A 68 -year-old male, a known case of hypertension, presented to the hospital with giddiness and headache for the past 1 month. He is a chronic smoker. The patient was diagnosed a migraine in the previous hospital but even with treatment, his headache didn't subside. On examination, all systemic examination was normal. All routine shows elevated ESR and CRP. He was found to be having marked eosinophilia with elevated absolute eosinophil counts. CSF analysis was done and was within normal limits. ANA and RF factors are normal. Anti-CCP and serum ACE levels are negative. MRI brain with contrast shows Diffuse, smooth, symmetrical Dural thickening with homogeneous enhancement involving bilateral cerebral hemisphere noted, maximum Dural thickness measuring 3.8mm-features suggestive of idiopathic hypertrophied pachymeningitis [Figure 2]. PET CT scan shows intensely hypermetabolic diffuse dural thickening noted predominantly along bilateral frontal lobes-possibility of idiopathic hypertrophied pachymeningitis [Figure 1]. An immunoglobulin assay was done and shows elevated IgG, IgG4, and IgE levels were elevated. The patient was treated with a pulse dose of intravenous steroids, a tapering dose of steroids, and analgesics.

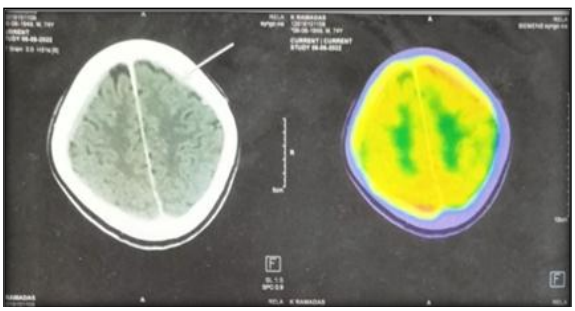

Figure 1 (Original)

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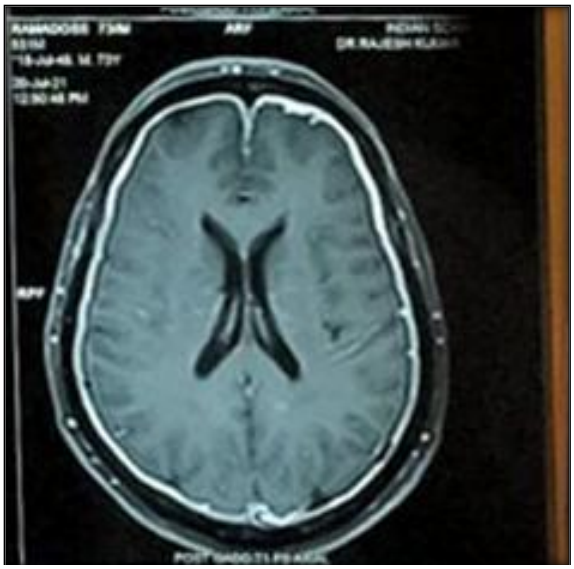

Figure 2 (Orginal)

Case 2: A 54-year-old male presented with a history of wasp bite over the right jaw followed by which he developed generalized swelling of both lower limbs, facial puffiness, abdomen, dark red urine, and reduced urine output. At the presentation he had anasarca and was febrile. Investigations (Table 1)revealed increased marked leucocytosis and marked eosinophilia [Figure 3]. The stool routine did not show any parasitic infestation. Routine urine analysis shows plenty of RBC and 2+ proteinuria. Serum IgA levels were sent and were found to be elevated hence he was suspected to have acute glomerulonephritis secondary to infection. The patient was started on antibiotics, steroids, and other conservative measures with which the patient's condition improved and the eosinophilia also improved.

The patient's vitals were as follows: Hb was 9.6 on day 1, 9.7 on day 7, and 9.8 on day 14. WBC count was 14,890, E-24, 13,190, E-16, and 9070, E-5.0 on day 1, 7, and 14, respectively. AEC was 1460, 870, and 340 on day 1, 7, and 14, respectively.

