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Associations between intestinal lesions and detection of *Clostridium perfringens* type A or beta-2 toxin in neonatal piglets with diarrhoea

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**Objective:** To evaluate associations between gross and histopathological lesions and the presence of *Clostridium perfringens* type A (*CpA*) and beta-2 toxin in piglets from 4 herds with outbreaks of diarrhoea.

**Methods:** Pathological examinations on 51 diarrhoeic piglets aged 3-7 days were carried out. *CpA* was cultured and typed by PCR. A *Clostridium perfringens* spp targeted probe was used for flourescent in situ hybridization (FISH) and detection of beta-2 toxin in intestinal contents was performed by enzyme-linked immunosorbent assay (ELISA).

**Results:** Piglets without intestinal lesions had a significantly (P < 0.05) higher prevalence of *CpA* and beta-2 toxin (Table 1).

<table>
<thead>
<tr>
<th>Intestinal lesion</th>
<th><em>CpA</em> positive samples</th>
<th>Beta-2 positive samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Culture (n=51)</td>
<td>FISH* (n=51)</td>
</tr>
<tr>
<td>Flaccidity of small intestine</td>
<td>Lp*</td>
<td>Lnp*</td>
</tr>
<tr>
<td>Flaccidity of large intestine</td>
<td>24%</td>
<td>64%</td>
</tr>
<tr>
<td>Villous atrophy</td>
<td>19%</td>
<td>32%</td>
</tr>
<tr>
<td>Small intestinal epithelial lesions</td>
<td>22%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Table 1. Associations between intestinal lesions and detection of *CpA* and beta-2 toxin. Only statistically significant associations (Fisher’s exact test, α=0.05) are shown. * FISh: fluorescent in situ hybridization using a *Clostridium perfringens* spp targeted probe. * Lp: Lesion present. Lnp: Lesion not present.

**Conclusion:** Demonstration of *CpA* or Beta-2 toxin was associated with absence of intestinal lesions.