Idiopathic Thrombocytopenic Purpura: Overview with Report of a Case

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ABSTRACT

Idiopathic thrombocytopenic purpura (ITP) is a disorder associated with a decrease in the number of circulating platelets due to abnormal increased platelet destruction attributed to an autoimmune phenomenon. It is a common cause of thrombocytopenia resulting in bleeding complications in children and adults. ITP is a disorder where the patient may present with oral manifestations, like bleeding, petechia, ecchymosis, hematomas and may report initially to the dentist. It is important for the practitioner to evaluate patients with bleeding disorders and subject them to appropriate laboratory investigatory procedures. A knowledge of dental treatment modifications and use of various local hemostatic measures is a must for the general dental practitioner. This article reports a case of thrombocytopenia in an adult male who reported with a complaint of hemorrhagic bullae and spontaneous bleeding in the oral cavity along with an overview of diagnosis, treatment modalities and dental considerations for such patients.

Keywords: Bleeding, Ecchymosis, Hematomas, Purpura, Thrombocytopenia.

INTRODUCTION

Idiopathic thrombocytopenic purpura (ITP), also known as immune thrombocytopenic purpura is a disease of unknown origin and is considered to be an autoimmune disorder. It is a condition where the immune system attacks the body by the production of autoantibodies against the platelets or megakaryocytes, which are the platelet producing cells. This results in increased destruction of platelets and a decrease in the blood platelet count leading to thrombocytopenia. ITP occurs in two distinct clinical types, an acute self-limiting form seen almost exclusively in children and a chronic form observed mostly in adults and rarely in children. Acute ITP affects both sexes equally and has a peak incidence in children aged 3 to 5 years. Most patients have a history of a preceding severe viral infection. Chronic ITP is typically seen in adults aged 20 to 40 years. It has an insidious onset and a history of an antecedent infection need not be present. Chronic ITP is more common in females than males.1 The reported prevalence of ITP in adults and children is 1 to 13 per 100,000 persons.2 Available evidence suggests that only about 5% of adults with chronic ITP have spontaneous remission3. The mortality rate of chronic ITP is about 4%.1 ITP is generally a benign disorder but can be fatal in a small percentage of patients. It becomes essential for a dentist to identify the condition as he can induce severe bleeding episodes in such patients.

CASE REPORT

A 31-year-old male patient reported to the clinic with the presenting complaint of spontaneous bleeding from the mouth since 2 days. He also gave a history of passing black stools. On general examination, he was poorly built, undernourished and anemic. Multiple purpuric spots were observed on upper and lower limbs (Fig. 1). Review of systems revealed altered taste sensation due to bleeding in mouth, hemoptysis and melena. Extraorally, conjunctival ecchymosis was seen in the right eye. Intraorally, gingiva appeared erythematous (Fig. 2). Petechia and ecchymoses were observed in the lower labial mucosa and hard palate. Hematoma was noted on the dorsal surface of anterior two-third of tongue. A clot was noted on the retromolar area which caused interference in occlusion and impingement of teeth on the clot resulted in further bleeding. Based on the clinical findings of petechiae ecchymoses and hematomas in the oral cavity and on the upper and lower limbs occurring in

Fig. 1: Purpuric spots on lower limbs
an adult patient with no relevant drug history and other attributing causes, a provisional diagnosis of chronic ITP was made.

The patient was then subjected to the following investigatory procedures. Peripheral smear revealed normocytic hypochromic RBC, normal WBC and inadequate platelets. No immature cells were seen. Blood chemistry profile revealed the following findings:

- Blood group — O–ve
- TC — 6,800 cells/cu.mm
- DC — P-52% L-40% E-8%
- RBC — 3.24 millions/cu. mm
- HB — 5.0 gm
- ESR — ½ hour - 30 mm, 1 hour - 64 mm
- Bleeding time — 8 minutes
- Clothing time — 5 minutes
- Platelet count — 32,000 cells/cu.mm

Prothrombin time
- Test — 16 seconds
- Control — 17 seconds

Partial thromboplastin time:
- Test — 39 seconds
- Control — 30 seconds
- MCV — 31 microgram
- MCHC — 33%
- PCV — 18.0%
- HbsAg — Negative
- HIV — Negative

Bone marrow biopsy revealed that the marrow was cellular. Megakaryocytes were adequate. Myeloid erythroid ratio was 6:1. Normal myeloid, erythroid proliferation with no abnormal cells were found.

The laboratory findings thus revealed anemia, prolonged bleeding time, normal clotting time, reduced platelet count, no immature cells in peripheral smear and negative for HIV infection. Bone marrow findings were noncontributory. Correlating the history, clinical features, laboratory studies and having excluded other causes of thrombocytopenia by clinical examination, a final diagnosis of chronic ITP was made.

The patient was treated initially with a hemostatic, tab Ethamsylate (Dicynene) 500 mg tid for 3 days. Zingisol oral solution, a styptic containing zinc sulphate 2% was administered to control gingival bleeding, adrenaline soaked gauze was used for compression at sites of bleeding. He was later administered packed cell transfusion under the guidance of a hematologist. Patient was also put under supplemental vitamins. The patient responded well to therapy and after transfusion, his hemoglobin concentration and platelet count improved considerably.

DISCUSSION

Diagnosis of ITP is largely done by the exclusion of other diseases presenting with a low platelet count. This is best accomplished with a history, physical examination, complete blood count and examination of peripheral smear. Patients with ITP usually give a history of epistaxis, melena and hematuria. A pertinent drug history should be taken to rule out drug-induced thrombocytopenia. A careful physical examination often reveals signs of a hemostatic disorder. Slight fever may be present if there is severe anemia or bleeding into the gastrointestinal tract. Purpuric sports tend to form initially in areas of increased venous pressure, such as legs. Petechia and ecchymoses tend to develop on skin. Intraorally, spontaneous gingival bleeding occurs when platelet count falls below 20,000/cu. mm. Generally glandular enlargement and bone tenderness are not found and spleen is palpable in only about a fifth of the cases. Spleen can engulf platelets and be several times normal size without becoming palpably enlarged. When intracranial bleeding has taken place, the most frequent signs are those of hemiplegia or meningismus.

