

CONTACT POINT

Patch testing with meropenem following a severe cutaneous adverse drug reaction

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Identifying the causative agent in cutaneous adverse drug reactions (CADRs) is often challenging when multiple drugs are involved. Patch testing is useful in some cases, but only a limited number of drugs are commercially available as diagnostic reagents, and for others there is often little information on sensitivity, optimum test concentrations, and vehicle.

CASE REPORT

A 57-year-old woman underwent a meningioma resection, which was complicated by postoperative sepsis. She then developed spiking temperatures, a widespread morbilliform rash, raised eosinophils and an increased alanine aminotransferase level 25 days after commencing phenytoin and 4 days after starting intravenous meropenem and vancomycin. This was consistent with drug reaction, eosinophilia, and systemic symptoms (DRESS) syndrome. The patient's rash also flared after she received intravenous contrast media for computed tomography. She was treated with systemic steroids, and the putative drugs were withdrawn.

A lymphocyte proliferation test with phenytoin gave a negative result, but an interferon- γ release assay (ELISpot) gave a positive result, indicating delayed drug hypersensitivity. The patient had delayed reactions at 24 hours to several radiocontrast media (Omnipaque 1:100, Visipaque 1:100, and Neopam 1:100) on intradermal (ID) testing, whereas ID testing with meropenem gave a negative result. She proceeded to an intravenous meropenem drug challenge, and developed facial angioedema and a non-urticarial rash over her chest 12–18 hours later. There was a questionable/irritant reaction to vancomycin on ID testing, and there were no reactions to other β -lactam antibiotics. As these test results were unclear, the patient was then referred for patch testing.

Patch testing was carried out with a shortened CADR series (Chemotechnique Diagnostics, Vellinge, Sweden). Meropenem and vancomycin were also tested at 1% and 20% pet. There were strong positive reactions to both concentrations of meropenem (+++ reactions at D3 and D4) (Figure 1). All other patch tests gave negative results. Overall, these results support a diagnosis of DRESS syndrome secondary to phenytoin with additional delayed hypersensitivity to meropenem and intravenous contrast media.

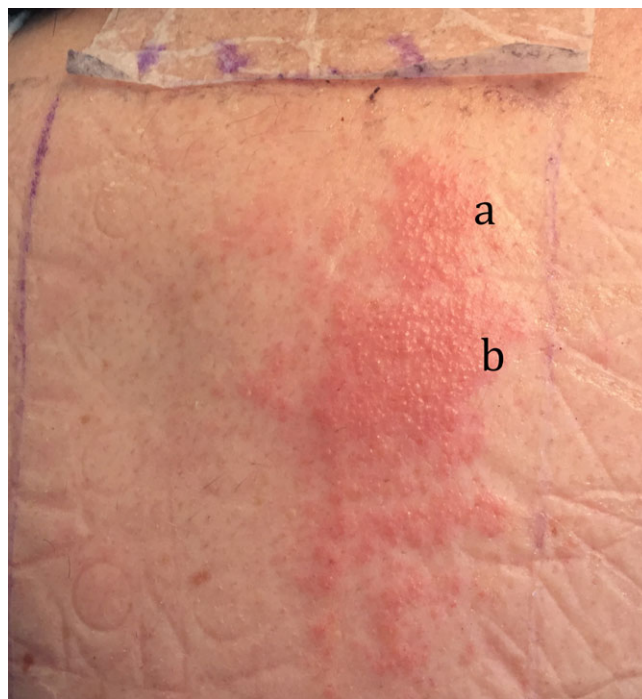


FIGURE 1 Strong positive reactions (+++) to (A) meropenem 1% and (B) meropenem 20% pet. on day 4

DISCUSSION

Systemic rechallenge is the gold standard for investigating drug reactions, but there is a risk of a serious reaction. Patch testing should be considered as a safer first-line alternative for investigating CADR.¹ This case highlights that patch testing was the most useful investigation in clarifying hypersensitivity to antibiotics. There are isolated reports of positive patch test reactions to various dilutions of meropenem, including: meropenem 10% pet. in a patient with DRESS, confirmed with a lymphocyte activation test²; and meropenem 5% pet. in a nurse with occupational contact dermatitis.³ Our findings confirm the usefulness of patch testing with meropenem in patients with suspected delayed hypersensitivity reactions and the adequacy of a lower concentration, namely, 1% pet.

Conflict of interest

S.W. has undertaken advisory work for Galderma and l'Oreal. The other authors declare no potential conflict of interests.

REFERENCES

1. Pinho A, Coutinho I, Gameiro A, Gouveia M, Gonalo M. Patch testing—a valuable tool for investigating non-immediate cutaneous adverse drug reactions to antibiotics. *J Eur Acad Dermatol Venereol*. 2017;31:280-287.
2. Prados-Castaño M, Piñero-Saavedra M, Leguísamo-Milla S, Ortega-Camarero M, Vega-Rioja A. DRESS syndrome induced by meropenem. *Allergol Immunopathol (Madr)*. 2015;43:233-235.
3. Yesudian PD, King CM. Occupational allergic contact dermatitis from meropenem. *Contact Dermatitis*. 2001;45:53.

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