DRESS syndrome and acute tubulointerstitial nephritis after treatment with vancomycin and beta-lactams. Case report and literature review
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To the Editor:
Drug hypersensitivity syndrome or DRESS syndrome is a rare but potentially severe condition characterised by ailing skin, eosinophilia and systemic involvement.1

We present the case of a 74-year-old female, with a medical history of hypertension, atrial fibrillation, right eye glaucoma and basal cell carcinoma of the nose removed. The patient is admitted in the Cardiology department two months prior to moving to our department for the study of syncope. During the hospital stay, the patient reports intense cervical pain accompanied by fever and, in the clinical analysis, elevated acute phase reactants. Magnetic resonance imaging of the cervical spine is carried out. Phlegmons are observed at the inter-vertebral disk C5-C6 with a collection at that level and cervical spondylodiscitis is diagnosed. In the blood cultures we find growing Staphylococcus epidermidis resistant to methicillin. Treatment with intravenous vancomycin and cefepime antibiotics is started. Transoesophageal echocardiography is performed, ruling out the presence of endocarditis and embolic aetiology of spondylodiscitis. Patient evolution is favourable during the first few weeks. Suddenly, towards the end of treatment a erythematos pruritic rash emerges with a 38 ºC fever and a decrease in diuresis until the patient experiences anuria and is moved to our department. Upon her arrival, the patient is conscious, haemodynamically stable and afebrile. She presents gene-
tic is conscious, haemodynamically

On the clinical analysis leukocytosis is observed with important eosinophilia and acute renal failure with creatinine: 6.1mg/dl, urea: 156mg/dl and van-
comycin levels at 36.19µg/ml (normal levels: 5-10µg/ml). Vancomycin is immediately suspended and a catheter is placed the right femoral artery. Haemodi-
dialysis session begins. In the immuno-
ological study antinuclear antibodies, antineutrophil cytoplasmic antibodies, anti-GBM antibodies and protein elec-
trrophoresis were all within the normal range. Sterile blood and urine cultures are collected. Serology is extracted and tested for hepatitis B and C, human immuno
deficiency virus, herpes virus, herpes 6, Epstein-Barr virus, Chlamydia and Mycoplasma, all with negative results. Suspecting immunooallergic acute renal failure, corticosteroids treat-
ment is implemented on 3 daily doses of 250mg of methylprednisolone, followed by an intravenous dose of predni-
sone 1mg/kg. Later on, when the gene-

The diagnosis of DRESS syndrome is estab-
lished by the appearance, after being exposed to a drug, of skin eru-
pions, haematological alterations as eos-
inophilia or atypical lymphocytosis and systemic involvement in the form of adenopathies, hepatitis, interstitial nephritis, cardiis or interstitial nep-

The patient remains in the hospital for 15 days. By the time the patient is dis-
misse, there is evident improvement of the rash and renal failure is rece-
dring. Three months after hospitalization the patient presents 1.34 mg/dl of creatinine and proteinuria comes back negative.

The incidence of the syndrome is

DURING patient evolution, we imple-
ment treatment with clavulanic-amox-
icillin due to thrombophlebitis at the peripheral level, a new rash appears, along with increased leukocytosis with intense eosinophilia on the blood test and sudden dyspnea with whee-
zing related to eosinophilic pneumoni-
tis. An internal consultation with the allergy Department takes place; they discourage the use of both vancomy-
cin and beta-lactams. From the pulmo-
nary point of view, we detect sympto-
matic improvement on the following 48 hours with some care. During evo-
uation, we also found an increase in glutamic oxaloacetic transaminase (GOT), glutamic pyruvic transamina-
se (GPT) and γ-glutamyl transerase (GGT). The patient is diagnosed with DRESS syndrome affecting her skin, lung, liver and kidney. Corticosteroids therapy remains in place and a pro-
gressive improvement in renal func-
tion is evident without the need for a new haemodialysis session. The pa-

![Image](https://via.placeholder.com/150)

**Figure 1.** Haematoxylin and Eosin staining
Tubulointerstitial infiltrate is composed of small lymphocytes, plasma cells and eosinophils.
estimated as 1 out of every 10 000 individuals exposed to the implicated drugs. The drugs more frequently associated with the syndrome are anticonvulsants but there have been cases involving anti-inflammatory drugs, allopurinol and antibiotics. The symptoms appear with a latency period that may vary between 1 and 8 weeks after exposure to drugs. As it has been suggested as an action mechanism, the presence of an allergic hyper sensibility reaction, in which medications act directly as antigens or indirectly as haptons. We have also found an association between the re-activation of infection by human herpes 6 virus or Epstein-Barr virus and DRESS syndrome. Treatment includes withdrawal from the suspected medication and corticosteroid treatment. Mortality varies, depending on the series, between 10% and 30%, and it comes with lung and/or hepatic affections and sometimes with bacterial ulcer lesions.

To our knowledge, this is the first case of DRESS syndrome by vancomycin and beta-lactams, with systemic involvement and a renal biopsy confirming the existence of allergic tubulointerstitial nephritis, with good results after corticosteroids treatment. Table 1 displays cases diagnosed with DRESS syndrome due to vancomycin described in the literature.

