



# Stomatological treatment of patients afflicted with idiopathic thrombocytopenic purpura. Case report

## *Manejo estomatológico del paciente con púrpura trombocitopénica idiopática (PTI). Reporte de un caso*

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### ABSTRACT

Idiopathic thrombocytopenic purpura (ITP) is the most common acquired hemorrhagic alteration occurring in apparently healthy children who have suffered viral diseases, after application of common vaccines, having been medicated with drugs or received transfusions. ITP undergoes a sudden onset, with a rapid, life threatening development of bleeding (hemorrhage). 90% of cases experience spontaneous remission, or remission after a 3 to 4 week treatment. General clinical manifestations are: petechiae, ecchymosis, hematoma, epistaxis, mucocutaneous hemorrhage, hematuria. **Objective:** To describe oral manifestations and stomatological management of ITP patients. The present study reports the case of a 4 year old female ITP patient presenting a purpuric condition with more than 100,000 platelets. The case subsides spontaneously without treatment. The patient presents diagnosis of early infancy childhood caries. The case is treated in the conventional manner, with absence of clinical signs and symptoms. Hemostatic measures were taken such as placement of Gelfoam® (oxidized gelatin sponge) and sutures in the extraction sites. The patient evolved favorably.

### RESUMEN

La púrpura trombocitopénica idiopática (PTI) es la alteración hemorrágica adquirida más común que se presenta en niños aparentemente sanos, posterior a una enfermedad viral común, aplicación de vacunas, medicamentos o transfusiones. Se presenta de manera súbita desarrollando un cuadro severo de sangrado que amenaza la vida, el 90% remite de manera espontánea o con tratamiento de 3 a 4 semanas. *Manifestaciones clínicas generales:* Petequias, equimosis, hematomas, epistaxis, hemorragia mucocutánea, hematuria. *Manifestaciones estomatológicas:* Petequias, equimosis o hematomas en mucosas, lengua y paladar gingivorragia. **Objetivo:** Describir las manifestaciones orales y manejo estomatológico del paciente con PTI. Se reporta el caso de una niña de 4 años con PTI que presenta un cuadro purpúrico con plaquetas mayores de 100,000 quien remite de forma espontánea sin tratamiento, con diagnóstico de caries temprana de la infancia, se trata de manera convencional en ausencia de signos y síntomas clínicos tomando medidas hemostáticas como colocación de Gelfoam® (Esponja de gelatina oxidada) y puntos de sutura en los sitios de extracción, la paciente evolucionó de manera favorable.

**Key words:** Idiopathic thrombocytopenic purpura (ITP), gingivorrhagia (bleeding gums), petechiae, ecchymosis.

**Palabras clave:** Púrpura trombocitopénica idiopática (PTI), gingivorrhagia, petequias, equimosis.

### INTRODUCTION

Idiopathic thrombocytopenic purpura is the most common acquired hemorrhagic alteration. Its onset is usual in apparently healthy children after a common viral condition (illness), or after the administration of vaccines, drugs or transfusions.<sup>1-5</sup> It has a sudden onset, and develops a severe life-threatening hemorrhagic clinical condition. 90% of cases experience remission, or remit within a 3 to 4 week treatment.<sup>5-7</sup>

Etiology: This condition is the product of a cross reaction incited by viruses, drugs or vaccines.<sup>7</sup> The

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condition develops during the one to four week period following exposure to the triggering agent (generally a viral infection). In this period, an antibody aimed at the platelet surface develops. After this bonding, macrophages recognize it as foreign and proceed to its destruction.

**Clinical phase:** This condition presents a sudden onset in previously healthy children, and develops in a few hours to clinical condition of acute haemorrhage.<sup>5,7,9</sup> Patients with haemorrhage are in a life-threatening position, and require immediate hospitalization. Diagnosis is based upon the presence of three central manifestations:

- a) Haemorrhagic phenomena in the skin
- b) Spontaneous haemorrhagic mucosa
- c) Visceral haemorrhage.

The main manifestation of spontaneous haemorrhage in the mucosa is the presence of epistaxis and gingivorrhagia (haemorrhage of the gums).<sup>5,7-11</sup> When there is ecchymosis in the oral mucosa, it is known as damp purpura.

