Journal of Population Therapeutics & Clinical Pharmacology

CASE REPORT
DOI: 10.53555/jptcp.v31i1.3501

CASE STUDY: IMMUNE THROMBOCYTOPENIA PURPURA IN 6-YEAR OLD FEMALE CHILD

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Abstract

Background: The goal is to offer a comprehensive examination of the patient's clinical appearance, diagnostic evaluation, therapy, results, and any related complications.

Methods: A 6-year-old female child presented with a large whitening, purplish bruise on her left flank. The past medical history included neonatal jaundice, full immunization, and normal developmental milestones. Physical examination revealed purpura on the left flank, without hepatosplenomegaly or lymphadenopathy. The patient's vital signs were stable.

Management: The patient received initial treatment with IV Immunoglobulin (IVIG) and IV steroids. Subsequent treatment included oral steroids, leading to complications such as rubella and facial puffiness.

Conclusion: The conclusion highlighted the complexity and variability of ITP in children, emphasizing the necessity of interdisciplinary care, patient education, and continuous monitoring for achieving optimal outcomes.

Keywords: Immune Thrombocytopenic Purpura, ITP, Pediatric Hematology, Case Presentation, Diagnosis, Treatment, Complications.

Introduction

Immune Thrombocytopenia Purpura, commonly known as ITP, is a rare but significant hematological disorder that primarily affects children. This condition is characterized by a decrease in the number of platelets in the bloodstream, leading to a heightened risk of bleeding and easy bruising [1]. ITP in children is particularly noteworthy due to its unique clinical presentation, underlying causes, and management strategies, which differ from adult-onset ITP.

ITP is considered an autoimmune disorder in which the child's immune system targeted and destroys their own platelets, which are essential for proper blood clotting [2]. This immune-mediated destruction of platelets results in a condition where the child's blood cannot clot effectively, leading to symptoms such as petechiae (small red or purple spots on the skin), ecchymosis (bruises), and in more severe cases, spontaneous bleeding [3].

The exact cause of ITP in children is not always clear, and it can be classified into two primary forms: acute and chronic. Acute ITP often presents itself suddenly and resolves within a few months, while chronic ITP persists for an extended period, sometimes even years [4]. Understanding the underlying mechanisms, the differences in presentation, and the management of ITP in children is crucial for healthcare professionals to provide accurate diagnosis and appropriate treatment [5]. Epidemiology studies have shown that ITP is more common in children than in adults, with an estimated incidence of 4 to 5 cases per 100,000 children annually. The majority of cases occur in children between the ages of 2 and 10, but ITP can affect children of all ages. While the exact cause of ITP is not fully understood, it is believed to be related to a combination of genetic predisposition and environmental

factors. Often, the disorder follows a viral infection, suggesting a possible trigger for the immune system's response against platelets [6]. The clinical presentation of ITP in children varies, with many affected individuals being asymptomatic. Some children may experience mild symptoms, such as easy bruising and nosebleeds, while others may develop more severe manifestations, including bleeding in the skin, mouth, or even internal organs. The diagnosis of ITP is primarily based on clinical symptoms, a complete blood count (CBC) showing a low platelet count, and the exclusion of other potential causes of thrombocytopenia [7]. Managing ITP in children involves a delicate balance between controlling bleeding and minimizing treatment-related side effects. Treatment decisions are often guided by the severity of symptoms, platelet counts, and the child's age. For those with mild cases or spontaneous remission, careful observation may be the recommended approach. In more severe cases, treatments may include corticosteroids, intravenous immunoglobulin (IVIG), or other immune-modulating therapies. In some instances, children with chronic ITP may require a splenectomy (removal of the spleen) to improve platelet counts [8].

Objectives

The basic aim of this case study is to describe the Immune Thrombocytopenia Purpura (ITP) in 6-year old female child.

Case presentation

A 6-year-old female child was brought to the hospital by her parents with a complaint of a large bruise on her left flank. The parents noted the sudden appearance of this bruise without any known traumatic injury.

Past History:

Birth History: The patient was born at term by normal vaginal delivery, with a birth weight of 3.5 kg. She developed jaundice on day 2 of birth, and her serum bilirubin (SBR) levels were found at the treatment line, leading to phototherapy until levels normalized. The jaundice was diagnosed as physiological.

Immunization History: The child had received all required vaccinations per the standard immunization schedule.

Developmental History: The child achieved all required developmental milestones normally, suggesting no developmental delays.

Clinical Examination:

Upon physical examination, the patient appeared well and alert. Notable findings included a large, non-blanchable, purplish bruise with considerable size on the left flank. There was no evidence of hepatosplenomegaly (enlarged liver or spleen) or lymphadenopathy (enlarged lymph nodes). The patient's vital signs were stable, and she exhibited no signs of acute distress. The remainder of the physical examination was within normal limits.

Diagnostic Workup:

Laboratory investigations were initiated to evaluate the cause of the low platelet count and the unusual bruising. The following results were obtained:

Full Blood Count (FBC): The FBC revealed a low platelet count.