Laboratory investigations aid in arriving at a final diagnosis of ITP. Patients with ITP have an unusually low platelet count and a normal white blood cell count. Anemia if present is proportional to the extent of blood loss. Prolonged bleeding time, normal clotting time, poor clot retraction and a positive tourniquet test are other findings. Peripheral smear shows a decrease in the number of platelets. Often smear shows giant platelets which reflects the increased thrombopoietin-induced stimulation of bone marrow. Examination of smear is essential to rule out thrombotic thrombocytopenic purpura (TTP) and acute leukemia. Bone marrow examination which is not always necessary shows increased megakaryocytes. Clusters of immature megakaryocytes are often observed in patients with ITP. The ITP tests used in research are summarized by Robert McMillan of the Scripps Research Institute. These research tests can diagnose chronic ITP by measuring antiplatelet antibodies which include the immunobead assay and the monoclonal antibody-specific immobilization of platelet antigen (MAIPA).

Several current treatment methods exist for ITP. The typical treatment of adult chronic ITP has four lines of defense. The first line of treatment is putting the patient under corticosteroids, such as prednisone. Steroids are the preferred first line of treatment because of its convenience (pill form) and its low cost. Steroids are continued until the platelet count reaches normal or over 50,000 and gradually tapered in 4 to 6 weeks.
The disadvantages of using a corticosteroid are that in the long run it causes side effects, like weight gain, osteoporosis and increased risk of infection. The second line of treatment is to use anti-D immunoglobulin which is only useful in Rh positive patients. The treatment is administered when the platelet count falls below 25,000. The duration of treatment is generally 6 to 12 months. Minimal side effects like fever, chills, headache occur during or shortly after anti-D injection. If the first two therapies are ineffective then the currently accepted practice is splenectomy. Since spleen is an organ involved in platelet removal, splenectomy is done with an attempt to prevent further destruction of platelets. Historically, splenectomy has yielded the highest cure rate of all treatment. The fourth line of treatment is by using vinca alkaloids like vincristine (oncovin) and vinblastine (velban), danazol, an anabolic steroid that suppresses macrophage mediated platelet destruction and colchicines, an antigout agent which is only occasionally used for ITP.

**DENTAL ASPECTS**

Patients with ITP are at risk of prolonged or excessive bleeding. A preoperative platelet level less than 20,000/cu. mm pose significant risk of bleeding. So, dental treatment is done in a hospital with platelet transfusion. In patients with a stable platelet count of 30,000/cu. mm and above, dental surgeries are done with precautionary hemostatic control measures. Control of hemostasis at the site of surgery may be achieved by local and systemic measures. Platelet transfusions and intravenous immunoglobulin (IVIG) treatment are reserved for life-threatening situations and should be used sparingly. So, when a transient increase in platelet count is required for tooth extraction or other invasive procedures, IVIG–1g/kg the day before and on the day of dental extraction or oral corticosteroid can be used. In patients with ITP drugs that further impair platelet function should be avoided particularly aspirin and other NSAIDs, such as ibuprofen. Safer alternatives for pain control are acetaminophen and cox-2 inhibitors. Local anesthetic regional blocks should be avoided to minimize the risk of hematoma. Local infiltration and intraligamentary or intrapulpal anesthesia are safer methods.

Lucas advocates the use of hypnosis as an alternative pain control technique. Dental procedures are carried out with minimum irrigation to the soft tissues to reduce the risk of bleeding in a patient with a bleeding disorder. Isolation with rubber dam provides quality dental care for ITP patients. Specific dental procedures which can lead to fatal complications. Specific dental protocol and proper coordination with a hematologist aid in providing quality dental care for ITP patients.

In endodontic therapy, avoiding instrumentation through the periapex is of prime importance to minimize bleeding. Intracanal injection of local anesthetic solution containing adrenaline or topical application of adrenaline 1:1000 helps to control bleeding. Suturing is desirable after surgery to stabilize gum flaps and to prevent postoperative disturbance of wounds by eating. When necessary, oxidized cellulose (surgical) soaked in tranexamic acid may be used. Tranexamic acid, an antifibrinolytic agent postpones the fibrinolytic stage to a phase in which the healing at the socket wound would not be interrupted. Local use of fibrin glue and swish and swallow rinses of tranexamic acid before and after a surgical procedure is a cost-effective solution. A diet of cold liquid or semisolid food should be taken for 5 to 10 days after the surgical procedure. Care should be taken to watch for hematoma formation manifesting as dysphagia, swelling or hoarseness. Infection induces fibrinolysis and so antimicrobials such as amoxicillin 500 mg four times daily should be given post operatively for a full course of seven days to reduce the risk of secondary hemorrhage. Scaling can be carried out in ITP patients with a stable platelet count using precautionary measures. Orthodontic bands and brackets should be placed in such a way as to cause minimal irritation to the tissues.

**CONCLUSION**

ITP is an elusive disorder that confronts the dentist. Typically, ITP is a ‘diagnosis of exclusion’, as much is still unknown about its origin or pathogenesis. Lack of a reliable and cost-effective diagnostic test makes its diagnosis further complicated. Conditions like ITP must be given due consideration in the field of dentistry as the profession involves various surgical procedures which can lead to fatal complications. Specific dental protocol and proper coordination with a hematologist aid in providing quality dental care for ITP patients.

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