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### Original Article

# Clinical and Laboratory evaluation of patients presenting with fever with Thrombocytopenia in a tertiary care hospital of North India

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#### ABSTRACT:

**Introduction:** Fever with thrombocytopenia is a common condition that is associated with an increased risk of morbidity and mortality. **Aims & Objectives:** The study was designed to assess the etiology, clinical features and laboratory profile of fever with thrombocytopenic patients which is of great value in determining the outcome and prognosis in these patients. **Material & Methods:** A total number of 50 patients who were admitted with the history of fever with thrombocytopenia were studied. Detailed examination of various systems was done. Routine investigations were done, Specific and Special investigations (Blood & Urine culture, Widal, Antigen test for malaria, IgM ELISA Dengue, Bone marrow examination etc.) were done as and when indicated. **Results:** From this study it was observed that infections (98%) were the most common cause and among infections malaria (36%) was the commonest cause followed by viral illness (34%). Definitive increase in platelet counts was noted after treating the underlying cause. **Conclusion:** Thrombocytopenia was the commonest laboratory finding in many fever cases. It is better to do platelet count in all fever cases whether they have bleeding manifestations or not.

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## INTRODUCTION

Fever has been recognized as a common manifestation of disease since, ancient times, as recorded by ancient scholars like Hippocrates [1]. Thrombocytopenia is defined as a platelet count less than normal range, usually below 1,50,000/ $\mu$ l. [2]. Cases are considered mild if counts are between 70,000 and 1,50,000/ $\mu$ l and severe if less than 20,000/ $\mu$ l [3]. Diseases like dengue, malaria, typhoid, leptospirosis, miliary tuberculosis, HIV, septicaemia are associated with abnormal platelet count (<1.5lakh) [4]. In recent days, fever with thrombocytopenia is a common clinical presentation in the medical wards. Established infective causes like dengue is well known for fever with thrombocytopenia [5].

Causes of fever and thrombocytopenia includes viral, bacterial, protozoal and fungal. There are not many studies elucidating other infective causes for thrombocytopenia, only few are available for Enteric fever, Malaria, viral fever with thrombocytopenia. So, this study was undertaken to assess the etiology, clinical features and laboratory profile of fever with thrombocytopenic patients which is of great value in determining the outcome and prognosis in these patients.

Thus, the main objectives of the current study can be summarized as;

1. To determine possible infective etiology of fever with thrombocytopenia.
2. To correlate clinical features, laboratory studies and infective etiology.

## MATERIALS AND METHODS

This study was conducted on 50 patients who were admitted in the medical wards of Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab in the period between July to September 2015. Patients with the history of fever and found to have thrombocytopenia were studied. Careful history was recorded with general physical examination and detailed systemic examination. Temperature was measured orally by clinical thermometer.

The thermometer was kept for 2 minutes and the patient was asked to breathe from nose. This was followed by routine investigations which included complete blood count, total leucocyte count, renal function test, liver function test, PT and INR, urine routine, ECG, USG, chest X Ray were done wherever indicated. Blood culture, urine culture bone marrow examination, viral markers, malarial parasite (by rapid card test & PBF), dengue antibody test (by IgM ELISA), Typhoid test and other relevant investigations were also done.

### Inclusion criteria

50 patients (both females and males) aged above 15 years admitted with fever and found to have thrombocytopenia were included.

### Exclusion criteria

Patients <15 years were excluded. Patients with fever and no thrombocytopenia, patients with thrombocytopenia and no fever were excluded from the study.

## RESULTS

Causes of febrile thrombocytopenia in our study were malaria (36%), viral fever (34%), dengue (24%), enteric fever (2%), hepatitis (2%) and ALL (2%) (Table 1). Out of the 50 patients, 29 (58%) were males and 21 (42%) were females (Table 2). Maximum number of patients were in the age group of 21-30 years (36%) followed by 31-40 years (24%) (Table 3). Distribution of cases in relation to severity of thrombocytopenia is discussed in Table 4.

