

## A rare cause of severe ecchymosis: ‘Diamond-Gardner syndrome’

Diamond-Gardner syndrome

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### Abstract

Diamond-Gardner Syndrome (DGS) is an autoimmune disease characterized by painful ecchymoses that develop following emotional stress or trauma and is extremely rare. The underlying mechanisms of this disease are still unknown. The majority of cases were reported in women aged 19-72 and only 5% of them were in males. Here, in this case, we present a 45-year-old male patient with bipolar mood disorder and paranoid schizophrenia who was diagnosed with DGS due to severe ecchymoses in both legs and who was successfully treated with escitalopram, cetirizine, vitamin C, and prednisolone as well as psychotherapy.

### Keywords

Diamond-Gardner Syndrome, Autoerythrocyte Sensitization Syndrome, Ecchymoses

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## Introduction

Autoerythrocyte sensitization syndrome, also known as psychogenic purpura or Diamond- Gardner Syndrome (DGS), was first described in 1955 in four women patients who had repetitive painful ecchymosis followed by emotional or physical stress [1].

In the following years, after this syndrome became known, cases were rarely reported. While adult females were mostly reported, but there are also cases in adult men and children [2,3]. Patients with DGS experience spontaneous, repetitive, painful ecchymosis after a prodrome of itching and/or pain in the skin of the arms, legs, trunk and/or face. It is mainly diagnosed in women, under the age of 30 years, with emotional stress or one or more concomitant mental illnesses. Although some theories have been suggested, the underlying mechanisms of this disease are unknown.

Here, in this case, we present a 45-year-old male patient with bipolar mood disorder and paranoid schizophrenia who was diagnosed with DGS due to severe ecchymoses in both legs and who was successfully treated with escitalopram, cetirizine, vitamin C, and prednisolone as well as psychotherapy.

## Case Report

A 45-year-old male patient hospitalized in the forensic psychiatry clinic of a psychiatric hospital with the diagnoses of paranoid schizophrenia for 3 years and bipolar affective disorder for 12 years was transferred to our clinic in January 2021 due to progressively increasing, painful, widespread erythema and ecchymoses on his legs (Figure 1). The patient needed occasional blood transfusions due to droops in hematocrit levels, and initial investigative studies were negative in related hospital.

At the time of admission, the patient was taking biperiden 2

mg, quetiapine 100 mg, risperidone 3 mg, and amisulpride 400 mg. Her family history was unremarkable for bleeding disorders. There was no history of trauma or prodromal symptoms. He did not have a history of abnormal bleeding or easy bruising, hematuria or dysuria.

On physical examination, there was no pathological findings except for lower extremity ecchymoses. No pathological findings were found in peripheral blood smear and bone marrow aspiration and biopsy. Munchausen's syndrome, dermatitis artefacta, and nonaccidental trauma were considered and ruled out after careful questioning and observation.

In laboratory examination, erythrocyte sedimentation rate is 20 mm/hr and complete blood count, international normalized ratio, partial thromboplastin time, fibrinogen and liver function tests,



**Figure 2.** utologous erythrocytes (0.1 ml) was injected intradermally in the right forearm inner face and 0.1 ml of 0.9% saline solution was injected intradermally as a control in the right forearm outer face.



**Figure 1.** Progressively increasing, painful, widespread erythema and ecchymoses on patient's legs



**Figure 3.** In the 2nd week after psychotherapy, the patient's ecchymoses regressed significantly

platelet aggregation studies, protein C and S, von Willebrand factor, ristocetin cofactor assay, antithrombin III, cryoglobulin, haptoglobin, B12 and folate vitamins, iron and ferritin levels, rheumatoid factor, C-reactive protein, protein electrophoresis, immunoglobulin and complement levels were normal and direct and indirect coombs tests, antineutrophil cytoplasmic antibodies, lupus anticoagulant, anti-double-stranded DNA were negative. Gastroscopy and colonoscopy were performed and did not show any pathological findings. Examination of doppler ultrasonography of the lower extremity arteries and veins was normal. Skin biopsy of ecchymosis showed thinning of the epidermis, prominent extravasated erythrocytes in the dermis, vascular proliferation, thick-walled vascular structure in the subcutaneous fatty tissue. There was no evidence of vasculitis, and immunofluorescence studies were negative.