Reticulocyte Count: The reticulocyte count was within normal limits, indicating that the bone marrow was producing an appropriate number of immature red blood cells.

Immature Platelet Fraction (IPF): This showed an elevated level of immature platelets.

Autoimmune Profile: Results did not suggest the presence of an autoimmune disorder or an underlying systemic autoimmune condition.

Ultrasound Abdomen: The abdominal ultrasound did not reveal any abnormalities or signs of organ enlargement.

Prothrombin Time (PT), International Normalized Ratio (INR): Both the PT and INR values were within normal limits, indicating normal coagulation.
Activated Partial Thromboplastin Time (APTT) and Control APTT: These values were found to be normal, suggesting no significant clotting factor abnormalities.
Urine Examination: A routine urine examination did not yield any abnormal findings.
Based on these clinical and laboratory findings, a diagnosis of immune thrombocytopenic purpura (ITP) was strongly suspected due to the low platelet count, the presence of petechiae purpura, and the exclusion of other potential causes.
The patient was referred to a pediatric hematologist for a comprehensive evaluation and management. The hematologist confirmed the diagnosis of ITP based on the clinical presentation and laboratory findings.
The management plan included the following steps:
IV Immunoglobulin (IVIG): The patient was administered 1g/kg of IVIG to temporarily boost platelet counts.
IV Steroids: Methylprednisolone was administered intravenously at a dose of 20mg/kg to further suppress the immune system's attack on platelets.

Outcome:
After receiving the initial treatment, the patient's platelet count increased from 5,000 to 211,000 per microliter within 5 days, indicating a positive initial response to therapy. However, this increase in platelet count was temporary, and within a few days, the count dropped to 40,000 per microliter.
These fluctuations persisted from May 2019 to August 2019. In response to this, the hematologist recommended a course of oral steroids, specifically Prednisone at a dose of 2mg/kg for three weeks, with a subsequent tapering regimen. During the course of oral steroids, the child developed rubella, despite prior vaccination, and also experienced facial puffiness as a complication of the treatment, highlighting the challenges in managing ITP and its associated treatment-related risks. Close follow-up and continued monitoring were advised to address these complications and to ensure the child's well-being.

Treatment	**Dosage**
IV Immunoglobulin (IVIG)	5g (1g/kg)
IV Steroids (Methylprednisolone)	100mg (20mg/kg)

Platelet count

Date	**Platelet Count (per microliter)**
Day 0	5,000
Day 5	211,000
Day 12	40,000

Discussion
This case of a 6-year-old female child with immune thrombocytopenic purpura (ITP) offers insights into the diagnosis and management of this hematological disorder in pediatric patients. The clinical presentation, marked by purpura and a notably low platelet count, is consistent with ITP [9]. Despite the child's history of neonatal jaundice, which was unrelated to ITP, this background information was essential for a comprehensive understanding of her medical history. Laboratory results, which included an elevated Immature Platelet Fraction (IPF) and the exclusion of other autoimmune disorders, supported the diagnosis of ITP. The initial treatment with IV Immunoglobulin (IVIG) and IV steroids achieved a temporary increase in platelet counts, but the response was not sustained. Subsequent treatment with oral steroids was initiated to achieve more lasting control over the immune response, but it came with complications, notably the development of rubella and facial puffiness [10]. These complications underscore the need for vigilant monitoring and cautious treatment approaches, especially in pediatric cases where the balance between managing the underlying

condition and avoiding side effects is delicate. The case highlights the variability of ITP in children and its unpredictable course. It reinforces the necessity for interdisciplinary care involving pediatric hematologists and immunologists, as well as the importance of patient education to ensure that the child and her family are well-informed about the condition and its management [11].

Conclusion

The clinical presentation of petechiae and purpura, along with a low platelet count, strongly indicated ITP. While the patient's past medical history included neonatal jaundice, this was unrelated to the development of ITP and served primarily to provide a comprehensive medical context. Laboratory findings, including an elevated Immature Platelet Fraction (IPF) and the exclusion of other autoimmune disorders, further supported the diagnosis of ITP. The initial treatment with IV Immunoglobulin (IVIG) and IV steroids temporarily boosted platelet counts but did not provide a lasting solution. Subsequent treatment with oral steroids was initiated to achieve more sustained control of the immune response. However, this approach came with complications, including the development of rubella and facial puffiness, underscoring the need for close monitoring and a cautious approach to treatment. This case highlights the variability of ITP in children and the unpredictability of its course. It emphasizes the importance of interdisciplinary care involving pediatric hematologists and immunologists, as well as patient education to ensure that the child and their family are well-informed about the condition and its management. In conclusion, the management of ITP in pediatric patients requires a holistic and patient-centered approach. Close follow-up, ongoing monitoring, and a collaborative effort among healthcare professionals are essential to provide the best possible care for affected children, ensuring their safety and well-being throughout the course of the disease.

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