



## CLINICAL PROFILE OF THROMBOCYTOPENIA WITH SPECIAL EMPHASIS ON INFECTION ASSOCIATED CASES LIKE DENGUE AND MALARIA

### Medicine

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### ABSTRACT

Thrombocytopenia is a relative decrease of platelets in blood. Thrombocytopenia is defined as platelet count less than 150000 per micro liter. A normal human platelet count ranges from 150000 to 450000 per micro liter of blood. Thrombocytopenia results from one or more of three processes: (1) decreased bone marrow production; (2) sequestration, usually in an enlarged spleen; and/or (3) increased platelet destruction. Disorders of production may be either inherited or acquired. Common causes of thrombocytopenia are infections, drugs, autoimmune, Hypersplenism, DIC, etc. We analyze 300 cases (age >12 years) of thrombocytopenia (platelet count < 1.5 lacs) between June 2015 to November 2018 in department of medicine, department of pediatrics at Maa UMA Multi-specialty Hospital Unjha, North Gujarat, India. Infections, ITP, hypersplenism, DIC and drugs are the common causes of thrombocytopenia. Patechie, purpura and gum bleeding are the most common bleeding manifestation. Bleeding symptoms more common with platelet count <20000. P.Vivax malaria is associated with severe thrombocytopenia and bleeding manifestations. Dengue patients may have prolonged bleeding time and bleeding symptoms even with mild to moderate thrombocytopenia suggestive of functional platelet defect.

### KEYWORDS

Thrombocytopenia, dengue, P.vivax malaria, ITP

#### INTRODUCTION:

Thrombocytopenia is a relative decrease of platelets in blood. Thrombocytopenia is defined as platelet count less than 150000 per micro liter. A normal human platelet count ranges from 150000 to 450000 per micro liter of blood. Thrombocytopenia results from one or more of three processes: (1) decreased bone marrow production; (2) sequestration, usually in an enlarged spleen; and/or (3) increased platelet destruction. Disorders of production may be either inherited or acquired. Common causes of thrombocytopenia are infections, drugs, autoimmune disorders, Hypersplenism, DIC, etc. Pseudo thrombocytopenia should always be ruled out first by peripheral smear examination. Thrombocytopenia results in abnormality in platelet plug formation. It leads to defects in primary homeostasis and characterized by prolonged bleeding time, and the characteristic physical examination findings are patechie and purpura and bleeding from other sites. So, here in present study, We have tried to study clinical profile of thrombocytopenia in adult and pediatric patients above 12 years with special emphasis on infection associated cases, in particular dengue and malaria patients.

#### MATERIALS AND METHODS:

We analyze 300 cases (age >12 years) of thrombocytopenia (platelet count < 1.5 lacs) between June 2015 to November 2018 in Department of Medicine, Department of Pediatrics at Maa UMA Multi-specialty Hospital Unjha, North Gujarat, India.

Inclusion criteria were presence of thrombocytopenia (platelet count less than 1, 50,000 per micro liter) in patients more than 12 years of age. Patients selected on the basis of platelet count on first visit. In present study, patients having thrombocytopenia were included irrespective of their symptoms.

Detailed clinical history including symptoms (various bleeding manifestations and associated symptoms of fever, abdominal pain etc.) signs (patechie, purpura, etc.), General examination (physical parameters, anemia, cyanosis, clubbing, edema feet, neck veins etc.) and examination for Splenomegaly and hepatomegaly were done. General investigations (CBC, RBS, RFT, LFT, urine R/M, HIV, HbsAg, ECG, Chest X-ray) and BT, CT, peripheral smear and serial platelet counts were done in all patients. Special investigations like bone marrow aspiration / biopsy and DIC panel, PSMP and Dengue tests were done as needed. All patients were treated with supportive treatment including platelet and blood transfusion and according to their specific etiology.

#### OBSERVATION AND DISCUSSION:

We studied 300 patients of thrombocytopenia. The majority of the patients were in age group 21-30(38%), next common being age group

was 13-20(27%). Cumulatively Maximum incidence was seen in 13-40 years of age (65%). In present study, M: F ratio was 1.3:1 observed. So male preponderance as compared to females was noted.

Among 300 patients with thrombocytopenia, 201 had no bleeding. 25 had systemic bleeding (Hemoptysis, Hematemesis, Hematuria, ICH, etc.), 31 had mucosal bleeding (Gum bleeding, Epistaxis, bleeding from IV site) and 56 patients had patechie/purpura. Overall cutaneous bleeding was most common presentation. Overlap among bleeding symptoms was present. patechie/ purpura was the most common manifestation seen in 18.6% of patients, followed by Gum bleeding in 8%, Hematuria 5%, Epistaxis and Hematemesis in 3% of patients.

