ISOLATION OF ERYSIPELOTHRIX RHUSIOPATHIAE IN THE FLOCK OF BREEDING GEES

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Erysipelothrix rhusiopathiae presents microorganism which is widely spread in nature. When talking about problems in veterinary medicine, this bacteria may be isolated in larger number of mammals and birds, as well in fish. Findings of Erysipelothrix rhusiopathiae is mostly connected with the isolates and causes health problems in pigs.

Presence of Erysipelothrix rhusiopathiae may be sporadically detected in poultry of all ages. These bacteria are most often found in turkeys and gees where the disease may be demonstrated in an acute form of septicemia and in chronic signs of endocarditis and arthritis. Secretion of Erysipelothrix rhusiopathiae may be present in poultry without clinical signs, what is a feature even of other animal kinds. Findings of Erysipelothrix rhusiopathiae in a flock of breeding gees emerged as a topics with an aim to find out whether the animals died due to the presence of this bacteria, and to find out what are the physiological characteristics of the isolated bacteria and to describe it.

In the work we used standard laboratory methods as well as the biological experiment, where after death of the laboratory animals Erysipelothrix rhusiopathiae was reisolated and the cause of the disease was determined. Key words:
Erysipelothrix rhusiopathiae, isolation, gees

Findings of Erysipelothrix rhusiopathiae in the material that arrived to the laboratory for clinical bacteriology most often were connected with the samples that originated from pigs, whether it be a dead animal or there was a need to confirm clinical findings of the diseased animals.

Erysipelothrix rhusiopathiae is a microorganism that is wildly spread in nature. Findings of this bacteria in wild animals in the zoos confirms that the bacteria is spreaded (5, 6, 8). In veterinary medicine the problems caused by the presence of this bacteria influences large number of different kinds of animals. Erysipelothrix rhusiopathiae is isolated in different kinds of domestic and wild mammals and birds, and there are some evidences that it may be found in fish (5, 7).

Presence of Erysipelothrix rhusiopathiae may sporadically be detected in animals of all ages. Most often it is found in turkeys and gees where the disease may be followed by an acute septicemia and in chronic form with the signs of endocarditis and arthritis (7). Secretion of Erysipelothrix rhusiopathiae may be present in poultry without any clinical signs, as it is the case with other animals. Mortality is from 5% - 50%, while the greatest financial losses are connected with the problem in turkey where this microorganism is mostly isolated. Other animals that are endangered are chicken, ducks and gees. Findings of Erysipelothrix rhusiopathiae in broilers line for slaughtering testify about its presence on the corpses of slaughtered chicken and danger oDroeo"withishoeitisaaoonoses(4).

Findings of Erysipelothrix rhusiopathiae in a flock of breeding ducks occurred to be the topic of the work since the animals died due to the presence of the bacteria. The aim of the work is to prove physiological characteristics of isolate by biological assay. The work will help us determine towards which chemotherapeutics the given isolates show the biggest sensitivity.
Material and methods

Material we used in the investigation originated from slaughtered and dead ducks from a breeding flock of about 2000 birds on a private farm, where the signs of unspecific clinical signs have appeared. Parenhymatose organs (liver, heart) from ducks were examined, and in reisolation after biological assay on white mice lungs, heart, liver, spleen and kidney were streaked.

In the work we used standard laboratory methods (2, 5, 8). The material was directly streaked on blood agar with 10% defibrillated sheep blood, Endo and McConkey agar. The mediums were incubated on 37°C during 24 hours. Identification of isolates was done on their physiological characteristics. For biological assay we used sexually mature white mice (Mus musculus) of NMRI strain.

For determining sensibility of isolate according to chemotherapeutics we used the method of diphysione disk.

Results and discussion

In the flock the animals sporadically died, and the signs were general weakness, depression, diarrhoea and ataxia. In pathoanathomic findings a slight enlargement of liver and spleen were noticed and spotted bleeding could be seen on phericard. In the laboratory for clinical bacteriology material arrived under suspicion that it’s pasterilosis and infection of E. coli.