**Clinical manifestations:** Clinical manifestations of this condition comprise ecchymosis, epistaxis, hematuria, mucocutaneous haemorrhage and occasionally tissue haemorrhage.<sup>1</sup>

**Stomatognathic manifestations:** Hemorrhage in the gums, petechiae or hematoma in mucosa, tongue and palate.<sup>1-5</sup>

**Laboratory data:** Decreased number of platelets. Platelets of normal or slightly augmented size. Prolonged bleeding time, Normal prothrombin and partial thromboplastin times (*Table I*).<sup>12,13</sup>

**Treatment:** Treatment must be undertaken when platelet count is below 20,000/mm<sup>3</sup>, or when there are data of diffuse haemorrhage. All other cases must be individually assessed:<sup>12,13</sup>

- 1) Platelet transfusion due to therapeutic or prophylactic indications.
- 2) Pharmacological. Steroids are the first line of treatment. Immunoglobulins are advised in life-threatening haemorrhages. Treatment: refractory ITP before surgery and platelet post transfusion to prolong their life. Immunosuppressants.<sup>14</sup>
- 3) Splenectomy.<sup>15</sup>

### STOMATOLOGICAL MANAGEMENT

- In acute conditions, treatment must be postponed until the patient is stable. If pain or infection are

present, antibiotic and anti inflammatory analgesics must be dispensed.

- Patients requiring urgent treatment must be referred to a hematologist to assess the convenience of a platelet concentrate transfusion<sup>16,17</sup> to elevate amounts to over 50,000 platelet/mm<sup>3</sup>. The ideal figure to reach is 100,000 platelet/mm<sup>3</sup>.
- Elective surgery must be postponed until the patient becomes stable. Platelet minimum count to safely perform a surgical procedure is 100,000 per mm<sup>3</sup>.
- Behavior management with basic techniques for cooperating patients. If the patient does not cooperate and requires extensive dental treatment, assessment must be made of the advisability for oral rehabilitation under general anesthesia in order to avoid accidental traumas and repetitive transfusions due to the risk of developing antibodies.

### GENERAL PROCEDURES TO BE OBSERVED WITH ITP PATIENTS

- Short appointments to avoid young children to tire or become anxious.
- Anesthesia with one step vasoconstrictor to avoid damaging small vessels and thus avoid bleeding.
- Use of atraumatic clamps to avoid damaging the gums and thus avoid gingival bleeding.
- In extraction cases, it is necessary to exert sustained pressure, sutures must be applied and a haemostatic agent such as Gelfoam<sup>®</sup> must be applied.
- In cases where a prosthesis is needed, it must be perfectly polished to avoid trauma caused by sharp or irregular sites.
- In cases where the patient was prescribed corticosteroids, in dosages which exceed the daily production of cortisol, dosage must be doubled before treatment.
- It is necessary to avoid trauma which might induce bleeding, such as aggressive tooth brushing, misuse of dental floss, toothpicks as well as hard foods, etc.
- It is advised to avoid anti aggregating drugs like those derived from acetylsalicylic acid as well as intra muscular drugs which might induce bleeding.

These patients do not receive transfusions, for it is considered they could exacerbate general health deterioration. This does not apply to very special, life-threatening cases (*Table II*).<sup>12,17</sup>

**CLINICAL CASE**

Four year old female patient residing in Mexico City attends the Instituto Nacional de Pediatría (National Pediatrics Institute) on June 2, 2006, due to epistaxis and petechiae. A diagnosis of Idiopathic Thrombocytopenic Purpura was emitted. A relevant aspect of the patient's history was the fact that she presented a purpura clinical picture at 14 months of age, for which she was hospitalized.

The patient was assessed at the Hematology Service, where five hematic cytometry tests were performed at ten days intervals. One of these tests revealed a platelet count of 133,000 mm<sup>3</sup>. All the others reported normal parameters. Bleeding time was normal, but at the upper range limit. Prothrombin and Thromboplastin times were normal. Tourniquet test was positive, and serological tests for Epstein Barr virus, Cytomegalovirus, and Parvovirus B19 were negative. The patient experienced spontaneous remission of signs and symptoms. A platelet recovery to normal values was observed. The patient was under constant monitoring and her caregivers were advised to immediately bring her to the Emergency room if she ever presented signs or symptoms of bleeding.

The patient was referred to the Stomatology Service due to the fact that she presented pain and swelling in tooth number 74. Upon clinical examination, the patient did not show or inform of bleeding, petechiae or ecchymoses. Intraorally, the patient presented full primary dentition with numerous caries of varied severity (Figures 1 to 3). Tooth number 74 showed extensive caries with apparent communication to the pulp. There was an increased volume in the marginal gingival tissue, and insertion, approximately 1 cm in diameter. Upon palpation there was egress of painful and purulent matter. There was a 3 mm mobility in vestibular-lingual direction. Tooth number 8 presented extensive caries, and was painful to horizontal and vertical percussion.

Teeth numbers 55, 54, 64, 65, 75 and 85, presented extensive caries as well as fistulae. Teeth number 52 and 62 presented caries on the palatine and vestibular faces. Tooth number 51 presented caries at the palatine face. Teeth 31 and 41 were erupting, with persistence of primary teeth 71, 81. The rest of the teeth showed no alterations. Hematic cytometry revealed a 183,000 mm<sup>3</sup> platelet count.

