An atypical case of cutaneous and respiratory actinobacillosis in a French beef cattle herd

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**Case history**

- Two 4-years-old Rouge-des-Prés female cows from a single beef herd
- Chronic swelling and cutaneous nodules on hind limbs
- No improvement despite 20 mg/kg long-acting oxytetracyclin, once, IM
- Mange and paratuberculosis reported in the herd

**Differential diagnosis**

- NODULAR DERMATITIS + SWELLING OF AFFECTED AREA
  - Actinomycetes organisms
  - Secondary bacterial infection
  - Actinobacillosis
  - Nocardiosis
  - Actinomyces
  - Leg mange
  - Fungal infection

Respiratory disorder: thromboembolic pneumonia / infectious broncho-pneumonia
D: chronic suppurative lymphadenitis in the left precrural lymph node
C: chronic suppurative thromboembolic pneumonia
A and B: chronic nodular dermatitis + sub-cutaneous oedema

**Therapy**

Both cows were euthanized for welfare reason (clinical paratuberculosis (#1) and severe swelling of the hind limb (#2)).

**Necropsic findings**

A and B: chronic nodular dermatitis + sub-cutaneous oedema
C: chronic suppurative thromboembolic pneumonia
D: chronic suppurative lymphadenitis in the left precrural lymph node

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**Clinical examination**

- + polypnea (40 to 60 bpm), & excessive whistling on lung auscultation
- + enlargement of regional lymph nodes
- + cachexia and diarrhoea (#1) ; suppurative mastitis (#2)

**Diagnostic procedures**

**Microbiological analyses**

<table>
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<tr>
<th>Analyses</th>
<th>Results</th>
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<tr>
<td>Microscopic examination (direct + rapid stains)</td>
<td>Inconclusive for bacteria</td>
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<tr>
<td>Fungal culture</td>
<td>Negative</td>
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<td>Bacteriological culture (+ API Gallery)</td>
<td>Small Gram (-) cocacobacillus, Pasteurellaceae family</td>
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<tr>
<td>PCR (Nocardia sp., Actinobacillus lignieresii)</td>
<td>Actinobacillus lignieresii2, 3</td>
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* PCR + partial sequencing of the gdpB gene, + en pus, skin biopsies, precrural and retrocrural (lymph nodes and lung samples)

Lumpy skin disease was also investigated in the context of new cases in Turkey – negative PCR for capripoxvirus
Paratuberculosis: #1: positive (Ziehl-Neelsen and ELISA); #2: negative

**Histopathological examination**

Microscopic appearance of a cutaneous lesion showing neutrophils surrounding eosinophilic club-like bodies (Splendore-Hoeppli phenomenon). H&E stain, x400.

**Diagnostic: cutaneous and pulmonary actinobacillosis (+ clinical paratuberculosis for case 1)**

**Discussion**

- Generally, actinobacillosis in cattle = sporadic involving the tongue (“wooden tongue”).
- Here, cutaneous + respiratory actinobacillosis in at least 2 cows from a single herd.
- Common predisposing factor in this herd: abrasive straw, leg mange?
- Primary antibiotic treatment apparently not effective: not prompt or prolonged enough?

CONCLUSION: cutaneous actinobacillosis should be considered in differential diagnosis of nodular dermatitis associated with a swelling of the affected area in cattle. Causes of puncture wound, including leg mange, should be investigated when several animals are affected.

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