The received material in all the investigated samples after streaking on blood medium tiny colonies appeared and formed uncompleted alpha hemolysis. On McConkey and Endo medium there were no growth of bacterial flora. After microscope examination it was proved that that are gram-positive, thin, thiny sticks where tests of catalyze and oxidize were negative. In order to prove that it is Erysipelothrix rhusiopathiae, we checked its biochemical reactivity. It was proved that the microorganism does not hydrolyze esculine and it is not movable. It showed possibility to ferment glucosis, lactose, and did not have a possibility of further split of urea. The most characteristic reaction was streaked on TSI? medium. After 24 hours on 37°C phenol red, and indicator which may be found in TSI medium, changed its color from red to yellow, because there was a drop of pH value in medium. On the medium appeared a fine, thin, black line that was a consequence of reaction on H₂S, reaction between Erysipelothrix rhusiopathea and phero-sulphate which is in the medium.

In the Table 1 are data which point to some of characteristics of Erysipelothrix rhusiopathiae.

The results received on physiological characteristics of isolates were checked on biological test to prove whether Erysipelothrix rhusiopathiae was the cause of clinical problem that were noticed in the breeding gees. The isolates where the mentioned characteristics were found, were streaked on thriptose bouillon and after 24 hours of incubation at 37°C inoculated intraperitoneal (i/p) on sexually mature white mice, strain NMRI. A total of 10 mice was inoculated. Experimental animals were observed over 4 days. In that period 8 mice died and 2 were sacrificed after the fourth day. In all the animals parenhimatose organs were taken (lungs, heart, liver, spleen, kidney) and streaked as it was described in the case of the received samples. In all the investigated organs in experimental
animals the isolated colonies were identical to colonies received by bacteriological investigation of gees organs. The colonies were investigated on characteristics of Erusipelothrix rhusiopathiae and this kind of bacteria was proved. This bacteria has caused clinical disorders in the breeding flock of gees.

Table 1. Physiological characteristics for identification of Erusipelothrix rhusiopathiae

<table>
<thead>
<tr>
<th>Medium for testing</th>
<th>Reactio n</th>
<th>Medium</th>
<th>Reaction</th>
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<tbody>
<tr>
<td>Glucose</td>
<td>+°</td>
<td>Trehalose</td>
<td>-</td>
</tr>
<tr>
<td>Galactose</td>
<td>+°</td>
<td>Raffinose</td>
<td>-</td>
</tr>
<tr>
<td>Fructose</td>
<td>+°</td>
<td>Inulin</td>
<td>-</td>
</tr>
<tr>
<td>Lactose</td>
<td>+°</td>
<td>Saloin</td>
<td>-</td>
</tr>
<tr>
<td>Xylose</td>
<td>+°</td>
<td>Esculin</td>
<td>-</td>
</tr>
<tr>
<td>Melebiose</td>
<td>+°</td>
<td>Gelatin liquefaction</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-</td>
<td>Motility</td>
<td>-</td>
</tr>
<tr>
<td>Sorbitol</td>
<td>-</td>
<td>Nitrate reduct.</td>
<td>-</td>
</tr>
<tr>
<td>Manitol</td>
<td>-</td>
<td>Nitrate reduct.</td>
<td>-</td>
</tr>
<tr>
<td>Inositol</td>
<td>-</td>
<td>Urease</td>
<td>-</td>
</tr>
<tr>
<td>Rhamnose</td>
<td>-</td>
<td>Catalase</td>
<td>-</td>
</tr>
<tr>
<td>Saharosis</td>
<td>-</td>
<td>Oxidase</td>
<td>-</td>
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<tr>
<td>Indol</td>
<td>-</td>
<td>H$_2$S</td>
<td>+</td>
</tr>
</tbody>
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Investigating Erysipelothrix rhusiopathiae sensitivity towards chemioterapeutics the isolate showed the greatest sensitivity towards uniquin, ampicillin, amoxicillin, and Icomycin-spectinomycin, while the isolate was resistant towards triquin, linqomycin, flumequine, and trimethoprim+sulfamethazol.

Conclusion

- Analyzed isolate that we got during the investigation of the parenchymatose organs of breeding flock of gees showed physiological characteristics that correspond only to this kind of strain Erysipelothrix rhusiopathiae.
- After biological assay that was performed on sexually mature white mice, the strain of NMRI, the received isolate in 4 days caused death of 8 samples where Erysipelothrix rhusiopathiae was reisolated, and the same thing happened with the sacrificed mice.

The results point out that Erysipelothrix rhusiopathiae could have caused the problem that appeared in the breeding flock of gees and that therapy should be applied according to the antibiogram.
- During the work the methodology which was used can with certainty prove that it was Erysipelothrix rhusiopathiae, so the positive findings on this bacteria can be stated in the breeding flock of gees.
Literature