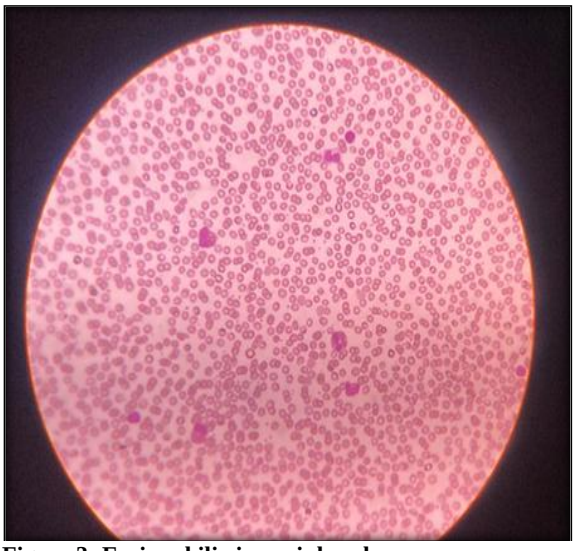

Figure 3: Eosinophilia in peripheral smear

Case 3: A 70-year- old male farmer by occupation presented with a history of cough with expectoration for 2 months duration and right-sided abdominal pain. He gave a history of tobacco chewing 30 yrs back for 20 yrs with no other comorbidities. On examination he was malnourished, pallor was present, air entry was reduced over the left mammary and infraaxillary areas, and right hypochondria tenderness with enlarged liver (8 cm below the costal margin). On investigations [Table 1] there was leucocytosis with marked eosinophilia and increased absolute eosinophil count. Peripheral smear showed moderate microcytic hypochromic anemia with leukemoid reaction and Eosinophilia. Subsequently, CT Chest [Figure 4] was done and well defined lobulated mass lesion in the left lower lobe, CT abdomen [Figure 5] showed well-defined hypodense lesion in the liver. PET CT was done and features of primary bronchogenic carcinoma with secondary hepatic metastasis. Hence eosinophilia in this case can be taken as a paraneoplastic manifestation.

The patient's vitals were as follows: Hb was 8.9, WBC count was 48,590 N-51 E-41.1, platelet was 2,38,000. Serum creatinine was 0.7, AEC was 2870, and LDH was 329.

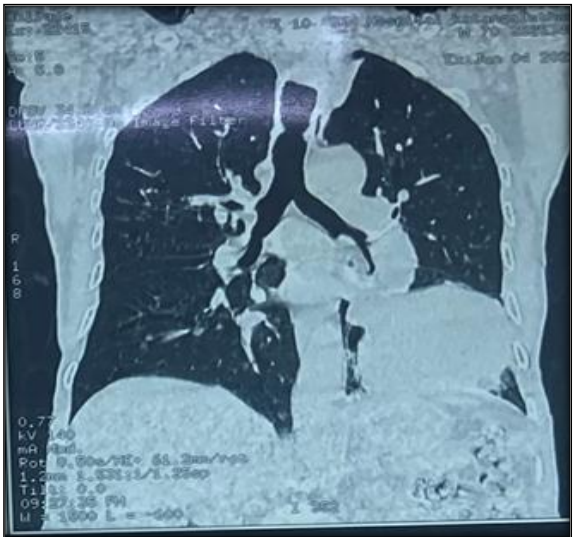

Figure 4: CT Chest showing endobronchial mass

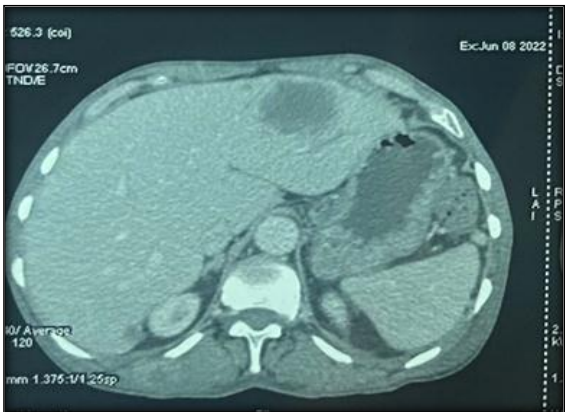

Figure 5: CT Abdomen showing hypodense lesion in the liver

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Case 4: A 23-year-old male known case of cerebral palsy, and mental retardation came with complaints of inability to move both the upper limbs and lower limbs, fever, and cough. On examination he was found to have a GCS of 11/15, hypotonia, and 2/5 power on all four limbs with absent reflexes, plantars were flexor bilaterally and signs of neck stiffness were present. Bilateral pupils were sluggishly reacting to light. Investigations revealed leucocytosis with marked eosinophilia Inflammatory markers were found to be elevated. Subsequently, CSF Analysis which showed eosinophilic pleocytosis and CBNAAT came positive suggestive of TB meningitis. MRI Brain was done [Figure 6] showing features of meningitis. CT chest [Figure 7] was done which showed Koch's etiology. Hence a diagnosis of Tuberculous Meningoencephalitis was made and he was started on steroids and ATT. Despite adequate treatment, the patient expired in 2 weeks.

The patient's vitals were as follows: Hb was 10.9, and 9.8 on day 1 and 14, respectively. WBC N- E- was 18280,82.3,10.3 and 13210,76.1,5.5 on day 1 and 14, respectively. Platelet was 2,78,000 and 5,34,100 on day 1 and 14, respectively.

