Case Report

Significance of Periodontal Health in Primary Immune Thrombocytopenia- A Case Report and Review of Literature

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Abstract

Primary immune thrombocytopenia is an acquired bleeding disorder with no clinically apparent cause of thrombocytopenia. Clinical indicators of ITP include easy bruising of the skin, prolonged bleeding on injury, mucocutaneous lesions such as petechiae and ecchymosis, epistaxis, gastrointestinal bleeding, hematuria and bleeding from the gums. It is important for a dentist to be aware of the clinical manifestations of ITP as it may not only lead to successful management of the patient, but in some cases it may even lead to formation of a provisional diagnosis of the condition in previously undetected cases. However, very few cases of ITP have been reported in dental practice making it difficult for a dentist to identify the disorder when a patient suffering from ITP reports for dental treatment. A case report of a female patient with ITP is thus described with emphasis on the importance of periodontal health in such patients to prevent consequent unwanted sequelae. It is followed by discussion of oral manifestations of the disorder and dental management of such patients.

Key Words: Idiopathic thrombocytopenic purpura; Periodontal disease; Dental scaling

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INTRODUCTION

Primary immune thrombocytopenia, formerly known as idiopathic thrombocytopenic purpura (ITP), is an autoimmune hemorrhagic disorder characterized by isolated thrombocytopenia (peripheral blood platelet count <100 x 10^9/L) in the absence of other causes or disorders that may be associated with thrombocytopenia [1]. The annual incidence of ITP has been reported to range from 16 cases per million per year to as high as 39 cases per million per year [2] with women being more commonly affected than men. Childhood ITP, on the other hand, has a reported incidence of between 22 per million children per year and 53 per million children per year [2]. The clinical features of ITP in adults are different from the clinical features seen in childhood. ITP in

childhood mostly presents itself in an acute form in the age group of 2-10 years with a peak incidence at 2 to 4 years of age. The disease is usually self-limiting, mostly occurring after a viral infection or immunization. Recovery is generally observed within 6 months. On the contrary, ITP seen in adults generally has no conceivable precipitating factor, persists for longer periods and rarely resolves spontaneously.

ITP is primarily a disease of diagnosis by exclusion. Only when other causes of thrombocytopenia are ruled out, a diagnosis of ITP is made. These causes may include nutritional deficiency anemia, congenital or hereditary thrombocytopenia, von Willebrand disease, disorders with reduction in the number of megakaryocytes such as leukemia and aplastic anemia, human immunodeficiency virus infection, medications and certain infections [3]. It has also been associated with immunodeficiency and autoimmune disorders [4]. According to the American Society of Hematology (ASH), the diagnosis of ITP is based on the patient's history and physical examination, as well as a complete blood count and examination of the peripheral blood smear [5].

Recent researches regarding pathogenesis of ITP point out to a complicated picture involving increased platelet destruction through platelet autoantibodies and impaired platelet production wherein cytotoxic T-cells have also been implicated in the destruction of platelets [6,7].

Manifestations of ITP range from no clinical symptoms to severe bleeding which may be fatal in certain cases. The characteristic clinical indicators of ITP include easy bruising of the skin, mucocutaneous lesions such as petechiae and ecchymosis, prolonged bleeding on injury, epistaxis, gastrointestinal bleeding, hematuria and bleeding from the gums [8].

There is a scarcity of reports describing patients with ITP managed in dental practice. It is important for a dentist to be aware of the clinical presentation of ITP as it may lead to not only successful management of the patient, but also to formation of a provisional diagnosis of the condition in previously undetected cases. A case of ITP with oral findings requiring periodontal management is presented here to emphasize that a vigilant approach is required to deliver dental care appropriately and successfully for the patient.

CASE REPORT

A 19-year-old Indian female reported to the Department of Periodontics at Govt Dental College, Rohtak with a chief complaint of spontaneous gingival bleeding. Discoloration and bruising of the lips were strikingly noticed even before a formal clinical examination had begun. Medical history revealed that she was diagnosed with ITP three years ago after an unexplained episode of high-grade fever. She was treated with oral corticosteroids for a few months which caused only a transient and unstable improvement of the platelet count. A year later, she underwent splenectomy, which maintained her platelet count at approximately 45,000/mm^3 without treatment.

Extraoral examination revealed excessively dry lips, which were mildly bruised. There were no lesions anywhere else on the body at the time. Intraoral examination revealed poor oral hygiene, spontaneous gingival bleeding and an edematous, shiny and somewhat fiery red in color gingiva (Fig 1). Submucosal ecchymosis at the tip of the tongue as well discoloration on the palate was noticed (Fig 2, 3). Halitosis was also present. Intra-oral periapical radiograph of the lower anterior region depicted mild horizontal bone loss.

On questioning about oral hygiene habits, the patient revealed that she had stopped brushing from 4-5 months before, as she was afraid that it would further increase oral bleeding. Apart from oral signs and symptoms, the patient also disclosed experiencing unusually heavy menses in the past few months and also frequent episodes of skin discolorations even with very mild trauma.

