

## *Health problems for humans working with nonhuman Primates II*

Susanne Rensing

Münster/Germany

### Zoonotic diseases

- B-Virus
- STLV
- SRV
- SIV
- SFV
- Salmonella
- Shigella
- Tuberculosis

### B-Virus,

- Herpesvirus simiae
- Cercopithecine Herpesvirus 1
- HHV 12
- Most significant infectious occupational health hazard in NHPs
- All asian & african macaque species, langurs?
- Principally in rhesus and cynos, but also bonnet, taiwan, japanese, pigtailed and stumptailed macaques....

- Mostly asymptomatic initial infection
- Lesion in oral, ocular and genital region
- Fluid - filled vesicles on dorsum of the tongue, mucocutaneous border of the lips, inside of the cheeks or the genitalia
- Blisters rupture, heal in 7- 14 days
- Virus is shed from active lesion
- B-Virus remains latent in the trigeminal and/or lumbosacral sensory ganglia

- Transmission through exposure to contaminated animals (scratches, bites, splashes to mucosal membrane) or contact with infected animal tissue or contaminated equipment (needle sticks, sharp cage edges)
- Incubation period: weeks – years
- Most human deaths: 2 d – 6 months post infection

### Clinical symptoms

- Flu like symptoms, pneumonia
- Headache
- Hick – ups
- Vesicles near skin wounds
- Alterations in vision
- Seizures
- Respiratory failure

### *Virus detection*

- Serology testing (Elisa, Western Blood)
- PCR
- Viral culture

### *Reference Laboratories*

- B Virus Research and Resource Laboratory, Atlanta,
- Virus Reference Laboratories, San Antonio, USA
- Central Public Health Laboratory, London, UK

### *Post-exposure prophylaxis*

- Immediate scrubbing of the wound for 15 min
- Examination of the animal
- Sampling, blood, swabs
- TX: Valacyclovir, 1000mg TID
- Serology retesting 3 weeks post exposure

### *Neutrophile transmigration assay*

- Lacks neurosurveillance gene of HSV
- No recruiting of Neutrophils
- No cytokine production
- NF- $\alpha$ -Block
- Low NF KB p50 DNA binding activity in B-Virus infected cells

### *Simian immunodeficiency virus - SIV*

- Lentivirus
- Incubation: ?
- Transmission: splashes, needle sticks, cuts
- No clinical signs in exposed people
- Diagnosis: serology, PCR

### *Simian Foamy Virus - SFV*

- Spumavirus
- No illness in exposed people

### ***Ebola/Marburg // Ebola-Reston***

- Filovirus
- Fatal hemorrhagic disease
- Incubation: 4-16 d (Marburg)
- Transmission: aerosol, blood
- Fever, myalgia, nausea, headache, vomiting, diarrhea, thrombocytopenia, leukopenia
- Diagnosis: Elisa, PCR
- Quarantine!



### ***Poxvirus***

- Vesicular exanthema, fever
- Incubation: 3 weeks
- Transmission: direct/indirect contact (vectors)



### ***LCMV – lymphocytic choriomeningitis virus***

- In wild mouse populations all over the world
- Marmosets/Tamarins – transmission to humans via direct contact, urine, feces, saliva
- Flu like symptoms, headache, fever, myalgia, aseptic meningitis, teratogenic
- Incubation period: 1 -3 weeks
- Prophylaxes: PPE

### ***Hepatitis A***

- 3 genotypes of simian Hep A Virus in OWM
- Incubation: 4 weeks
- Transmission: fecal-oral
- Anorexia, diarrhea, increase of liver enzymes

### ***Hepatitis B***

- Incubation: 2 - 3 months
- transmission: mother-child, percutaneous inoculation
- Anorexia, jaundice, elevated liver enzymes

### ***Rabies***

- Incubation: 10 d – 8 weeks
- Headache, malaise, fever, confusion, meningitis, paralysis
- Prophylaxis: Immunization

### ***Leptospirosis***

- In NHPs: abortion, icterohemorrhagic disease
- Transmission to humans through oral & aerosol exposure of urine, reproductive tissue, abrasions of skin
- Tx: antibiotics

