Antibiotic-Associated Colitis: Always Pseudomembranous?

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Summary
Among the 14 cases of antibiotic-induced colitis, endoscopic features were: in 9 cases typical pseudomembranes, in 4 cases petechiae or ecchymosis or suggiation-like redness with near-to-normal surrounding mucosa.

In one case induced by Spiramycin, a macrolide that had never been previously indicated as being responsible for the disease, the endoscopic picture was 'atypical' and directed us towards a severe ulcerative colitis. These forms are very rare and usually limited to the right or transverse colon which suggests, if possible, a total colonoscopy.

The roentgenographic picture of these cases is not quite clear, since they could represent both the most severe stages within 'non-pseudomembranous' antibiotic-induced colitis and pseudomembranous endoscopic forms whose evolution does not contribute in any way to the formation of pseudomembranes.

Key-Words: Antibiotic, Colitis, Diarrhoea

Several antibiotics (1, 7, 10, 11, 12, 13) are capable of inducing severe organic colitis, which is usually characterized by mucous diarrhoea, abdominal pain and fever.

Endoscopic features usually show elevated yellowish plaques and intervening mucosa with almost normal vascular pattern (pseudomembranous colitis) (2, 3, 9).

The increasing use of these drugs has really increased the incidence of this disease, which today, however, is diagnosed even more frequently, since the onset of profuse diarrhoea during antibiotic treatment requires the physician to request "deeper" investigation.

Among 14 cases of antibiotic-induced colitis treated in our unit (1974—April 1981), is one case that occurred after administration of Spiramycin. This antibiotic had never been previously indicated as a cause of the disease. At first, the clinical development and endoscopic features suggested ulcerative colitis (U.C.).

Case Report
B.G. (male 26 years old, negative past history) was treated with Spiramycin (250 mg x 3/6 daily) for five days for a dental abscess. Three days after therapy began, severe abdominal pains appeared, together with high fever and severe mucous diarrhoea (10—15 bowel movements per day).

On admission, the patient was pale, tachycardic with a blood pressure of 80/50. Laboratory result: R.B.C. 3,700,000, W.B.C. 12,000 with 77 % polymorphonuclear leucocytes, Hb 34, Hb 11.0, potassium 3.4 mEq/l. All other haematological parameters were normal and coproculture was negative.

The patient was immediately put on substitutive therapy. Colonoscopy, carried out five days after clinical onset, showed that only the distal ampulla and the caecum were normal, while the entire left colon, including the recto-sigmoid junction and the transverse colon were oedematous, with congested mucosa and spontaneous bleeding areas, superficial erosions and mucoviscous hypersecretion without skip areas. The endoscopic picture suggested the possibility of severe U.C. at the first attack.

The histological findings of multiple biopsies did not confirm U.C. but instead, showed necrosis of both chorio and gland, with the formation of so-called "glandular ghosts" in addition to a severe aspecific periglandular inflammation.

This picture was compatible with antibiotic-associated colitis, and the patient was immediately treated with vancomycin (2 g/6/day). Diarrhoea disappeared after a few days.

The endoscopic examination, carried out one week later, showed that the erosions had disappeared, congestion was reduced and there was only moderate contact bleeding.

After 11 days, a further endoscopic examination revealed that the patient had completely recovered, and he was discharged. To date, one year later, the patient is well.

Comment
Most antibiotics, irrespective of dosage and route of administration, may induce diarrhoea, which is accompanied by organic pathology, the incidence of which has not yet been clearly defined. This may be due to various factors: investigation studies (retrospective, perspective), diligence in pursuing diagnosis and poorly understood geographical and other factors (6).

Lincomycin and clindamycin (belonging to the Macrolide group) and ampicillin are the most common responsible antibiotics.

Our experience with these 14 cases (Table 1) not only confirms what has already been stated, but also emphasizes the aetologic responsibility of spiramycin, another Macrolide.

