

## case report

# Risperidone-induced bruise-like rash in a child

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Adverse cutaneous reactions are rarely seen with antipsychotics. Exanthematous eruptions, skin pigmentation changes, photosensitivity, urticaria, and pruritus have been previously reported. We report a bruise-like rash in a 4-year-old boy with risperidone use. The rash disappeared on discontinuation and then reappeared after re-initiating the medication. Clinicians should be aware of a bruise-like skin rash as a rare adverse effect of risperidone. This is especially important for pediatric cases where physical abuse may be suspected.

**SIMILAR CASES PUBLISHED:** None.

Antipsychotics are known to cause adverse cutaneous reactions in approximately 5% of the individuals for whom they are prescribed.<sup>1</sup> Exanthematous eruptions, skin pigmentation changes, photosensitivity, urticaria, and pruritus are among the reported adverse reactions.<sup>2-4</sup> Although cutaneous adverse effects are mainly reported with typical antipsychotics,<sup>5,6</sup> atypical antipsychotics have also been linked to skin reactions.<sup>7-9</sup>

Risperidone is an atypical antipsychotic commonly used in child and adolescent psychiatry clinical practice. Risperidone exhibits high-affinity antagonism at 5-HT<sub>2</sub> and D<sub>2</sub> receptors. It also binds to alpha-1 and alpha-2 adrenergic receptors to a lesser extent.<sup>10</sup> There are only a few reports on risperidone-induced skin reactions.<sup>11-13</sup> Here, we report a bruise-like rash in a 4-year-old boy associated with risperidone use which warranted discontinuation.

## CASE

A 4-year-old boy was admitted with complaints of impulsivity, difficulty following rules and aggressive behaviors at school. He was reported to cry loudly when his wishes were not acted upon instantly. He also had frequent anger tantrums characterized by hitting his siblings and parents. In one of these incidents, he caused significant harm to his younger sibling. A Denver II score indicated that he had a borderline developmental delay. Upon admission, all of his medical and neurological workup were in the normal range. His body weight was 17 kg. The diagnosis of childhood-onset type conduct disorder was made according to DSM-V. Initially, behavioral interventions were recommended to the family to target the presenting symptoms, but there was no improvement at the 4-week visit. Thereafter, risperidone oral solution was started on the dose of 0.125 mg/day for the first week and was increased to 0.25 mg/day. At the 4th week, significant improvement was reported on primary complaints and no adverse effect was observed. To optimize the efficacy, the risperidone dose was increased to 0.5 mg/day twice

daily. Three days after the dose increase, the family reported that the patient developed bruise-like lesions on his chest, arms and legs (**Figure 1**). The inspection and palpation of the skin lesions revealed multiple asymmetrically distributed unraised macules, which were not painful. The lesions, which were 1-2 cm in diameter, were not accompanied with desquamation (see description of common dermatologic lesions in **Table 1**). The parents clearly indicated that the patient did not have a recent physical injury. There was no history suggestive of fever, infection symptoms or intake of any other medications. No dermatologic disease was diagnosed in the dermatology department. A comprehensive examination by the pediatrics department ruled out a coagulation disorder. His bleeding tests, which were in the normal range, included a bleeding time: of 4 minutes, INR of 0.98, activated partial thromboplastin time of 26.7 seconds, fibrinogen of 214 mg/dL, prothrombin time of 12.4 seconds and platelet count of  $311.150 \times 10^9/L$ . Other blood tests were also all normal. In the differential diagnosis, physical abuse was suspected and the parents were questioned in detail. After the psychiatric assessment, which included separate interviews with the child, mother and father, physical abuse was ruled out. The child's drawings were also not indicative of physical abuse. Because of a suspected risperidone-induced skin reaction, risperidone was discontinued. The bruise-like skin lesions gradually disappeared within 2 weeks. No additional medication was initiated for the following two months and we recommended the continuation of behavioral interventions to the family.

Two months after the discontinuation of risperidone, the patient presented with the same psychiatric complaints. At the time of evaluation, no skin lesions were apparent. Risperidone was re-initiated at a dose of 0.125 mg/day for the first week and was gradually increased to 0.5 mg/day twice daily. Three days after risperidone treatment, the family reported that similar skin lesions developed after starting the medication. On inspection and palpation of the skin, the previously developed asymmetrically distributed macules were evident. Risperidone was discontinued again and skin lesions completely resolved within one week. The Naranjo adverse drug reaction probability scale score was calculated as 8 (probable adverse reaction).

## DISCUSSION

In a chart review on risperidone treatment in preschool children, mild dermatological reactions have been reported in as high as 20% of the sample.<sup>14</sup> The authors reported that the reactions appeared within the first ten days of treatment and generally disappeared within two

weeks.<sup>14</sup> The bruise-like rash in our case also appeared in the first week. A re-initiation of the medication also resulted in the same skin lesions. To the best of our knowledge, no previous study has reported bruise-like rash with risperidone use in a young child.

Risperidone-induced skin reactions are mainly reported in case studies. In an early case of a 21-year-old male, multiple raised edematous papules, which were symmetric and acraly distributed, were reported with 2 mg/day oral risperidone use.<sup>15</sup> Chae and Kang reported a 37-year-old male who developed facial flushing, rash, and skin desquamation with risperidone oral solution.<sup>12</sup> Sidhu et al<sup>1</sup> reported a 26-year-old male who developed a diffuse erythematous and maculopapular skin rash on both arms after initiation of risperidone long-acting injection treatment. More recently, Janardhana et al<sup>11</sup> reported the case of risperidone-induced eczematous skin rash in a 20-year-old male. In all of these cases, as in our case, skin reactions disappeared after the discontinuation of risperidone.

The mechanism through which risperidone causes skin reactions is largely unknown. A possible immunological etiology is that antipsychotics alter the cytokine system, including serum cortisol and IL-2 levels, in the body.<sup>16</sup> Janardhana et al<sup>11</sup> also suggested that the metabolite of the drug or the excipients may act as a hap-



**Figure 1.** Bruise-like rash on different parts of the body in a 4-year-old boy.

**Table 1.** Brief description of common dermatologic lesions.

<b>Macule</b>	A circumscribed alteration in skin color up to 2 centimeters in diameter. The skin surface may be raised or depressed in relation to the surrounding skin.
<b>Patch</b>	A macule greater than 2 centimeters in diameter
<b>Papule</b>	A solid, elevated lesion with no visible fluid which may be up to ½ centimeter in diameter. The elevation may consist of metabolic deposits, infiltrates or cellular elements.
<b>Desquamation</b>	Shedding of epidermal cells.

ten and induce a hypersensitivity reaction. In the present case, the adverse reaction appeared after a dose increase, which indicates a dose-dependent phenomenon. Some of the previous adult cases also reported a dose-dependent pattern.<sup>15</sup>

Clinicians should be aware of bruise-like skin rash as a rare adverse effect of risperidone. This is especially important for pediatric cases where physical abuse is sus-

pected. It should be kept in mind that a comprehensive medical and psychiatric evaluation is required to rule out physical abuse. Future studies are needed to clarify the mechanisms responsible for this adverse reaction.

## Consent

*Written informed consent was obtained from the patients' parents.*

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