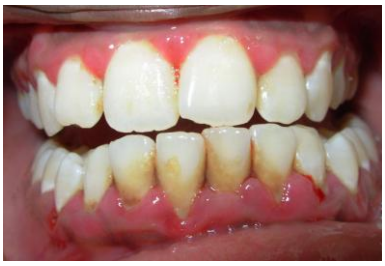

Fig 1. Intraoral photograph at initial examination showing spontaneous gingival bleeding and poor oral hygiene

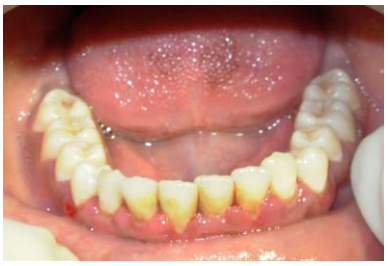

Fig 2. Discoloration on the dorsal surface of the tongue

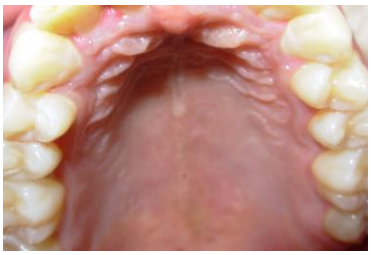

Fig 3. Ecchymotic lesion on the palate

A complete hemogram was carried out which revealed a platelet count of 18,000/mm^3, hemoglobin concentration of 11.5g/dL and a total leucocyte count of 10000/mm^3.

Taking into consideration the low platelet count and history as obtained, the patient was referred to the department of hematology regarding suitability of dental treatment at the time. The hematologist prescribed corticosteroids for the patient and her platelet count increased to 72,000/mm^3.

Periodontal therapy was initiated with debridement, supra and sub-gingival scaling and root planing. Post scaling, the patient was put on tranexamic acid mouthwash twice daily for 3 days. She was motivated and taught to practice good oral hygiene habits which included regular brushing of the teeth with a soft-bristle toothbrush and 0.2% chlorhexidine mouthrinses.

Dietary recommendations were made. Two weeks later, the inflammation had subsided and spontaneous bleeding was no longer evident (Fig 4). She reported back for follow up after 6 months, at which she was in a state of good periodontal health (Fig 5).

DISCUSSION

Blood platelet levels normally fall within the broad range of 1.5-4 $\times 10^5$/mm^3. A platelet count of 100,000/mm^3 has been established as threshold for diagnosis [1].

The manifestations of ITP are rather nonpeculiar for the disorder and arise as a direct consequence to platelet deficiency. Spontaneous bleeding associated with thrombocytopenia most often involves small vessels and the common sites of such hemorrhage are the skin and mucous membrane of the gastrointestinal tract and genitourinary tract [9] with manifestations as purpura (petechiae, ecchymosis), epistaxis, menorrhagia, hematuria, malena or bleeding from the gums [8].

Although not very common, intracranial hemorrhage is considered the biggest threat to patients with a severely depressed platelet count. To the best of our knowledge, only 12 cases have been reported in dental literature [10-20], with the earliest report published in the early 1970s. While some reports dealt with dental patients with previously diagnosed ITP [10,13,19], others [11,17,18] reported cases which were diagnosed and suitably managed in dental setup. The latter further emphasized the need for dental practitioners to be aware of the findings in such disorders to identify undetected cases of ITP. Another case report [20] described a case of undiagnosed HIV infection with associated thrombocytopenic purpura. Refractory ITP has also been suggested as an absolute contraindication to any surgical procedures if the platelet count is too low [16]. Finally, it should further be emphasized that there is only one report [10] in the literature

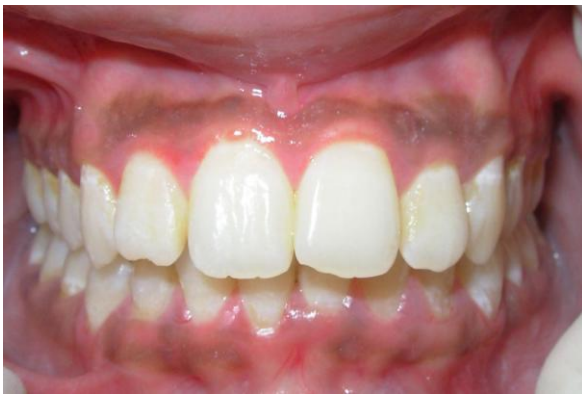

Fig4. Two-week follow up showing resolution of inflammation

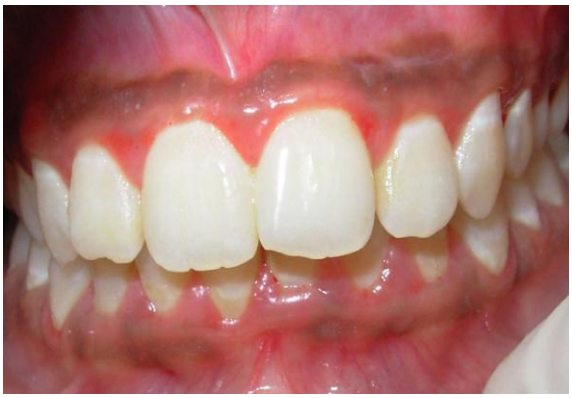

Fig5. Patient at six-month follow-up showing satisfactory periodontal health

similar to ours dealing with the periodontal management of a patient with ITP. Lack of such case reports also means that fewer dentists may be aware of the findings to look for in such cases. The importance of this report is two-fold. First, it will aid the dental practitioner in efficiently managing such cases and secondly, a good knowledge of presenting symptoms may even help in diagnosing previously unidentified cases.

