

Propylthiouracil-induced DRESS syndrome confirmed by a positive patch test

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Key words: DRESS syndrome; patch test; propylthiouracil.

Thioamides, including propylthiouracil (PTU) and methimazole, have been commonly used as the first choice of treatment for patients with hyperthyroidism.

PTU can induce DRESS syndrome.

Although PTU is generally well-tolerated, with side effects occurring in 1 of every 100 patients, there are three notable adverse reactions to the drug: agranulocytosis, hepatic toxicity, and vasculitis (1). Recently, the FDA's Adverse Event Reporting System (AERS) suggested there is an increased risk of hepatotoxicity with PTU when compared with methimazole. While several cases of various skin reactions or isolated eosinophilic infiltrations have been reported, this case presented here is, to our knowledge, the first case of drug rash with eosinophilia and systemic symptoms (DRESS) following treatment with PTU.

A 34-year-old woman was prescribed PTU, 100 mg/day, and propranolol, 20 mg/day, for treatment of postpartum thyroiditis. About 6 weeks later, she developed a febrile, diffuse erythematous rash, facial edema, and itching. Physical examination revealed that mild fever, generalized maculopapular exanthema, facial edema with desquamation, cervical lymphadenopathy, and oral mucosal involvement. Laboratory tests found absolute eosinophilia (2240/ μ l), abnormal liver function (AST 230 U/l, ALT 268 U/l), increased ALP (237 U/l), and high levels of eosinophil cationic protein

(ECP 50.6 μ g/l). Serological tests, including tests for hepatitis A, B, and C, were negative. A skin biopsy revealed spongiotic dermatitis with a predominant lymphoeosinophilic infiltrate in the superficial dermis. DRESS syndrome was suspected, all drugs were stopped, and oral corticosteroid treatment was started (prednisolone 20 mg/day). One month later, the patient's symptoms were resolved, and her AST, ALT, and eosinophil counts were in the normal range. Thyroid function tests showed high levels of T3 (200 ng/dl) and free T4 (1.78 ng/dl) and decreased TSH (0.07 μ IU/ml). Tests for anti-thyroid autoantibodies, including anti-microsomal and anti-thyroglobulin antibodies, were positive. The patient was diagnosed with hyperthy-

roidism due to autoimmune thyroiditis. Skin patch tests were performed with three different drugs, PTU, methimazole, and propranolol, using 10% commercial drug powder in white petrolatum. PTU gave a positive reaction [Fig. 1, showing erythema, papules, and vesicles (+ + +)] (2) at 48- and 72-h readings, while methimazole and propranolol showed no reaction. The diagnosis was PTU-induced DRESS syndrome mediated by type IV hypersensitivity.

DRESS syndrome is a serious idiosyncratic adverse drug reaction presenting with severe maculopapular eruptions, facial edema, eosinophilia, and systemic involvement (fever, lymphadenopathy, abnormal liver function, interstitial nephritis, interstitial pneumonitis,

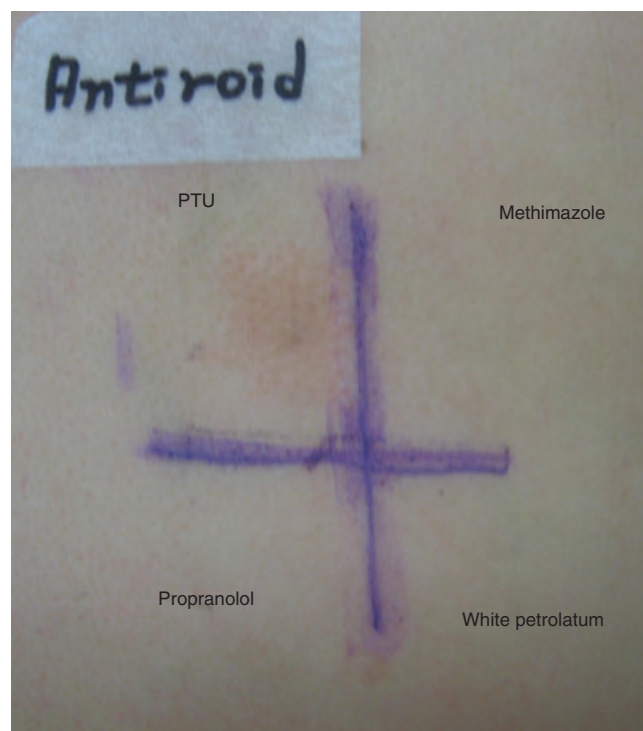


Figure 1. Skin patch tests performed with PTU (left upper), methimazole (right upper), propranolol (left lower) and white petrolatum (right lower). This photograph was taken at 72 h.

or pancreatic involvement) in the first 2 months after the introduction of a new drug (3, 4). The most frequently implicated drugs are anticonvulsants, sulfonamides, antivirals, allopurinol, and minocycline (4). DRESS syndrome can be associated with higher morbidity and mortality compared to other adverse drug reactions. Hence, one must have a high index of suspicion regarding DRESS syndrome, even when a drug has never been reported as a DRESS culprit, whenever the clinical manifestations are appropriate. The pathophysiological pathways are not fully understood and maybe multifactorial, involving immunological mechanisms and particular drug detoxification pathways (3, 4). According to the previous reports on DRESS syndrome, positive patch tests to identify the culprit drug are useful (5, 6). Early diagnosis and prompt withdrawal of the offending drug is the only way to treat DRESS and to lower morbidities.

In conclusion, we report here a case of DRESS due to PTU, confirmed by patch

test. PTU can be added to the list of drugs known to induce DRESS syndrome.

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