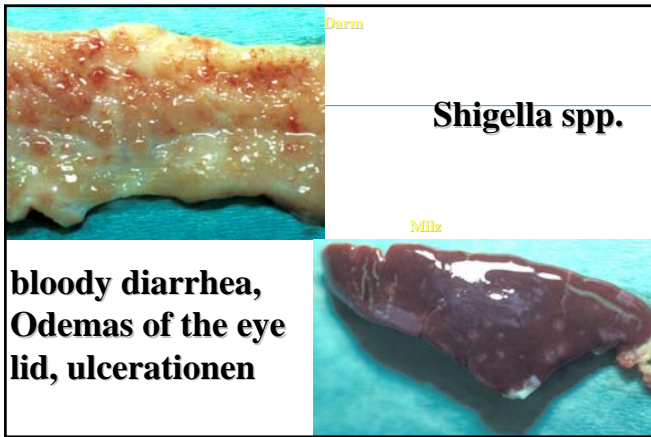


### ***Gram- negative Enterobacteriaceae***

- Salmonella spp.
- Campylobacter spp.
- Yersinia pseudotuberculosis

### ***Shigellosis***

- Gram – anaerobs
- Diarrhea, bloody, dehydration, weight loss
- Gingivitis, air sacculitis, abortions
- Nausea,
- Incubation: 1 – 4 d
- PPE



## Shigella spp.

**bloody diarrhea,  
Odemas of the eye  
lid, ulcerationen**

## Tuberculosis

- Acid fast rods of the genus *M. tuberculosis*, *bovis*, *avium*, *kansasii*, *simiae*, *marimum*
- Varying susceptibility between NHP species
- Vervets-macaques-apes-humans-NWM
- Incubation: 2-10 weeks
- Transmission by aerosol or fecal-oral route
- Symptoms: weight loss, cough, pulmonary disease, nodular lesions in multiple organs, acute death

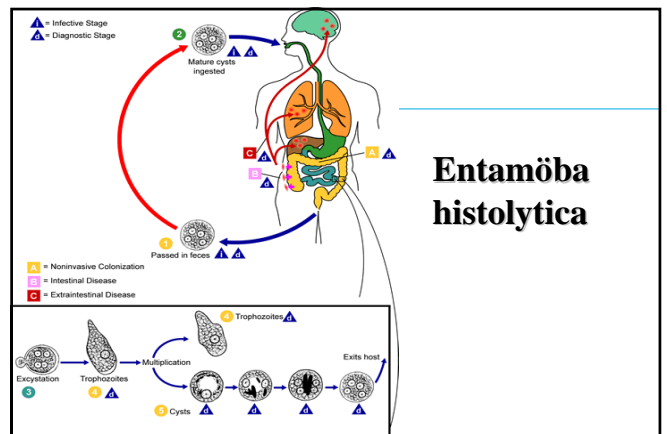
- Semi-annual Tb-test
- Quarantine: minimum of 3 neg. TST
- BAL, GAL, X-Ray
- PPE

## Bite Wound Infections

- *Streptococcus* spp.
- *Staphylococcus* spp.
- *Hamophilus* spp.
- *Moraxella* spp.
- *Fusobacterium* spp.
- *Clostridium tetani*
- *Pasteurella multocida*

## Parasitic infections

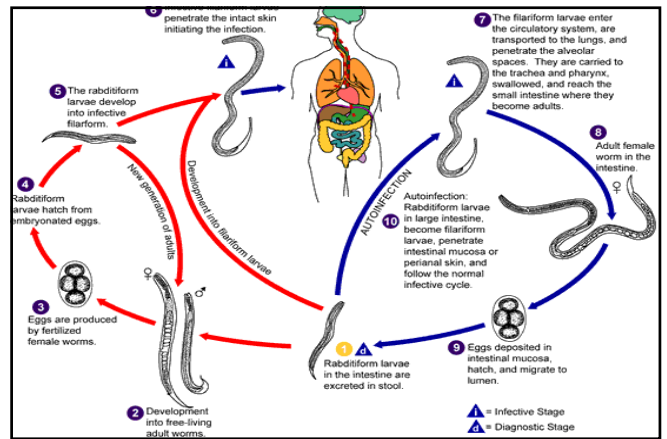
- