

Clinical and Hematological Evaluation of Bicytopenia: A Cross-Sectional Study

Dr. Nalajala Rushi Kiran¹, Dr. Adithi KMD²

¹Postgraduate, Department of General Medicine, K S Hegde Medical Academy

²Department of General Medicine, K S Hegde Medical Academy

Abstract: This study focuses on the clinical and hematological profile of patients diagnosed with bicytopenia, a condition characterized by a decrease in red blood cells and platelets. A cross-sectional observational study was conducted at the General Medicine Department of K S Hegde Medical Academy, evaluating 60 patients from August 2022 to September 2023. Fever, anemia, and bleeding tendencies were the most common clinical presentations. The majority of cases were attributed to hypersplenism, followed by megaloblastic anemia. Peripheral blood smears and bone marrow examinations were performed when necessary to determine the underlying causes. The findings suggest that hypersplenism is the leading cause of bicytopenia, particularly in younger patients, with a significant proportion showing Vitamin B12 deficiency.

Keywords: Bicytopenia, hypersplenism, megaloblastic anemia, cross-sectional study, hematological

1. Introduction

Bicytopenia is an important clinical-hematological entity encountered in day-to-day clinical practice. It is a disorder where two major blood elements, red blood cells (RBCs) and platelets, are diminished in number. It is defined by Hemoglobin <9g/dl and Platelet count <100,000/cmm. Bicytopenia should be suspected when a patient presents with prolonged fever, unexplained anemia, and bleeding tendencies. It involves anemia and thrombocytopenia.

Aims and Objectives

- To study the various clinical presentations in bicytopenia.
- To evaluate various hematological parameters and arrive at a diagnosis.

2. Materials and Methods

Patients admitted to the General Medicine Department of K S Hegde Medical Academy, Deralakatte, fulfilling the criteria for bicytopenia, were evaluated clinically. Adequate hematological and relevant investigations were carried out, including peripheral smear and bone marrow examinations if necessary.

Study Design: Cross-sectional observational study

Sample Size: 60 cases of bicytopenia in patients admitted to the General Medicine Department were evaluated.

Study Period: August 2022 - September 2023

Inclusion Criteria:

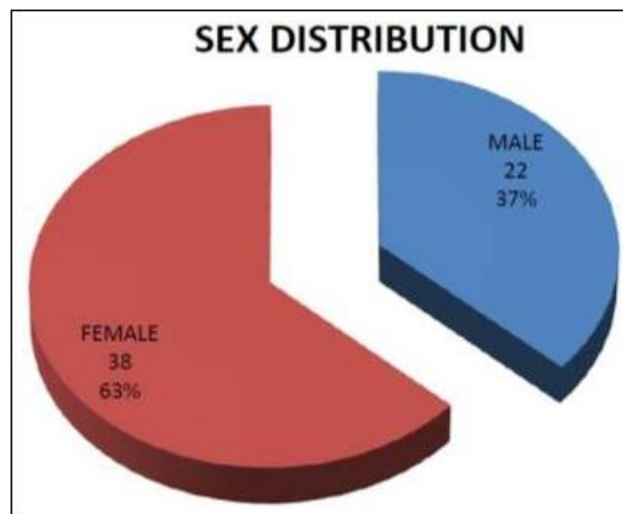
Case selection was based on clinical features and supported by laboratory evidence, which included peripheral blood counts for hemoglobin and platelets. Inclusion criteria:

- Hemoglobin <9g/dl
- Platelet count <100,000/ μ L

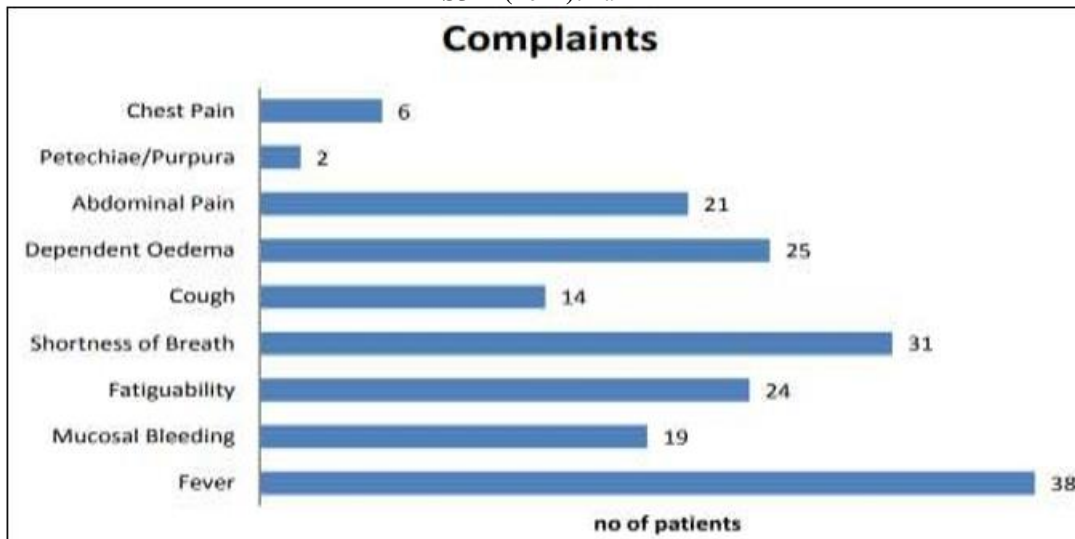
Exclusion Criteria:

- Patients on chemotherapy
- Patients below 13 years of age

3. Results



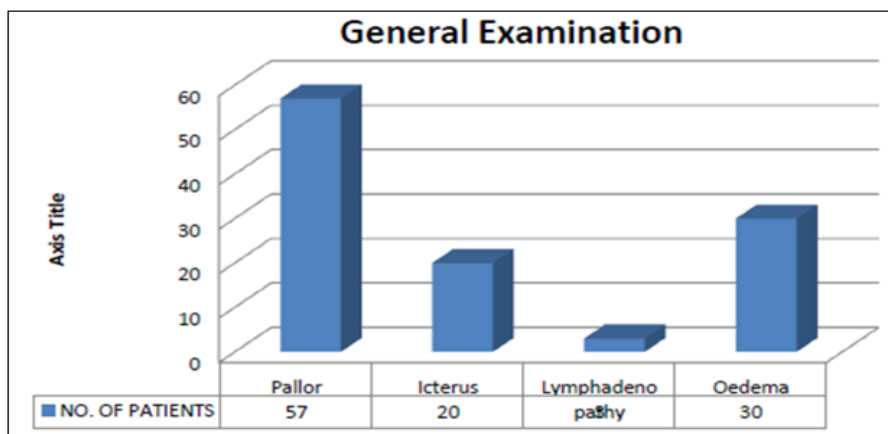
Females formed majority accounting for 63% while men were only 33% of the patients who presented with pancytopenia.



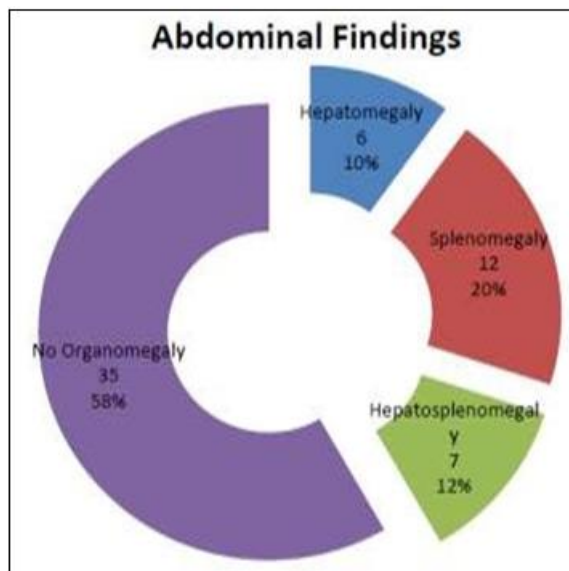
Chief Presenting Complaints		
Type	Count	Percentage
Fever	38	63.33%
Mucosal Bleeding	19	31.67%
Fatiguability	24	40%
Shortness of breath	31	51.67%
Cough	14	23.33%
Dependent Oedema	25	41.67%
Abdominal Pain	21	35%
Petechiae/ Purpura	2	3.33%
Chest Pain	6	10%

The chief presenting complaints among bicytopenia patients were fever (63.33%), followed by breathlessness (51.67%), and dependent edema (41.67%).

95% of patients had significant pallor; 50% had pedal edema; 33% had jaundice, and 5% had lymphadenopathy.