**Conflict of interest**
The authors declare that there is no conflict of interest associated with this manuscript.

**Table 1. DRESS syndrome as an effect of Vancomycin**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Case Age (years)</th>
<th>Antecedents</th>
<th>Clinical Analysis</th>
<th>Treatment</th>
<th>Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schnetzke et al.</td>
<td>2011</td>
<td>Male 30</td>
<td>Endocarditis</td>
<td>Fever, eosinophilia, skin rash, lymphadenopathy and renal complications</td>
<td>Withdrawn from drug</td>
<td>Survival</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><em>Strep. dysgalactiae</em></td>
<td></td>
<td>Corticosteroids</td>
<td></td>
</tr>
<tr>
<td>O’Meara et al.</td>
<td>2011</td>
<td>Male 66</td>
<td>Hip Fracture</td>
<td>Fever, eosinophilia, skin rash, haematological, nervous, hepatic and renal complications</td>
<td>Withdrawn from drug</td>
<td>Survival</td>
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<td></td>
<td></td>
<td></td>
<td>MRSA</td>
<td></td>
<td>Corticosteroids</td>
<td></td>
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<tr>
<td>Vauthey et al.</td>
<td>2008</td>
<td>Female 60</td>
<td>Stump Infection</td>
<td>Fever, eosinophilia, skin rash, and hepatic complications</td>
<td>Withdrawn from drug</td>
<td>Survival</td>
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<td></td>
<td></td>
<td></td>
<td>MRSA</td>
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<td>Corticosteroids</td>
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<tr>
<td>Tamagawa-Mineoka et al.</td>
<td>2007</td>
<td>Female 52</td>
<td>Tympanoplasty</td>
<td>Fever, eosinophilia, skin rash, lymphadenopathy, and hepatic complications</td>
<td>Withdrawn from drug</td>
<td>Survival</td>
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<td>MRSA</td>
<td></td>
<td>Corticosteroids</td>
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<tr>
<td>Kwon et al.</td>
<td>2006</td>
<td>Male 50</td>
<td>Osteomyelitis sterile</td>
<td>Fever, eosinophilia, skin rash, pulmonary, hepatic and renal complications</td>
<td>Withdrawn from drug</td>
<td>Survival</td>
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<td></td>
<td></td>
<td></td>
<td>sterile</td>
<td></td>
<td>Corticosteroids</td>
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<tr>
<td>Yazganoglu et al.</td>
<td>2005</td>
<td>Female 56</td>
<td>Bacteraemia</td>
<td>Fever, eosinophilia, skin rash, hepatic complications</td>
<td>Withdrawn from drug</td>
<td>Survival</td>
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<td>MRSA</td>
<td></td>
<td>Corticosteroids</td>
<td></td>
</tr>
<tr>
<td>Zuliani et al.</td>
<td>2005</td>
<td>Female 45</td>
<td>Endocarditis</td>
<td>Fever, eosinophilia, skin rash, hepatic and renal complications</td>
<td>Withdrawn from drug</td>
<td>Survival</td>
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<td><em>Staph. spp</em></td>
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<td>Cyclosporine</td>
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**MRSA: Methicillin resistant Staphylococcus aureus.**


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Endovascular rescue of a prosthetic arteriovenous fistula with multiple pseudoaneurysms in a patient with no other vascular access options

To the Editor:

The formation of pseudoaneurysms in prosthetic vascular accesses is a common event that is associated with fatigue of the prosthetic material secondary to repeated punctures and stenosis-occlusive damage in the venous drainage.1

Treatment is indicated when the pseudoaneurysm undergoes rapid growth, exceeds 2 times the diameter of the prosthesis, produces pain or a threat to cutaneous viability, or in cases of rupture.1

Traditionally, the treatment of this complication has been surgical; however, in recent years, several working groups have incorporated endovascular treatment using the placement of covered stents to exclude this type of lesion.2-5 Thrombin is not widely used as an embolising agent during the treatment of these lesions, with only a few reports of cases in which this type of treatment has been associated with a stent graft.4

CASE REPORT

Here we present the case of a 46-year-old patient with chronic renal failure, on trimestral hemodialysis for 23 years secondary to obstructive uropathy, with a left femoral loop (21 months of use) with occluded iliac venous drainage that produced oedema in the leg and three pseudoaneurysms in the therapeutic range. One of these was actively bleeding. The three pseudoaneurysms and occlusion of the left primitive iliac vein were treated using endovascular methods under local anaesthesia. The actively bleeding pseudoaneurysm was excluded with a covered stent, and the other two were percutaneously embolised using balloon-assisted thrombin injections in order to avoid thrombosis in the prosthesis. The iliac venous axis was recanalised and treated with angioplasty balloons; in the final angiographic controls, we observed no pseudoaneurysms, with patency of the venous drainage veins represents one of the most common causes of pseudoaneurysms.1 In our case, the prosthetic material was worn down, in addition to a stenosis/occlusive lesion of the venous drainage and bleeding of one of the pseudoaneurysms, with oedema in the leg.

DISCUSSION

Deterioration of the prosthetic material secondary to repeated punctures and stenosis-occlusive lesions in drainage veins represents one of the most common causes of pseudoaneurysms.1 In our case, the prosthetic material was worn down, in addition to a stenosis/occlusive lesion of the venous drainage and bleeding of one of the pseudoaneurysms, with oedema in the leg.

Traditionally, pseudoaneurysms were treated with open surgery; this procedure consisted of replacing the damaged segment of the graft, and if this were impossible, the vascular access was abandoned and another was created. Our patient had exhausted all