Stomatological treatment consisted of 10 extractions, 2 steel-chrome crowns and 1 resin (Table III).

CPO index when treatment started (Figures 1,2 and 3): 11 caries, 0 lost, 0 filled .

CPO index upon completion of treatment (Figs 4, 5 and 6): 0 caries, 8 lost, 3 filled.

At all appointments, lidocaine with 2% epinephrine was administered in one episode. Extractions were performed aiming at avoidance of trauma as much as possible with application of Gelfoam® at extraction sites, as well as isolated sutures. Therapeutic clindamycin was administered at a ratio of 30mg per kilogram, per day, during 7 days. The patient reacted favorably and showed no complications.

**DISCUSSION**

Sánchez<sup>12</sup> and Farfán<sup>13</sup> mention that a clinical picture of purpura manifests itself with a platelet count of 50,000/mm<sup>3</sup> or less. The patient presented epistaxis and petechiae with platelet count of 133,000/mm<sup>3</sup>. In this case the condition remitted spontaneously, without any treatment. Attention protocols<sup>2,5</sup> indicate that the minimum platelet count for dental treatment must be 50,000/mm<sup>3</sup> and 100,000/mm<sup>3</sup> for minor surgical procedures (extractions). The patient presented a platelet count of 183,000/mm<sup>3</sup>. For this reason she was treated as a healthy patient. Nevertheless some additional precautions were taken<sup>1-5</sup> such as anesthesia in one episode, placement of Gelfoam® at the extraction site, application of suture points, as well as maintained pressure. These patients present predisposition to suffer haemorrhage<sup>18-19</sup> when submitted to dental extractions or prophylaxis. Piot<sup>16</sup> recommends the use of

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**Table I.** Laboratory data found in an ITP patient

Laboratory test	Reference values	ITP
Platelets/mm <sup>3</sup>	150,000 to 450,000	Decreased
Ivy bleeding time	Up to 6 minutes	Prolonged
Prothrombin time	10 to 14 seconds	Normal
Thromboplastin partial time	25 to 43 seconds	Normal

Source: Castellanos SJL, Díaz GL, Gay ZO. Medicina en Odontología, Manejo Dental de pacientes con enfermedades sistémicas, 2nd ed. México, *El Manual Moderno*; México, 2002.

fibrin gum, desmopressin and antifibrinolytic agents such as tramexamic acid, Chamate<sup>20</sup> and Finucane.<sup>17</sup> Where there is presence of trauma in the oral cavity and the patient in need of dental treatment shows a platelet count lesser than 30,000/mm<sup>3</sup>, it is advised after consultation with the hematologist, to administer immunoglobulins to increase platelet count. Some patients are refractory to treatment. They receive immunosuppressive drugs.<sup>21</sup> Splenectomy is considered a last resort, in these patients it is necessary to employ antibiotic prophylaxis.<sup>21-23</sup>

**Table II.** Platelet parameters which are taken into consideration at the National Pediatrics Institute for dental procedures.

Platelet amount per mm <sup>3</sup>	Allowed dental procedure
80,000	Extraction
50,000	Programmed restorative treatment
20,000	Tooth Channeling

Source: Pediatrics National Institute.

## CONCLUSIONS

A systematic and orderly assessment of the oral cavity prevents inadvertently missing signs and symptoms such as gum bleeding, petechiae, ecchymoses or hematomas in a patient who is developing a hemorrhagic clinical picture. In these cases it is best to adjourn dental treatment: the dental operator must request laboratory studies such as hematic cytometry with platelet count, as well as coagulation time. The patient must be referred to a specialist to avoid complications such as post extraction haemorrhage.

Preventive treatment is of the utmost importance to avoid dental complications which might aggravate the patient's general health. Recurrent revisions every three months help avoid complications and also monitor oral manifestations which might be indicative of a reactivation or increase in the condition's severity, which, in turn, might require support care.

**Table III.** Stomatological Diagnosis and Treatment

Tooth	Diagnosis	Treatment	Tooth	Diagnosis	Treatment
55	CPA	Extraction	65	CPA	Extraction
54	CPA	Extraction	64	CPA	Extraction
53	Healthy		63	Healthy	
52	Caries	SCC	62	Caries	SCC
51	Caries	Resin	61	Healthy	
81	Persistence	Extraction	71	Persistence	Extraction
82	Healthy		72	Healthy	
83	Healthy		73	Healthy	
84	APA	Extraction	74	APA	Extraction
85	CPA	Extraction	75	CPA	Extraction

CPA= Chronic periapical abscess; APA= acute periapical abscess, SCC= Steel and chrome crown.

Source: Direct observation



**Figures 1, 2 y 3.** ITP patient beginning treatment.



Figures 4, 5 y 6. ITP patient upon treatment completion.

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