Spiramycin is often used in our country in the treatment of several mouth infections, in particular of a dental nature. In fact, once it is absorbed by the intestine, it concentrates strongly in the bile, milk and especially in the saliva, thus bringing about a local therapeutic action.
Tab. 1 Spectrum of antibiotic-induced colitis (14 cases)

<table>
<thead>
<tr>
<th>Antimicrobial group</th>
<th>Patients</th>
<th>Sex</th>
<th>Age</th>
<th>Antibiotic</th>
<th>Dosage (g/day)</th>
<th>route of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macrolides (57.1%)</td>
<td>1</td>
<td>F</td>
<td>44</td>
<td>Lincomycin</td>
<td>1.8</td>
<td>i.m.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>F</td>
<td>24</td>
<td>Lincomycin</td>
<td>0.6</td>
<td>i.v.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>F</td>
<td>27</td>
<td>Lincomycin</td>
<td>0.9</td>
<td>i.v.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>F</td>
<td>70</td>
<td>Lincomycin</td>
<td>0.6</td>
<td>i.v.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>M</td>
<td>71</td>
<td>Clindamycin</td>
<td>0.6</td>
<td>os</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>M</td>
<td>47</td>
<td>Clindamycin</td>
<td>0.6</td>
<td>os</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>F</td>
<td>43</td>
<td>Erythromycin</td>
<td>1.5</td>
<td>os</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>M</td>
<td>26</td>
<td>Spiramycin</td>
<td>0.75</td>
<td>os</td>
</tr>
<tr>
<td>Penicillins (35.7%)</td>
<td>9</td>
<td>M</td>
<td>63</td>
<td>Ampicillin</td>
<td>1.5</td>
<td>i.v.</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>F</td>
<td>21</td>
<td>Ampicillin</td>
<td>1.5</td>
<td>i.v.</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>F</td>
<td>59</td>
<td>Ampicillin</td>
<td>1.0</td>
<td>os</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>M</td>
<td>76</td>
<td>Amoxicillin</td>
<td>1.5</td>
<td>os</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>M</td>
<td>53</td>
<td>Amoxicillin</td>
<td>1.5</td>
<td>i.m.</td>
</tr>
<tr>
<td>Cefalosporin (7.2%)</td>
<td>14</td>
<td>F</td>
<td>74</td>
<td>Cephradine</td>
<td>3.0</td>
<td>i.m.</td>
</tr>
</tbody>
</table>

The second aspect we consider worth reporting is the peculiarity of the endoscopic picture, which initially directed us towards another kind of pathology (U.C. in our specific case).

Antibiotic-induced colitis does not necessarily identify with yellowish pseudomembranes with unaffected interposed mucosa. Forms with petechiae or ecchymosis or suggillation-like redness with near-to-normal surrounding mucosa have in fact been described (5), and they are considered either evolution stages or less severe aspects of the disease.

Our experience also presented such an aspect (5 cases, or 35.7%). Less frequent are the forms characterized by congestion, oedema, erosions, and true haemorrhagic diarrhoea, which, however, do not seem to develop into the pseudomembranous stage (4,7,8). These cases are usually limited to the right colon (8) or transverse colon (7), which suggests that as far as possible, a total colonoscopy should be performed when antibiotic-induced colitis is suspected.

In conclusion, we can say that severe antibiotic-induced colitis, even though rarely, may develop with a clinical and endoscopic picture similar to U.C., no correlation whatsoever seeming to exist between antibiotic and anatomico-clinical features of the disease.

The integration of clinical and histological elements, together, with data from the patient's history and clinical evolution, permits a correct differential diagnosis to be made.

The nosographic picture of these forms is not quite clear since they might both represent the most severe stages within autonomous forms whose evolution does not contribute in any way to the formation of pseudomembranes. Only a better understanding of the pathogenetic mechanism will allow us to clarify the reasons for the heterogeneous quality of the morphological picture of the disease.

Fig. 1 and 2 Endoscopic view of left colon in Spiramycin-induced colitis (Figs. 1 and 2 were obtained with an Olympus instrument)
References


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