

Review Article

Childhood idiopathic thrombocytopenic purpura: oral manifestations and dental care

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Introduction

Thrombocytopenia is a blood disorder characterized by an accentuated reduction in platelets. This reduction in number and function may stem from different mechanisms, such as autoimmune destruction, spleen sequestration, bone marrow failure, infiltration by tumor cells and an adverse drug reaction [1].

Idiopathic thrombocytopenic purpura (ITP) is one of the most common causes of symptomatic thrombocytopenia in children, [2,3] with the annual incidence of ITP is estimated to be between 1 and 6.4 cases per 100,000 children [2,4]. The most common clinical symptoms are hematoma, petechiae, bleeding of the mucous membranes and other hemorrhagic manifestations of thrombocytopenia [5-7].

Abstract

Oral manifestations may be the first clinical signs of idiopathic thrombocytopenic purpura (ITP) diagnosed by a pediatric dentist. The aim of the present study was to describe oral manifestations and dental care for patients with ITP. A narrative review of the literature was performed, involving a search in the MEDLINE (PubMed) electronic database for relevant articles published in English using the following keywords: "Purpura, Thrombocytopenic, Idiopathic", "Hematologic diseases" and "Dental care". No restrictions were imposed with regard to the year of publication. The inclusion criteria were studies that addressed oral manifestations and dental management in patients with ITP. This condition is considered one of the most common blood disorders in children. Manifestations such as spontaneous or trauma-induced gingival bleeding, petechiae, hematomas, purpura and ecchymosis are reported in regions of the vestibular mucosa, lateral edges of the tongue and the junction between the hard and soft palate as well as other sites of the oral mucosa. Oral management depends on the status of the disease, which is reflected in the platelet count. Moreover, the inclusion of a hematologist on the treatment team is fundamental. In the occurrence of these manifestations, a detailed patient history is the key to successful oral treatment for these patients to avoid inflammation, gingival bleeding and infection.

Keywords: Purpura, Thrombocytopenic, Idiopathic, Hematologic diseases, Dental care

Abbreviations:

ITP: Idiopathic Thrombocytopenic Purpura

Oral manifestations are often among the first findings of thrombocytopenia, such as gingival bleeding stemming from trauma in the oral cavity [1,8]. Therapy for patients with ITP depends on the conditions found as well as the relationship to dental treatment. The clinical approach of the pediatric dentist should be based on prior knowledge of the evolution of the disease in the patient [9].

The aim of the present study was to describe oral manifestations and care (pediatric dentistry) for patients with idiopathic thrombocytopenic purpura.

Materials and Method

A narrative review of the literature was performed, involving a search in the MEDLINE (PubMed) electronic database for relevant articles published in English using the following keywords: "Purpura, Thrombocytopenic, Idiopathic", "Hematologic diseases" and "Dental care". No restrictions were imposed with regard to the year of publication. The inclusion criteria were studies that addressed oral manifestations and

dental management in patients with ITP.

Literature Review

Concept and diagnosis

ITP is an acquired disorder characterized by mild to severe thrombocytopenia in the absence of any other abnormality. The two main mechanisms involved in the pathogenesis of this condition are an increase in the destruction of or reduction in the production of platelets [8]. Platelet reduction can occur in cases of bone marrow failure syndromes, such as aplastic anemia or myelodysplastic syndrome, and chemotherapy-induced or drug-induced thrombocytopenia [8].

According to different authors [9-13], the diagnosis of ITP is performed by exclusion, as the differential diagnosis includes other conditions with distinct etiologies that can lead to the general symptoms of thrombocytopenic purpura, such as those mentioned above and hereditary thrombocytopenia (Bernard-Soulier syndrome and Aldrich-Schlonlein syndrome), vitamin C deficiency, viral infections (HIV, infectious mononucleosis), autoimmune disorders (systemic lupus erythematosus), acute leukemia and Hodgkin's lymphoma.

Forms of presentation

ITP clinical signs include petechiae, ecchymoses, haematomas, epistaxis, haematuria, mucocutaneous bleeding, and occasionally, haemorrhage into tissues. Complications are rare. In general, splenomegaly is not common, being in acute form IPT, spleen only palpable in 10% of the cases [13].

The disease has two forms: Acute and chronic. The chronic form is known as childhood ITP, which can affect children of both sexes under ten years of age as well as young adults [14-16]. It has been associated with a history of viral infection two to 21 days prior to the first clinical signs and onset of ITP [9,15-19]. The acute form has been associated with infection by Epstein-Barr virus, varicella-zoster virus, after vaccinations for rubella, mumps and measles as well as other infections of different etiologies [13,20,21]. This condition is usually self-limiting, with remission occurring within several weeks or months [22], more specifically within six months, according to Sugiura, et al. [12].