Etiology	Cases of Thrombocytopenia	Percentage
Infections	166	55.3%
ITP	31	10.3%
Pregnancy induced thrombocytopenia	29	9.3%
Drug induced thrombocytopenia	9	3%
Aplastic anemia	4	1.3%
Vitamin B 12 deficiency	26	8.6%
DIC	5	1.6%
Splenomegaly/ Hypersplenism	14	4.6%
Others	16	5.3%
<b>Total</b>	<b>300</b>	<b>100%</b>

In present study, among 300 cases of Thrombocytopenia 166 cases(55.3%) were due to infections, 31 cases(10.3%) due to ITP & other autoimmune cases, 29 cases(9.6%) due to pregnancy related thrombocytopenia, 9 cases(3%) due to drugs, 4 cases(1.3%) due to Aplastic anemia, 26 cases(8.3%) due to vitamin B12/ folate deficiency, 5 cases (1.6%) due to DIC, 14 cases (4.6%) due to Splenomegaly/ Hypersplenism and 16 cases (5.3%) due to AML, HUS/TTP, liver disease, storage disease, idiopathic.

We also report a single case of thrombocytopenia due to snake bite even without development of DIC. Overall infections account for the majority of cases and ITP is the second most common cause.

#### Infections Associated With Thrombocytopenia

Vivax malaria	59
Falciparum malaria	21
Dengue fever	68
Others	18
Total	166

Among various infections causing thrombocytopenia, malaria and Dengue fever are the most common. 12 patients had other infections but clinically mimicking malaria/ dengue and 6 patients had gram negative septicemia.

#### DENGUE FEVER AND BLEEDING SYMPTOMS

Severity of Thrombocytopenia	No. of patients	No. of patients having bleeding	Average bleeding time
Mild(50,000 to 1,50,000)	23(33.8%)	3(13%)	5.2 mins
Moderate(20,000 to 50,000)	36(52.9%)	13(36.1%)	9.5 mins
Severe (< 20,000)	9(13.2%)	5(55.5%)	11.2 mins
Total	68	21	

Among 68 patients with Dengue fever, 23 had mild thrombocytopenia out of which 3 had bleeding symptoms. And 36 patients had moderate thrombocytopenia, out of which 13 had bleeding symptoms.

Thus platelet count alone is a poor predictor of bleeding in dengue patients. Dengue patients might have an associated functional defect in platelets, as suggested by prolonged bleeding time and bleeding symptoms in patients having mild and moderate thrombocytopenia.

Among 31 patients with ITP in present study, 25 were idiopathic (primary), 3 associated with HIV and 1 with SLE and 2 due to Evan's syndrome.

The commonest sign observed was Anemia [28%], while Splenomegaly in 20% and hepatomegaly in 8%.

Bleeding symptoms were highest in patients with severe thrombocytopenia (platelet count < 20,000). So, platelet count is a good predictor of bleeding.

In present study, 52% of patients had isolated thrombocytopenia, 38% had associated anemia while 30% had associated leucopenia. 22% of patients had pancytopenia. Thus anemia was the most common associated hematological abnormality.

#### Conclusions:

Infections, ITP, Hypersplenism, DIC and Drugs are common causes of Thrombocytopenia. Overall infections account for the majority of cases and ITP is the second most common cause. Among various infections causing thrombocytopenia, malaria and Dengue fever are the most common.

Over all patechie –purpura and Gum bleeding are most common bleeding manifestations. Bleeding symptoms are usually associated with severe Thrombocytopenia (Platelet count < 20,000). So, platelet count is a good predictor of bleeding.

Thrombocytopenia frequently complicates malaria, and usually associated with falciparum malaria. Our study shows that P.Vivax malaria can also be associated with severe thrombocytopenia (in 33.8%) and bleeding manifestations. P.Vivax malaria was considered a benign infection, so there is a changing pattern of the disease seen. Many patients of dengue fever with mild to moderate thrombocytopenia were also associated with bleeding symptoms. Thus platelet count alone is a poor predictor of bleeding in dengue patients. Dengue patients might have an associated functional defect in platelets, as suggested by prolonged bleeding time and bleeding symptoms in patients having mild and moderate thrombocytopenia.

ITP is a common in age group of 13-40 with female preponderance. Chronic idiopathic ITP is more common presentation. Patients with ITP, DIC, AML and Aplastic anemia were associated with bleeding more commonly than patients with infection and other causes. So, majority of patients with ITP, DIC and Aplastic anemia required PRC.

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