Idiopathic Thrombocytopenic Purpura in a 21-Year-Old Collegiate Football Player: A Case Report

James A. Leinhart, MD*; Shane P. Cass, DO*; Matthew A. Tennison, MD†; Ronica A. Martinez, MD‡; Christopher A. McGrew, MD*

*Department of Family & Community Medicine, The University of New Mexico Health Sciences Center

†Department of Emergency Medicine, The University of New Mexico Health Sciences Center

‡Student Health & Counseling, The University of New Mexico

Abstract

Muscle cramps are commonly observed in collegiate athlete-patients; however, the condition may be a symptom of severe disorders. In particular, idiopathic thrombocytopenic purpura (ITP) may be a possible diagnosis and involves a decreased number of platelets in the bloodstream. We describe a 21-year-old collegiate player of American football with initially presented with cramping of the neck, abdomen, and forearms. Although findings of physical examination were normal, results of laboratory tests indicated ITP, and the patient was hospitalized for 3 days until the platelet count increased. Because the levels continued to decrease at 6-month follow-up, splenectomy and use of rituximab agents have been discussed with the patient for treatment after the end of the football season, before which dexamethasone will be administered to maintain a minimum platelet count of 50. Physicians should consider coordinating traditional care and specialist consultation to help treat severe conditions such as thrombocytopenia in athlete-patients.

Introduction

Muscle cramps are commonly seen in collegiate athlete-patients. In performing differential diagnosis, muscle cramps can generate various potential causes of noted symptoms, ranging from simple to severe. In particular, findings of associated workup have revealed the presence of idiopathic thrombocytopenic purpura (ITP), an autoimmune disorder characterized by the development of antibodies that reduce the amount of platelets in the bloodstream.[1] The incidence rate in adults is estimated at about 1 in 10,000 patients per year in the United States.[2] Viral infections, medications, malignancy, autoimmune syndromes, and idiopathic features have been associated with the disorder.[3] Bleeding has been rarely described with platelet counts of 10,000 or greater, and intracranial hemorrhage has been the most severe complication.[3]

Currently, no evidenced-based guidelines exist concerning the minimum platelet count required for athletes to participle in high-collision sports.[3] We present a 21-year-old collegiate player of American football with ITP in whom initial hospitalization, followed by a tapering 10-week course of oral prednisone, and eventual administering of high-dose dexamethasone at 6-month follow-up led to temporarily normalized platelet counts but did not resolve reoccurrence of the decrease. Splenectomy or administration of rituximab agents has been discussed with the patient, who will resume competitive play with a minimum platelet count of 50 until the end of the football season and return after for treatment.

Case Report

During preseason football training, a 21-year-old African American linebacker presented to our training room clinic with symptoms of cramping of the neck, abdomen, and forearms. He had a history of cramping after physical workouts but not in those locations. The patient also had 2 days of rhinorrhea, sore throat, and cough. He expressed feeling weak, although no fevers, myalgias, and shortness of breath were noted. Adequate hydration was reported, with normal vital signs and findings of physical examination.

Results of previous blood tests were negative for sickle cell trait, and no changes in urine had been noted. The patient had a history of possible Crohn's disease diagnosed after a bout of diarrhea, with results of colonoscopy and biopsy indicating chronic inflammatory bowel disease of the previous year. The associated symptoms ultimately resolved. At the time of presentation to our institution, he had reported no diarrhea or gastrointestinal symptoms.

Basic laboratory tests (ie, on complete blood count, complete metabolic panel, and levels of creatine kinase [CK]) were performed to rule out electrolyte disturbances and rhabdomyolysis. Findings showed a platelet count of 38, creatinine count of 1.84, and elevated CK levels at 2591; otherwise, findings were normal. Further evaluation and laboratory tests were performed the next day, and results indicated that platelet and CK counts had changed to 21 and 3915, respectively. Because findings had worsened, the patient was admitted to the hospital for monitoring symptoms and treatment. He was hospitalized for 3 days, during which a platelet count nadir (ie, lowest value) of 14 was noted. The levels improved with administration of dexamethasone and intravenous fluids. Hematologists were subsequently consulted, and ITP and rhabdomyolysis were diagnosed. No symptoms were observed during the hospital stay of the patient, and he felt well at time of discharge. The mild rhabdomyolysis was thought to be caused by strength and conditioning workouts.

The patient missed 2 weeks total of preseason training and gradually returned to full participation after findings of laboratory tests had normalized (platelet count, 200). At about 10 days after discharge, however, the platelet count had decreased to 83. The patient was subsequently placed on a tapering 10-week course of prednisone. Hematologists recommended a platelet count of 100 or greater before resuming football-related activity.

At 6 months after his initial hospitalization, the patient was re-admitted to the hospital after a noted platelet count of 5, with upper respiratory viral illness. He was discharged at day 2, with promising results after being administered high-dose dexamethasone and a corresponding tapering course of prednisone. However, 2 weeks after cessation of prednisone tapering, the platelet count had dropped to 35. Subsequently, use of low-dose prednisone until undergoing eventual splenectomy or single-agent rituximab (suggested by hematologists) were discussed with the patient for treatment of ITP.

The patient has been weighing treatment options and will make a definitive choice after the end of the football season. Until then, he will continue to participate in sports-related activity with a platelet count of 50 and greater, followed closely by our sports-medicine team and hematologists.

Discussion

ITP is a relatively common bleeding disorder, but currently no clear guidelines exists regarding return to play of athletes in high-collision sports. The American College of Sports Medicine has recommended to avoid contact-type sports with platelet counts of less than 100, although no significant clinical impact has been reported.[4] The current case is one of the few to report findings of ITP in patient-athletes of high-collision sports.

Several studies have described potential guidelines to follow in return to physical activity of patients with ITP, although no standard exists on athletes in high-collision sports. Two other case reports have reported ITP in patient-athletes of high-collision sports.[1,3] Specifically, Esala and Foy[3] recommended a platelet count greater than 50 before participation in American football, supported by findings of an older study in which bleeding rarely occurred in counts of 50 or greater.[5] Furthermore, current guidelines in obstetric patients have called for a target platelet count greater than 50 to minimize bleeding complications during childbirth.[6] These suggestions have been helpful in treating ITP but do not consider athletes in high-collision sports and subsequent possibility of intracranial hemorrhage. The National Collegiate Athletic Association has not yet incorporated guidelines on minimum platelet count for safe participation.

In the current case, a clear autoimmune link was not established between Crohn's disease and intermittent ITP, despite a thorough evaluation. Glycogen storage diseases were also generated in differential diagnosis as possible causes of symptoms. Findings of extensive examinations such as electromyography, rheumatologic laboratory tests, and muscle biopsy were negative for a clear autoimmune cause. ITP, rhabdomyolysis, and Crohn's disease were identified as separate processes without a clear autoimmune syndrome.

Because symptoms of ITP were not resolved after 6 months, we have discussed reportedly successful treatment options such as splenectomy[7] with our patient and will closely follow him until a decision is made at the end of the football season. Until treatment, dexamethasone will be administered to maintain a minimum platelet count of 50. The findings of our study indicate that further research is required to determine platelet-count thresholds for safe participation of athletes in high-collision sports. Additionally, sports physicians should collaborate with other specialties when confronting cases such as ITP in which no substantial guidelines exist in directing treatment.

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Conflict of Interest

The authors report no conflicts of interest.

Informed Consent

The patient was informed that the data concerning the case would be submitted for publication, and he provided verbal consent.

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