INTRODUCTION
• Alemtuzumab was the first humanised monoclonal antibody. It is used in haematological malignancies and multiple sclerosis.
• It is associated with secondary autoimmune adverse effects including Graves’ disease, hypothyroidism, Goodpasture’s disease and ITP.

THE CASE
A 46-year-old male

**Background:** Relapsing remitting multiple sclerosis July 2011.
2 relapses on β-IFN-1a.
Rx: Alemtuzumab infusion 12 mg for 5 days (12/08/12)
12 months later 12 mg for 3 days (12/08/13)
No family history of autoimmune disease
No dysthyroid symptoms
Deranged thyroid tests on regular monitoring 25 months after last infusion

**Examination:** Pulse 68/min, regular
No goitre or neck nodules
No peripheral or eye signs of Graves’ disease

Other Investigations:
• Anti TPO antibodies positive at 65 IU/ml (0-8)
• Anti TSH Receptor antibodies positive at > 40 U/l (<1.8)

Levothyroxine was increased to 100 mcg/d, patient now doing well.

<table>
<thead>
<tr>
<th>Date &amp; Drug Treatment</th>
<th>TSH (µU/l, 0.34-5.6)</th>
<th>FT3 (pmol/l, 3.8-6.0)</th>
<th>FT4 (pmol/l, 7.9-20.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26/03/15</td>
<td>2.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28/07/15</td>
<td>0.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28/07/15 Carbimazole 20 mg/d</td>
<td>0.18</td>
<td>28.9</td>
<td>54.0</td>
</tr>
<tr>
<td>25/09/15 Carbimazole 5 mg/d</td>
<td>0.15</td>
<td>4.2</td>
<td>10</td>
</tr>
<tr>
<td>03/11/2015 Levothyroxine 50 mcg/d</td>
<td>75.8</td>
<td>3.6</td>
<td>4.6</td>
</tr>
<tr>
<td>24/12/2015</td>
<td>7.5</td>
<td>5.0</td>
<td>12.5</td>
</tr>
</tbody>
</table>

DISCUSSION
1. The incidence of thyroid dysfunction associated with Alemtuzumab can be up to 36%.
2. Mechanism of autoimmunity: profound lymphopenia and raised IL-21 levels increase cell cycling, leading to self reactive T-cells.
3. A range of thyroid disorders can be associated with Alemtuzumab - Graves’ disease, thyroiditis, subclinical thyrotoxicosis and hypothyroidism.
4. Patients can have no symptoms, as in our case, so regular monitoring is essential.
5. Anti-thyroid drugs, radioiodine treatment and surgery have all been used successfully in this condition.

Take Home Messages
• Alemtuzumab causes autoimmune thyroid dysfunction in about 30% cases
• Regular monitoring of thyroid tests following Alemtuzumab are required for at least 4 years after the last infusion

REFERENCES