Nephroquiz
(Section Editor: M. G. Zeier)

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Giant cells and pneumonia in a transplant patient. What is the link?

Case

A 78-year-old white female with a past medical history significant for hypertension and end-stage renal disease secondary to nephrosclerosis underwent cadaveric renal transplantation. She had an uneventful postoperative course, attaining normal renal function. Her medications included cyclosporin (6 mg/kg), prednisone (25 mg) on a tapering schedule and mycophenolate mofetil (2000 mg/day). Approximately 3 months after transplant, she presented with fever of 101.6°F, dyspnea, and hypoxia (oxygen saturation 86% on room air). Physical examination revealed an elderly female in distress. She was pale, her jugular vein was flat, and she had oral thrush. There was no evidence of lymphadenopathy. Examination of the lungs demonstrated equal air entry with scattered rales. She continued to deteriorate and was subsequently intubated. The chest X-ray revealed a diffuse reticulo-nodular pattern greater on the right than the left, without parenchymal calcifications or cavitary lesions (Figure 1). The patient then began to develop palpable purpura on the trunk (Figures 2 and 3). A skin biopsy was subsequently performed which revealed numerous multinucleated giant cells (Figure 4). Over the next 48 h, the purpura evolved into haemorrhagic vesicles of the face, trunk, back, and extremities.

Question

What is your diagnosis?
Giant cells and pneumonia in a transplant patient

Fig. 3. Palpable purpura trunk.

Fig. 4. Patient’s skin biopsy. The arrow indicates a giant cell (H+E; ×400).
Answer to the quiz on previous page

With respect to post-transplant infections, there are three time frames that are useful when considering the likely organisms: infections within the first month; infections occurring between 2 and 6 months; and those infections occurring beyond 6 months [1]. Infections within the first month of transplantation are usually caused by organisms similar to those found in any typical surgical population, and include bacteria and fungi from surgical wound infections, pneumonia, intravenous catheter infections, and urinary tract infections [2]. Between 2 and 6 months, viral infections such as cytomegalovirus and varicella-zoster virus should be considered in the differential diagnosis, as should other opportunistic organisms such as Pneumocystis carinii and Nocardia species [3]. Fungal infections due to Candida species, Aspergillus species, and Cryptococcus neoformans may also be implicated although the incidence is generally lower in renal transplant patients as compared to other solid organ transplants [4]. The major risk factor for infection during this time period results from the decrease in cell-mediated immunity from utilization of immunosuppressive agents.

This patient presented with pulmonary symptoms 3 months post-transplant. The chest X-ray, clinical skin findings, and skin biopsy point to a disseminated viral agent (varicella-zoster) as the causative organism (Table 1). Her varicella-zoster IgM and IgG antibodies were elevated within the first week of clinical illness and a course of acyclovir was completed. Her pulmonary status continued to improve steadily and she was subsequently extubated. Convalescent titres were not obtained.

Table 1. Diseases associated with giant cell lesions in skin

<table>
<thead>
<tr>
<th>Infectious</th>
<th>Non-infectious</th>
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<tbody>
<tr>
<td>Bacterial</td>
<td>Aluminum</td>
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<tr>
<td>Cat-scratch disease</td>
<td>Beryllium</td>
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<tr>
<td>Chronic folliculitis</td>
<td>Cactus</td>
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<tr>
<td>Mycobacteria (e.g. TB, MAC, leprosy)</td>
<td>Chelitis granulomatosa</td>
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<tr>
<td>Nocardia</td>
<td>Granuloma annulare</td>
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<tr>
<td>Tularemia</td>
<td>Necrobiosis lipoidica</td>
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<tr>
<td>Viruses</td>
<td>Sarcoïdosis</td>
</tr>
<tr>
<td>Eczema herpeticum (not vaccinatum)</td>
<td>Sea-urchin</td>
</tr>
<tr>
<td>Herpes Simplex</td>
<td>Silica</td>
</tr>
<tr>
<td>Varicella-Zoster</td>
<td>Silicone</td>
</tr>
</tbody>
</table>

Parasites

Cutaneous myiasis
Profilariasis
Schistosomiasis
Protozoal
Leishmaniasis

Fungi

Alternariosis
Aspergillosis*
Blastomycosis
Candida granulomas
Chromoblastomycosis
Coccidiomycosis
Cryptococcosis
Histoplasmosis
Lobomycosis
Paracoccidiomycosis
Phaeohyphomycosis
Sporotrichosis

Non-infectious

Aluminum
Beryllium
Cactus
Chelitis granulomatosa
Granuloma annulare
Necrobiosis lipoidica
Sarcoïdosis
Sea-urchin
Silica
Silicone
Starch
Talc
Tattoo
Zinc
Zirconium

Infectious and non-infectious causes of giant cell lesions in the skin. Infectious aetiologies are more likely to occur in immunocompromised patients compared with immunocompetent patients, especially herpes simplex virus, Varicella-zoster, Mycobacterium chelonae, and Candida spp. *While giant cells are observed in immunocompetent patients with aspergillosis, none are found in immunocompromised patients [5].

References


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