The patient may complain of frequent bruising, gingival bleeding, nose bleeds, heavy menses or bloody stools.

A complete blood count reveals a decrease in the number of platelets while examination of peripheral blood smear shows platelets of normal appearance. Bone marrow testing may show normal to increased megakaryocytes with appearances varying from normal to immature with large, non-lobulated, single nuclei. The bleeding time is prolonged, but Prothrombin time (PT) and Partial thromboplastin time (PTT) are normal [9].

A plaque present adjacent to the gingiva causes inflammation of the gingival tissues leading to bleeding from the gums. The risk of bleeding from these inflamed and hyperemic gingival tissues is even greater in patients with bleeding tendencies. Thus, it is vital to maintain periodontal health in such patients to prevent any unwanted complications.

Besides, if periodontal health is ignored, the condition may worsen and further lead to alveolar bone loss and tooth mobility ultimately giving rise to a situation warranting extraction, a procedure which is complicated in patients with ITP. The best measure to avoid any such undesirable sequelae is professional removal of the plaque in early stages resulting in resolution of inflammation.

Mucocutaneous lesions such as petechiae, ecchymosis and hematomas are most often encountered by the dental surgeon. Frequently traumatized areas in and around the oral cavity such as the lips, border regions of the tongue and palate are among the most commonly involved.

The case presented here only had oral signs at the time of reporting to the dental establishment and this emphasizes the necessity that the dentist should know about oral manifestations of various bleeding disorders because they often warrant special considerations.

The major risk during management of patients with ITP is hemorrhage. It is thus imperative to involve a hematologist to avoid any such untoward complication. The entire dental procedure and possible complications should be thoroughly discussed with the hematologist who can then suggest suitable modifications required at pre-surgical, surgical and post-surgical phases to ensure successful delivery

of dental care. Professional cleaning can be safely accomplished at the dental establishment if the platelet count is above 50,000/mm^3 [21]. Antifibrinolytic mouthwashes, such as those containing epsilon aminocaproic acid and tranexamic acid may also be used to advantage in cases where the bleeding problem is anticipated. In case periodontal surgery is indicated, it is important to ensure that the tissues are handled as atraumatically as possible and are least invaded with minimal flap extension and least possible practicable flap elevation. Conventional measures of achieving hemostasis like application of pressure packs and dressings may be sufficient in suitably selected candidates. Commercially available hemostatic agents like thrombin and oxidized cellulose are also of value in cases with bleeding disorders. As a general guideline, while routine dental surgical procedures may be performed in cases with a platelet count as low as 50,000/mm^3, a minimum level of 75,000/ mm^3 has been suggested for other major surgeries [22]. In case the platelet concentration is low and the surgical procedure cannot be avoided, transfusion may be required to raise the platelets to an acceptable level. Infiltration and intraligamentary anesthesia is preferable to regional blocks which should be avoided, especially if the platelet count is below 30,000/mm^3. Use of vasoconstrictor with a local anaesthetic is advisable to ensure timely hemostasis.

ITP patients referred to dental offices should be asked about any prescribed medications being currently used. Such patients are frequently on corticosteroids for a long period of time. These drugs may act by preventing the production of autoantibodies as well as destruction of platelets in the reticuloendothelial system by suppression of the defective immune response. While routine dental procedures may not result in cortisol response, major dental surgical procedures may require pharmacological adjustments. Delayed wound healing and decreased resistance to secondary infections may also complicate the postsurgical healing response. Additionally, opportunistic infections are more frequently observed in such cases. Prophylactic antibiotic therapy may thus be indicated in appropriate cases along with strict adherence to standard aseptic procedures. It should also be borne in mind that since ITP is primarily a platelet disorder, any medication such as aspirin should be avoided.

In addition to addressing the chief complaint of the patient, preventive dental procedures like improvement in oral hygiene habits, more frequent dental visits and regular professional cleaning should be initiated. The goal of the treatment plan should be to prevent the progress of dental diseases at the earliest stage possible to avoid any subsequent requirement of more complicated procedures.

CONCLUSION

Most of the patients with ITP can be managed safely in a dental establishment. However, while managing such cases, it is important to take into account both the severity of the disorder and availability of a procedure suitable in the given scenario. For this, it is imperative that a physician, preferably a hematologist should be involved for treatment planning to suit the needs of the patient. Successful management of ITP patients should also involve preventive dental care through patient education and oral hygiene motivation to avoid the need for any more aggressive therapy at a later stage.

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