In 4 patients, chief complaint was pain abdomen along with fever, 2 patients presented with gastroenteritis, shock, rash, bleeding manifestation each, 1 of the patient presented with altered sensorium in addition to fever (Table 5).

**Table 1: Incidence of thrombocytopenia in different fever cases**

S. No.	Diagnosis	No. of cases	Percentage
1.	Malaria	18	36%
2.	Viral fever	17	34%
3.	Dengue	12	24%
4.	Enteric fever	1	2%
5.	Hepatitis	1	2%
6.	ALL	1	2%
	Total	50	100%

**Table 2: Incidence of fever with Thrombocytopenia in relation to Gender**

Sex	No. of cases	Percentage
Male	29	58%
Female	21	42%
Total	50	100%

**Table 3: Incidence of thrombocytopenia in relation to age**

Age (Years)	No. of cases	Percentage
15-20	8	16%
21-30	18	36%
31-40	12	24%
41-50	6	12%
51-60	3	6%
>60	3	6%
Total	50	100%

**Table 4: Distribution of cases in relation to severity of thrombocytopenia**

Disease	<50,000	50,000-1,00,000	1,00,000-1,50,000
Malaria	11	5	2
Viral fever	7	6	4
Dengue	4	5	3
Enteric Fever	0	1	0
Hepatitis	0	1	0
ALL	1	0	0
Total	23(46%)	18(36%)	9(18%)

**Table 5: Clinical Presentation of the patients**

Chief complaint	No. of cases	%age
Fever	50	100%
Pain Abdomen	4	8%
Gastroenteritis	2	4%
Shock	2	4%
Altered Sensorium	1	2%
Rash	2	4%
Bleeding manifestation	2	4%

Discussion: Fever is known as pyrexia from Greek 'pyretus' meaning fire; Febrile is from the Latin word Febris, meaning fever [6]. It is a medical sign that describes increase in internal body temperature to the level above normal. It is considered as one of the body's immune mechanisms to attain neutralization of perceived threat inside the body [7]. A fever rarely comes without other signs and symptoms. Many at times, it is associated with low platelet count. Normal platelet count is 1,50,000-4,00,000/cumm. Thrombocytopenia (platelet count <1,50,000/ cumm) results from either decreased production, increased sequestration or destruction of the platelets [8]. In our study, out of the 50 patients, 18(36%) were diagnosed as malaria cases, 17(34%) suffered from viral fever, 12 (24%) had dengue infection and 1(2%) patient suffered from enteric fever, hepatitis, ALL each.

This is in accordance with study by Rekha M.C. *et al.*, [9] wherein malaria formed the largest group of patients (45%) followed by septicaemia (21%), dengue (21%), enteric fever (10%), leptospirosis (2%), AML (1%) and megaloblastic anemia (1%). In malaria, sequestration, immune mediated destruction with elevated platelet activated immunoglobulin account for decreased platelet counts. In another study conducted by Nair PS<sup>5</sup>, septicaemia was the most common cause of fever with thrombocytopenia.

Platelet counts between 1,00,000-1,50,000/cu mm were seen in 9(18%) patients, between 50000-100000 were seen in 18 (36%) patients and 23(46%) patients had platelet counts of less than 50000/cu mm. In our study, the major complaint of the patients was fever (100%), followed by pain abdomen (4%), gastroenteritis (4%), bleeding manifestation (4%) each and with altered sensorium (2%)s. A study conducted by Md Ayule *et al.*, [10] showed that the commonest presentation was fever (100%) followed by myalgia (66%), headache (48%) and vomiting.

## CONCLUSION

Thrombocytopenia was the commonest laboratory finding in many fever cases. It is better to do platelet count in all fever cases whether they have bleeding manifestations or not. It is not always necessary that fever with thrombocytopenia is due to dengue or malaria, it can be a viral illness in which recovery starts within 4-5 days with the improvement in platelet count. Thrombocytopenia due to infectious diseases shows seasonal variation, commonly seen in rainy and winter season. Treatment of the causative agent will lead to improvement in platelet counts.

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