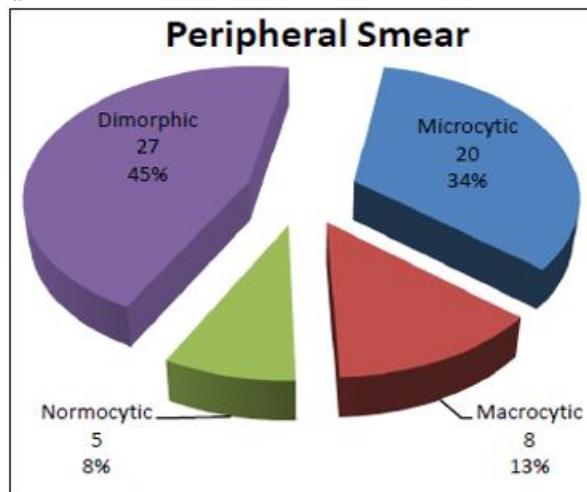


General Examination		
	No. of Patients	Percentage
Pallor	57	95%
Icterus	20	33.33%
Lymphadenopathy	3	5%
Oedema	30	50%



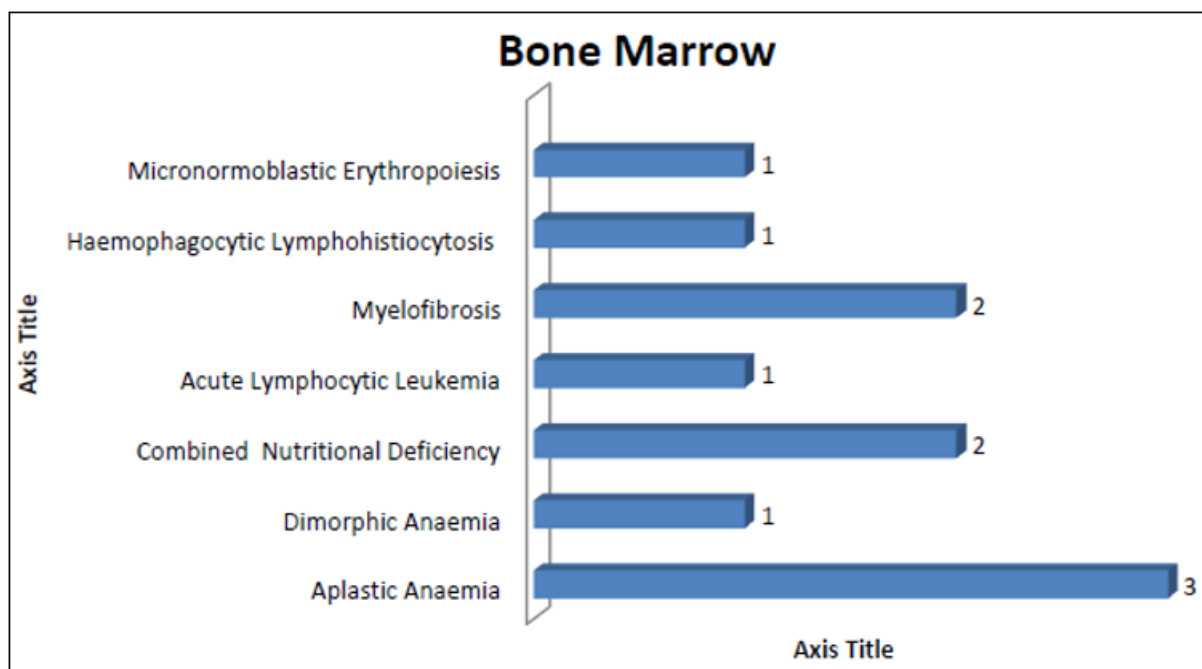
Abdominal Findings		
	No. of Patients	Percentage
Hepatomegaly	6	10%
Splenomegaly	12	20%
Hepatosplenomegaly	7	11.67%
No Organomegaly	35	58.33%

Splenic enlargement was found in 32% of patients, hepatomegaly in 22%, and combined hepatosplenomegaly in 12%.

