Camel pox

Definition:

Highly contagious viral disease of camels related to Poxviridae family, genus Orthopox virus characterized by fever and pox lesion on skin, and lesion on mucous membrane of respiratory and GIT.

Cause:

Camelpox is a wide-spread infectious viral disease of Old World camelids. New World camelids are also susceptible.

The camelpox virus belongs to the family Poxviridae, subfamily Chordopoxvirinae, genus Orthopoxvirus.

Geographic distribution:

Africa, north of the equator, the Middle East and Asia.

Economic importance:

Loss of production and sometimes death.

Prevention from participation in racing competitions and affect the performance of racing camel for long time may be over 2 to 3 months.

Susceptibility:

Old World camelids. New World camelids, young animal more than elder ages because of diseased animal acquired long immunity, male more susceptible than females.

Zoonotic properties:

Some cases of human camel pox show mild skin lesions reported.
Pathogenesis:

Incubation period about (3 – 15 days) the onset of skin lesion after fever by 3 days average, the lesion begin as erythematous macules then to papules and vesicles which rupture and make pustules (due to secondary infection) or dry to form crusts, lesion may take up to 4 -6 weeks to heel, lesion begin in head then to neck and may be generalized to whole body, and may be extend to mucous membrane of GIT and respiratory tract.

Immunity:

Humeral and cell mediated but the mechanism is still not fully understood, lifelong immunity follow after natural infection although that not prevent infection again.
Camel pox is host specific so not infect the other animals but field reported mild skin lesion for human but with no public health importance.
Vaccination: by inactivated (for every 6 months) and live attenuated (for every 12 months).

Method of transmission:

By direct contact or indirect by contaminated environment (virus excreted in milk, nasal, eye and mouth discharge) the role of insects suspected because of the disease observed after rainfall.

Morbidity rate:

High percentage may reach to 100% in pregnant camel (33%).

Mortality rate:

(5 – 25%) for adult and (25 -100%) for young.
Clinical signs:

1- Fever.
2- Off food.
3- Enlarged lymph node.
4- Skin lesion begin of head, neck and then to all body.
5- Salivation, mucopurulent nasal discharge, lacrimation, diarrhea.
6- Edema of head and limbs sometimes.
7- Respiratory signs (cough and dyspnea )
8- Abortion of pregnant camels or give stillbirth sometimes.
9- Death due to septicemia.
Skin lesion in head (two years old female racing camel)( Qatar - 28/12/2010)
Skin lesion in limbs (one year old female racing camel) (Qatar – 28/12/2010)
Pustules of hind limbs of one year old female racing camel (Qatar – 28/12/2010)

Skin crusts of head and neck of two years old female racing camel (Qatar – 28/12/2010)
**Diagnosis:**

1- Clinical signs.
2- Differential diagnosis.
3- Identification of the cause (e.g.: electron microscope)
4- Serology (e.g.: ELISA)
5- Hematology and biochemistry.

**Differential diagnosis:**

1- Contagious ecchyma (camel orf) (parapox) (some cases show mixed infection between pox and parapox virus).
2- Papilloma virus.
3- Reaction of insect pits.

**Hematology and biochemistry:**

A study by (Mansour F. Hussin in department of animal production of faculty of agriculture, king Saud university, Saudi Arabia) show that infected camel by pox after 7 days show decrease of hematological parameters such as RBCs , Hb , PCV and increase of MCV but no significant change of MCH ,MCHC due to anemia, and decrease of WBCs and deferential leukocytes count.

Also show increase of TP and liver enzymes.

This is the parameters of hematology and biochemical tests of pox infected two years female racing camel after 7 days of beginning of fever ,it take long acting oxytetracycline long acting 300mg two doses with two days interval (R/Alamycin 300LA) and phenylbutazone.


<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>WBCs</td>
<td>14 ×(1000/µL)</td>
</tr>
<tr>
<td>Neutrophil</td>
<td>69.6%</td>
</tr>
<tr>
<td>Lymphocyte</td>
<td>18.8%</td>
</tr>
<tr>
<td>Monocyte</td>
<td>8.05%</td>
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<tr>
<td>Eosinophil</td>
<td>0.62%</td>
</tr>
<tr>
<td>Basophil</td>
<td>2.93%</td>
</tr>
<tr>
<td>TP</td>
<td>5.92 (g/dL)</td>
</tr>
<tr>
<td>iron</td>
<td>83 (µ/dL)</td>
</tr>
<tr>
<td>creat.</td>
<td>1.17(mg/dL)</td>
</tr>
<tr>
<td>urea</td>
<td>10( mg/dL)</td>
</tr>
<tr>
<td>ALT</td>
<td>8 (U/L)</td>
</tr>
<tr>
<td>AST</td>
<td>42 (U/L)</td>
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</tbody>
</table>
RBCs 8.01 (10^6/µL).
Hb.: 12.3 (g/dL).
PCV: 28.8%.
MCV: 35.9 (fL).
MCH: 15.4 (pG)
MCHC : 42.8 (g/dL).
RDW: 23.8%.
PLT: 307

LDH: 418 (U/L).
ALP: 112 (mg/dL)
Ca: 10.4 (mg/dL)
Cu: 63.5 (µ/dL).

These tests show increase WBCS, neutrophile, monocyte, basophile and decrease of lymphocyte. Also decrease of RBCs, Hb., and no significant changes in the rest of tests.

**Treatment:**

No successful treatment but isolation of infected cases and supportive treatment (vitamin C) for increase body immunity against the virus and some antibiotic to avoid secondary bacterial infection for example (oxytetracycline) and antipyritic (NSAIDs).

R/ Vita-c-vetiquinol.
R/ Alamycin300LA
R/ pen&strep
R/ novasul.
R/ phenylarathrite
R/ vetalgen

In case of facial edema or edema of limbs we can use dexamethasone
R/ diurizone
R/ dexaphenylarathrite.

**Control and prevention:**

Inactivated or live attenuated vaccine every 6 or 12 months before season of outbreak (usually from September to October).