



A CASE REPORT ON HYPER SENSITIVE PNEUMONITIS

Immunology

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KEYWORDS

INTRODUCTION:

Hypersensitivity Pneumonitis is also Known as Extrinsic Allergic Alveolitis.

It is due to inhalational exposure to Various antigens leading to an Inflammatory response in the alveoli and small airways.

Antigens derived fungal, bacterial, mycobacterial, avian, and chemical sources have been implicated in causing Hypersensitivity Pneumonitis.

From Immunologic Perspective, HP is characterized by dysregulated Th1 and TH17 response. Which is Highlighted by the observation that Toll-like Receptors and downstream signaling Proteins such as MyD88 are activated in HP, leading to neutrophil recruitment.

The recognition that prognosis is minimally related to disease duration, and more dependent upon extent of fibrosis, leads to classifying HP as nonfibrotic and fibrotic HP.

The Incidence of HP is 0.3 to 0.9 per 100,000 individuals

Case Report

An 19 year old girl with no known medical comorbidities presented to Medicine OPD with complaints of cough since 10 days and breathlessness since 5 days with no history of fever, weight loss. Patient gives history of repeated hospitalizations in CHC and treated as Acute Bronchitis

On examination; she was conscious and oriented.

Vitals : BP:126/88 mmHg, Pulse: 106bpm@RA, GRBS: 116 mg/dl

Spo2:79@RA, with oxygen flow at 6 liters through venturi mask Saturation was 98.

No Pallor, No icterus, NO cyanosis, No clubbing, No Lymphadenopathy

ECG: Showed Sinus Rhythm.

Systemic Examination:

RS: Normal Intensity vesicular breath sounds were heard with Ronchi in the Bilateral Infrascapular area.

CVS: S1 and S2 heard.

Per Abdomen: Soft and Non-tender

CNS; Higher mental functions intact, No focal Neurological deficit

Observations:

Complete Hemogram showed:Hb:12.80, RBCcount: 5.36million/cumm. WBCcount:19050cells/cumm.(N:78%,L:14.60% M:7.10. Eosinophils:0.00%).

Peripheral Smear: Normocytic Normochromic blood picture with Neutrophilic leukocytosis

Sputum For Gram Stain: >25 epithelial cells/LPF, <10 pus cells/LPF, few gram positive yeast cells with Pseudo hyphae, few gram positive cocci in chains seen. Sputum for Ziehl Nelson: Negative for AFB.

CXR PA view done was suggestive of Bilateral Basilar reticular Shadows.

On Retrospective Questionnaire to patient. Patient gives history of exposure to pigeons in her home.

Pulmonary Function Test was performed.

It showed (FVC: predicted: 3.35, LLN:2.63; FEV1: Predicted: 3.21, LLN:2.74; FEV1/FVC: Predicted :0.956, LLN:0.860) DLCO : Reduced.

HRCT Thorax done Showed: Diffuse indistinct centrilobular nodules were noted and Features Suggestive of Hypersensitivity Pneumonitis was noted.

Planned for further evaluation and taken Pulmonology opinion for Bronchoscopy BAL and Biopsy.

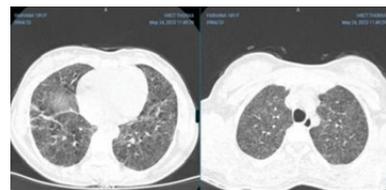
Bronchoscopy done- Normal Study Biopsy taken From Right upper lobe.

BAL Fluid analysis - Cell Type : Lymphocytes -50% and Neutrophils-40% and Macrophages-10%. Microscopy showed Predominantly

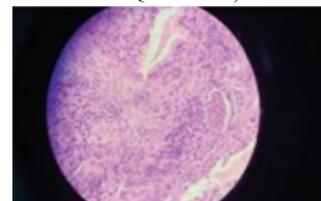
Lymphocytes, neutrophils and Alveolar macrophages against the background of Bronchial epithelium cells.-Inflammatory Pathology.

BAL FLUID CD4/CD8 LYMPHOCYTE absolute counts analysis showed - CD3 LYMPHOCYTE-91.58% (60.5-76.9); CD4 LYMPHOCYTE-22.96% (29.3-44.9%), CD8 LYMPHOCYTE -60.94% (25.2-42.8%). CD4/8 RATIO:0.38 (0.82-3.21). IN Most Instances of HP, BAL fluid lymphocytes are virtually all CD3+ with a relative increase of CD8+ cells, such that CD4:CD8 ratio is usually less than 1

HRCT Chest showing: Indistinct centrilobular nodules in all over lung fields



Histopathology Report- Section of lung tissue with Predominantly peribronchial fibrotic inflammation with dense lymphoplasmacytic infiltrate. Bridging fibrosis connecting bronchioles with each other was seen.-Suggestive of Hypersensitivity Pneumonitis Hypersensitivity Pneumonitis (Home check list Questionnaire) was carried out.



Hypersensitivity pneumonitis Panel sent.

Alternaria alternate- specific igg 29.60
Cladosporium herbarium- specific igg 41.10 (high)
Penicillium chrysogenum- specific igg 40.20 (high)
Aspergillus fumigatus-specific igg 45.10 (high)
Pigeon serum protein, feather& droppings igg 615.00 (high)
Mucor racemosus-specific igg 35.50 (high)

Course In Hospital:

Initially patient was stabilized and treated symptomatically and henceforth once diagnosis has made, We started on Tab Prednisolone 32 mg In divided doses for one week, and tapered over next 2-6 weeks.

CONCLUSION:

Differentiating HP from other conditions that cause a similar constellation of respiratory and systemic symptoms requires an increased index of suspicion based on obtaining a history of possible exposure to offending antigen Presentations Of acute and sub acute HP can be mistaken for respiratory infection. The main Stay of treatment for HP is antigen avoidance. In conclusion, HP is an immunologically mediated lung disease likely mediated primarily by T cell response to inhaled antigens. The diagnosis requires careful history, appropriate lab tests, and lung biopsy in selected cases.

REFERENCES

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