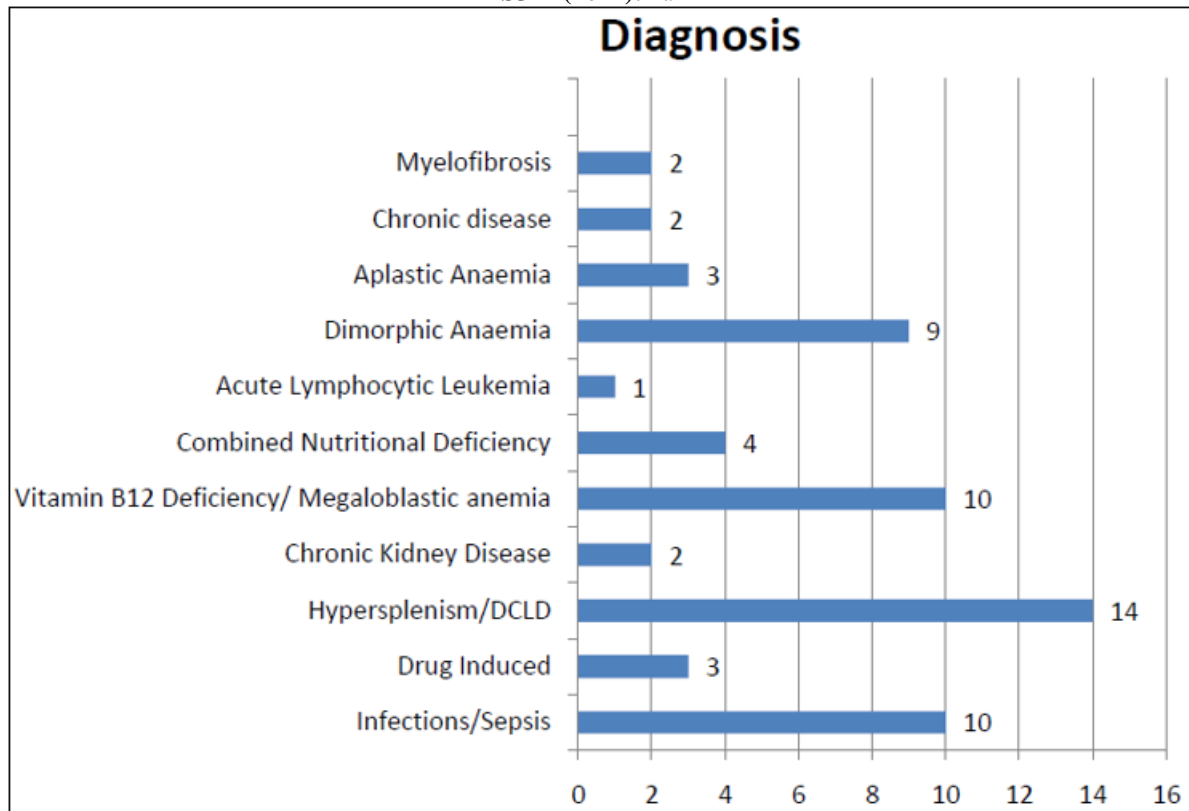


Peripheral Smear Findings		
	No. of Patients	Percentage
Microcytic	20	33.33%
Macrocytic	8	13.33%
Normocytic	5	8.33%
Dimorphic	27	45%

Dimorphic anemia was the predominant peripheral blood picture seen in 45% of patients, followed by microcytic anemia (33%) and normocytic blood picture.



18 out of 60 patients underwent bone marrow studies, revealing aplastic anemia as the most common blood disorder, followed by combined nutritional deficiency and myelofibrosis.



Diagnosis		
	No. of persons	Percentage
Hypersplenism/ DCLD	14	23.33%
Megaloblastic Anemia	10	16.67%
Dimorphic Anemia	9	15%
Infections/ Sepsis	10	16.67%
Others	17	28.33%

Kothari P. Study of clinical and etiological profile of 100 patients of pancytopenia at a tertiary care center.

Hypersplenism was the leading cause of bicytopenia (23.33%), followed by megaloblastic anemia (16.67%). Other causes included sepsis/infections, drug-induced aplastic anemia, and myelofibrosis.

4. Conclusion

Hypersplenism was the most common cause of bicytopenia, with young people comprising the majority of cases. Fever, breathlessness, and dependent edema were the predominant presentations, while pallor, edema, splenomegaly, and hepatomegaly were the most significant clinical findings. Vitamin B12 deficiency was found in 60% of megaloblastic anemia cases.

References

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