In view of the negative results of the performed studies and the existence of erythrocyte extravasation in the skin biopsy, without any evidence of vasculitis or panniculitis, DGS was considered as a diagnostic possibility. To strengthen the diagnosis of DGS, an intradermal sensitization test with autologous erythrocytes was performed. Autologous erythrocytes (0.1 ml) was injected intradermally in the right forearm inner face and 0.1 ml of 0.9% saline solution was injected intradermally as a control in the right forearm outer face (Figures 2). At the end of the 24-hour follow-up, painful ecchymosis was detected in the test area whereas the test was negative in the control area.

Based on the above findings, a final diagnosis of DGS was made, and 10 mg of escitalopram, 10 mg of cetirizine, vitamin C, 40 mg of prednisolone were started. Although there was a decrease in the patient's ecchymoses and decrease in the drop of hematocrit value in the 2nd week of treatment, the patient still needed erythrocyte transfusion at intervals. The patient was transferred back to the psychiatric hospital where he was previously hospitalized, and psychotherapy was started. In the 2nd week after psychotherapy, the patient's ecchymoses regressed significantly, there was no decrease in hematocrit values and there was no need for transfusion (Figure 3).

## Discussion

DGS is an extremely rare disorder, and only about 200 cases have been reported in the literature until the year 2015 [4]. The majority of cases are reported in women ages 19-72, and only 5% of them are of the male gender [5,6]. When we reviewed the literature, we found that it was the first case with such severe ecchymoses in a male patient with DGS.

The etiological mechanism leading to the disease is not known exactly, and it is thought that severe stress or emotional trauma triggers the disease. Many psychiatric disorders such as mood disorder, anxiety and personality disorders, somatoform and dissociative disorders can be seen. In our case, our patient had bipolar affective disorder for 12 years and was hospitalized in the forensic psychiatry clinic with the diagnosis of paranoid schizophrenia for 3 years [7].

There is no pathognomonic test for DGS, but intradermal skin testing may be useful in diagnosis. The most used method is intradermal injection of 0.1 ml of autologous venous blood. Ecchymosis with autologous venous blood was also observed

in our case. Although a positive test reaction is helpful in making the diagnosis, a negative test does not rule out typical-appearing DGS [8,9].

The diagnosis of DGS depends on the exclusion of other causes of ecchymosis and purpura since there is no definitive confirmatory laboratory test. Hemostatic disorders such as von Willebrand disease, quantitative and qualitative platelet disorders, coagulation factor deficiencies, antiphospholipid syndrome, systemic lupus erythematosus, vasculitis, erythema nodosum, vascular bleeding disorders (Hereditary Hemorrhagic Telangiectasia, Ehlers-Danlos Syndrome), Pfeifer-Weber-Christian disease, Henoch-Schönlein purpura and other rheumatological conditions should be excluded. Skin biopsies may be useful to help rule out spontaneous panniculitis and vasculitis. Finally, the possibilities of artificial purpura such as Munchausen syndrome, dermatitis artefacta should also be considered [10-13].

Treatments such as antihistamines, corticosteroids, beta-blockers, bioflavonoids, calcium channel blockers, albumin infusion, immunosuppressive therapy, plasmapheresis, intravenous immunoglobulin, anticoagulants, antidepressants, hormones and vitamin C were tried in the treatment, but they were not found to be very effective. Psychological treatment seems to be most effective treatment in these patients, and in our case, some response was obtained with vitamin C, cetirizine, and steroids, but it was observed that the lesions completely regressed with only psychotherapy [13-15].

### Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

### Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

### Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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