

Case Report

Non-ionic Contrast Allergy Manifesting as Stevens Johnson Syndrome and Erythema Multiforme

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Introduction

A 73 year old African American male with history of multiple drug allergies and end stage renal disease on hemodialysis presented to the Vascular Access Center for routine evaluation of arterio-venous (AV) fistula patency with intravenous (IV) contrast, ioversol 64% (OptirayTM 300). Despite tolerating multiple prior ioversol infusions, the patient developed a new erythematous, itchy facial rash 5-7 days after ioversol. The rash resolved after several days without treatment. Two months later, the patient received another ioversol infusion for continued fistula evaluation. Three days later, he again developed an erythematous and itchy facial rash. In addition, he had oral mucosal ulcerations, bilateral conjunctivitis, low grade fever, severe myalgias, and odynophagia necessitating a 4-day hospitalization. He was diagnosed with Steven Johnson syndrome (SJS) and started on 60mg of prednisone followed by a 10 day taper with symptom resolution.

Two years later he again required IV ioversol for repeat fistula evaluation. Due to his history of ioversol-induced SJS, he was pre-medicated with diphenhydramine 50mg IV one hour and prednisone 50mg at 13, 7 and 1 hour prior to ioversol administration. Three days later he developed an erythematous, itchy facial rash with flu-like symptoms. Although the oral mucosa was erythematous, there were no oral or ocular mucosal ulcerations. Upon hospital admission, laboratory evaluation showed a normal white blood cell count of 9000/mcl with a neutrophilic shift

of 83%. On hospital Day 5, he was diagnosed with erythema multiforme and treated with moisturizers, topical and systemic steroids (Figure 1). By Day 7, the rash became desquamative (Figure 2). He completed a 21 day prednisone taper with symptom resolution.

Figure 1



Figure 2



Discussion

In this case report, a patient with a history of ioversol-induced SJS received the same offending agent 2 years later. While his initial reaction involved oral and ocular mucosal ulcerations, the subsequent reaction spared the mucosa likely due to oral antihistamine and steroid pre-treatment. With each presentation, his cutaneous manifestations affected the face only. To the best of our knowledge, such unique presentation has not been previously described in the medical literature.

Non-ionic contrast agents like ioversol are commonly used for radiologic imaging. The incidence of late adverse reactions (LARs) for non-ionic contrast ranges from 2-17%.^{1,2} While most of these LARs are mild and resolve spontaneously within 1-2 days, severe delayed reactions

have been reported.^{3,4,5} Three single case reports of severe delayed reactions from ioversol have been described in the literature: SJS⁶, Fixed drug eruption⁷ and acute generalized exanthematous pustulosis (AGEP)⁸. Skin testing for non-ionic contrast allergy has been limited to patients with milder cutaneous reactions.⁹ Due to the severity of our patient's reaction, skin testing was not pursued.

Although oral steroid pretreatment at least 24 hours prior to contrast administration can decrease the rate of immediate hypersensitivity reactions,¹⁰ its effect on LARs is not well described. Hebert et al. reported a case of 66 year old woman with 4 episodes of non-ionic contrast induced SJS, who again developed SJS despite oral corticosteroid pretreatment.⁶ Other cases have reported successful pre-medication with intravenous immunoglobulin¹¹ or steroids in combination with the immunosuppressant, cyclosporine.¹² In our patient with previous SJS following ioversol administration, pre-medication with steroids prior to repeat ioversol mitigated the patient's LAR, resulting in erythema multiforme and not SJS.

Due to the delayed nature of non-ionic contrast reactions, they are often not identified leading to more severe reactions upon re-exposure. While strict avoidance is recommended, when repeat contrast administration is medically necessary steroid and antihistamine pretreatment can variably blunt delayed adverse reactions like SJS, as demonstrated in this case report. As non-ionic contrasts are considered extremely safe, the unique features of this case underscore the importance of recognizing cutaneous manifestations of contrast dye allergy.

REFERENCE

- 1) Yoshikawa H. Late adverse reactions to nonionic contrast media. *Radiology* 1992; 183:737-40.
- 2) Christiansen C, Pichler WJ, Skotland T. Delayed allergy-like reactions to X-ray contrast media: mechanistic considerations. *Eur Radiol* 2000; 10:1965-75.
- 3) Newman B. Delayed adverse reaction to nonionic contrast agents. *Pediatr Radiol* 2001; 31: 597-9.
- 4) Courvoisier S, Bircher AJ. Delayed-type hypersensitivity to a nonionic, radiopaque contrast medium. *Allergy* 1998; 53:1221-4.
- 5) Brown M, Yowler C, Brandt C. Recurrent toxic epidermal necrolysis secondary to iopromide contrast. *J Burn Care Res* 2013; 34:e53-6.
- 6) Hebert AA, Bogle MA. Intravenous immunoglobulin prophylaxis for recurrent Stevens Johnson syndrome. *J Am Acad Dermatol* 2004; 50:286-8.
- 7) Frías M, Fernández E, Audicana MT et al. Fixed drug eruption caused by iodinated contrast media. *Contact Dermatitis* 2011; 65:43-4.
- 8) Hammerbeck AA, Daniels NH, Callen JP. Ioversol-induced acute generalized exanthematous pustulosis: a case report. *Arch Dermatol*;145:683-7.
- 9) Courvoisier S, Bircher AJ. Delayed-type hypersensitivity to a nonionic, radiopaque contrast medium. *Allergy* 1998; 53:1221-4.
- 10) Lasser EC, Berry CC, Talner LB et al. Pretreatment with corticosteroids to alleviate reactions to intravenous contrast material. *N Engl J Med* 1987; 317:845-9.
- 11) Choyke PL, Miller DL, Lotze MT, Whiteis JM, Ebbitt B, Rosenberg SA. Delayed reactions to contrast media after interleukin-2 immunotherapy. *Radiology* 1992; 183:111-4.
- 12) Romano A, Artesani MC, Andriolo M, Viola M, Pettinato R, Vecchioli-Scaldazza A. Effective prophylactic protocol in delayed hypersensitivity to contrast media: report of a case involving lymphocyte transformation studies with different compounds. *Radiology* 2002; 225:466-70.