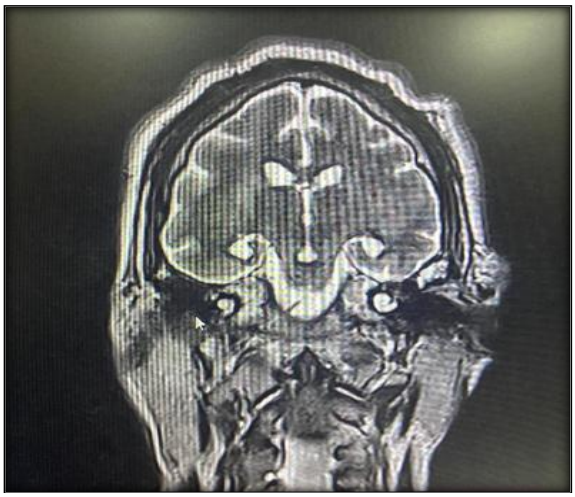

Figure 6: MRI Brain showing meningeal enhancement

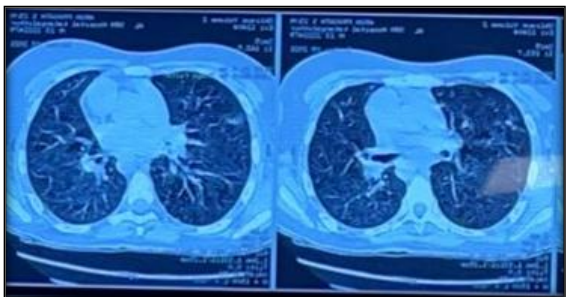

Figure 7: CT Chest showing hilar and mediastinal lymphadenopathy suggestive of Kochs

DISCUSSION

Eosinophilia is defined as an elevation of eosinophils in the bloodstream (450-550 cells/μL). There are many reasons for eosinophilia to exist, including parasitic disease, allergic disease, autoimmune, connective tissue disease, rheumatologic disease, primary eosinophilia such as hypereosinophilic syndrome, and as part of a malignant state.[1] Primary care physicians should have an understanding of the variety of diseases or situations that can produce eosinophilia and know in what setting referral to specialty care may be warranted.

Eosinophils are terminally differentiated cells of the myeloid lineage implicated in the pathogenesis of numerous inflammatory processes.[1] In response to a variety of stimuli, mature peripheral blood eosinophils are recruited into the tissue, where they modulate immune responses through multiple mechanisms. Eosinophils secrete a series of cytokines capable of promoting T cell expansion, and T helper type 1 (Th1)/2 (Th2) polarization.[2] Eosinophilia is defined as an elevation of eosinophils in the bloodstream. Many diseases are associated with eosinophilia, including parasitic diseases, allergies, autoimmune diseases, malignancy, and primary hypereosinophilic syndrome.[3]

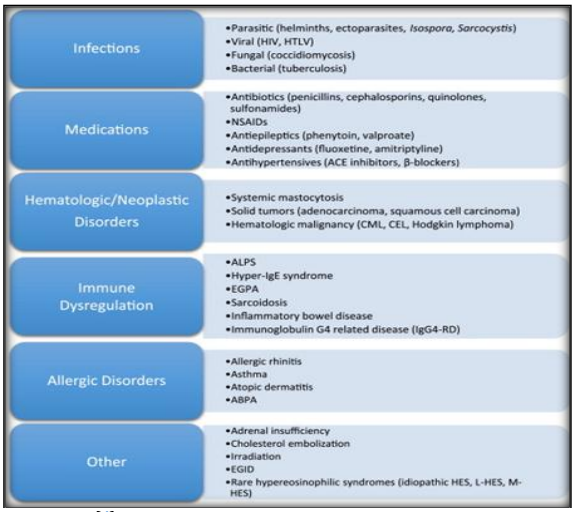

Figure 8:[4]

In this case series, Case 1 is a case of headache masquerading as IgG4 disease. Case 2 is a case of wasp sting-induced IgA nephropathy. Case 3 is a case of metastasis presenting as eosinophilia as a paraneoplastic syndrome. Case 4 is a case of fever of unknown etiology presenting as eosinophilic meningitis. Hence in all these cases, the presence of marked eosinophilia is either an associated finding or a finding crucial for the diagnosis of these patients, and reduction in the eosinophilia has been noticed during the resolution of the illness indicating it as a clinically significant marker of disease severity.

CONCLUSION

The presence of considerable eosinophilia in each of these cases is either a co-morbid finding or a finding

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critical to the diagnosis of these individuals, and the fact that the eosinophilia declines as the disease improves shows that it is a clinically meaningful measure of disease severity. Eosinophilia is usually associated with and used to identify parasitic and respiratory etiologies, but it may also be an indication of a serious underlying cause. It must therefore be carefully examined, and the root cause must be dealt with.Eosinophilia even though commonly associated with and used in the diagnosis of respiratory and parasitic etiology may be a marker for a serious underlying etiology. Hence it has to be evaluated fully and the underlying etiology has to be treated.

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