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For the chronic form, which is characteristically seen in adults, there is no consensus in the literature regarding its duration. Some authors define it as persisting for more than six months [14,23]. However, the classification proposed in 2009 defines chronic ITP as the occurrence of the disease for more than 12 months [24]. The symptomatic manifestations of this form are generally mild [13,22].

Oral manifestations

The oral cavity merits special attention as a predisposing factor for diverse systemic disorders given its particular anatomic and physiologic aspects [25]. Oral manifestations of blood diseases may be the first clinical signs found by a dentist, serving as a guide for a detailed patient history [26].

Spontaneous bleeding or bleeding induced by trauma, such as during brushing or the use of dental floss, is often the first sign of thrombocytopenia [1,8,23]. Signs such as petechiae, hematoma, purpura and ecchymosis are reported in the region of the vestibular mucosa, lateral edges of the tongue and the junction between the hard and soft palate [8,13,23], which are prone to trauma. Other signs include multiple hemorrhagic blisters on the sublingual mucous membrane, floor of the mouth or lateral surface of the tongue, according to Byatnal, et al. [27].

With regards to the tissue reactions, there are few reports in the literature of the appearance of gingival hyperplasia. In a study evaluating forms of treatment for refractory childhood ITP, it was reported that the use of Ciclosporin A caused the gingival growth as an adverse reaction in 10 patients within a control group of 21 patients [28]. These were results identical with those already reported in China [29].

The frequent finding of gingival bleeding in routine clinical dentistry [12] underscores the need for a detailed patient history to determine the diagnosis with the inclusion or

exclusion of different causal factors, such as periodontal disease, trauma, anticoagulant therapy, bacterial infection, leukemia and blood disorders [27] such as ITP. Blood disorders, in particular, exhibit characteristic abnormal bleeding with a sudden onset that is difficult to control [9].

Dental management

Dental management depends on the platelet count [8], which should be higher than 50,000/mm³ before any treatment should be performed. Moreover, treatment should only be performed with the knowledge of the patient's hematologist [30]. There is no consensus in the literature regarding surgical procedures. According to some authors, a platelet count lower than 50,000 mm³ requires transfusion or corticosteroid therapy prior to surgery [31,32]. However, the American Hematology Society states that corticosteroids or intravenous infusion are only necessary when the platelet count is lower than 30,000/ μ L [33]. For minor and major surgery, the margin of safety is $\geq 50,000$ and $\geq 80,000$ cells/ μ L, respectively [34].

First-intention healing of surgical wounds can be achieved with hemostatic measures, such as manual compression with gauze and the local injection of a vasoconstrictor [13]. The filling of the alveolus with absorbable gelatin sponges, microfibrillar collagen [32] or oxidized regenerated cellulose is also useful in cases of bleeding. Electrical cauterization or the application of bone wax are other options for controlling hemorrhage [13]. For the management of trans-operative pain, infiltrative and intra-ligament anesthetic techniques are preferable for patient with ITP [35]. Inferior alveolar nerve block is contraindicated due to the greater chance of the formation of a hematoma [36].

Nonsurgical procedures as gingival probing, scaling and root planning may be performed without risk gingival bleeding, as long as it is carefully. Fine curettes and scalers should be used, or ultrasonic instrumentation, due less tissue trauma [8].

Regarding medication therapy employed in such patients, antiplatelet aggregating drugs and non-steroidal anti-inflammatory drugs should be avoided [8,37]. The use of acetaminophen-based drugs or selective COX-2 inhibitors is preferable [8]. However, the drug line of choice for these patients is a corticosteroid, taking due care to avoid adrenal failure [8].

Prevention

A possible lack of oral hygiene may be noted among individuals with a coagulopathy due to the fear of exacerbated bleeding following brushing and the use of dental floss [37].

In the long term, this lack of hygiene can lead to periodontal problems and caries [37]. Therefore, adequate plaque control is fundamental to the prevention of inflammation, gingival bleeding and infection in these patients [13,14,38].

An individualized prevention program should be implemented based on the patient's age and the risk of caries [13,14]. The use of a fluoride toothpaste and dietary counseling should be instituted. Depending on the risk of caries and the optimum quantity of fluoride in the water supply, daily mouth rinsing with fluoride and systemic fluoride supplements may be recommended. Moreover, dental office procedures, such as the topical application of fluoride or chlorhexidine as well as the sealing of pits and fissures, are preventive measures that can be performed [13].

Conclusion

Oral manifestations, such as spontaneous bleeding or bleeding induced by trauma, may be the first clinical signs of idiopathic thrombocytopenic purpura (ITP) diagnosed by a pediatric dentist. Other signs of this disease include petechiae, hematomas, purpura and ecchymosis, which are reported in diverse sites of the oral mucosa. Oral management depends on the status of the disease, which is reflected in the platelet count. Moreover, the inclusion of a hematologist on the treatment team is fundamental. Prevention is the key to successful oral treatment for these patients to avoid inflammation, gingival bleeding and infection.

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