



Ecchymosis: An Unexpected Side Effect of Montelukast

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ABSTRACT

Montelukast is a leukotriene receptor antagonist that is used to treat allergy and asthma. It acts as a cysteinyl leukotriene receptor antagonist that blocks the action of leukotrienes and decreases inflammation. This agent is generally well tolerated in clinical practice. Although montelukast is generally considered as a safe drug, it can cause a few adverse drug reactions. In this case study, a rare side effect of montelukast that has been reported only twice before is presented. The importance of this case report is that the youngest patient who had ecchymosis due to the use of montelukast treatment is reported

Keywords: Drug, ecchymosis, montelukast, treatment, allergy

INTRODUCTION

Montelukast is one of the leukotriene receptor antagonists developed at the beginning of the 1990s. When compared to other antileukotrienes, montelukast has a wider range of use (1). Montelukast is rapidly and almost completely absorbed after oral administration. The studies on montelukast have shown that montelukast improves the quality of life and respiratory function (2).

Montelukast taken orally is rapidly absorbed from the intestines with 86% being excreted in the feces and a small part in the urine (3). Although montelukast is not known to have significant side effects, the most common adverse event in children are headache, hyperkinesia, abdominal pain, upper respiratory tract infection, fatigue, thirst, and a rash (4). Recent studies have also reported some rare adverse effects such as psychiatric disorders, allergic granulomatous angiitis, and sleeping disorders (5,6). This case report presents an unexpected side effect that can occur due to the use of montelukast as observed in a 3-year-old girl.

CASE REPORT

A 3-year-old girl presented to our clinic with

complaints of bruising on the left arm and legs. She had started taking montelukast (4 mg/day) for an allergic bronchial cough two months ago. The patient's history included acute bronchiolitis attacks that repeated until 2 years of age, together with allergic bronchitis and recurrent croup episodes. Her family had an allergic background. The patient had no other complaints other than bruising on her extremities. She had no history of trauma or any other drug use.

On physical examination, there was an ecchymosis 4 cm in diameter on the left forearm, and multiple ecchymosis with different diameters on the legs (Figure 1, 2). The laboratory analyses were as follows: hemoglobin 12.1 g/dL (11-14 g/dL), hematocrit 34.8% (32-42%), white blood cells 10060 /mL³ (6000-14000 /mL³), neutrophil count 3510 /mL³ (1400-6400 /mL³), eosinophil count 100 /mL³ (0-700 /mL³), platelet count 391000 /mL³ (150000-450000 /mL³), erythrocyte sedimentation rate 5 mm/h (0-10 mm/h), and C-reactive protein 0.1 mg/L (< 2.8 mg/L). Coagulation tests were in the reference range; pT 12.9 s (12.1-14.5), INR 1.02 (0.92-1.14), and aPTT 28.9 (23.6-34.8) The peripheral blood smear result was PNL 36%, lymphocytes 60%, and monocytes 4%. Platelets were normal but erythrocytes showed mild hypochromia.

Ultrasonographic examination showed a hypochoic solid area of 3.5x1.5x5 mm with a limited smooth contour on the posteromedial section of the left arm while Doppler US examination was normal. The patient's medication



Figure 1: Ecchymosis on the left forearm.



Figure 2: Multiple ecchymosis on the legs.

was discontinued since it was thought to be the cause of the bruises on the patient's arm. After the drug was discontinued, the ecchymosis disappeared within two weeks and did not recur. A written consent form was obtained from the family for the pictures and case report.

DISCUSSION

Montelukast is the most commonly used leukotriene receptor antagonist. In clinical practice, montelukast is one of the major drugs for asthma and intermittent or mild persistent allergic rhinitis. It specifically blocks the cysteinyl leukotriene type 1 (CysLT1) receptor. The CysLT1 receptor is localized in the human airways and synthesized by a variety of cells, including mast cells, eosinophils, basophils, and macrophages. It causes bronchodilation in addition to that produced by beta2-stimulating drugs. Montelukast is known as one of the safe drugs but it can rarely cause unusual severe adverse effects. More common adverse effects of montelukast are gastrointestinal disturbance, upper respiratory tract infection, worsening asthma, sore throat, depression, tremors, and the Churg Strauss Syndrome. Dermatologic side effects are a rash, urticaria, vasculitis, erythema nodosum, and ecchymosis (7). Aypak et al. have reported a 31-year-old woman with a history of allergic rhinitis and asthma who experienced severe bruising on her lower extremities after starting montelukast treatment. They confirmed the connection between the drug and the lesions by the disappearance of the ecchymosis after discontinuation of montelukast (8). There is another case report of a 13-year-old young girl who presented with spontaneous bruises starting after montelukast treatment. Stopping montelukast showed a significant improvement (9). It is still unclear why montelukast causes ecchymosis, but it may prevent platelet aggregation by interfering with platelet-leukocyte cooperation. We must therefore be careful when prescribing montelukast to the patients who are already on anticoagulant therapy (10). Leukotriene receptor antagonists (LTRA) have been used in asthma treatment since 1990 and more than 100 studies on this topic have been published. Further population-based large studies of montelukast should be undertaken about the rare side effects. There are two case reports in the literature about ecchymosis after montelukast use. The importance of this case report is that the patient was the youngest case with ecchymosis due to the use of montelukast treatment.

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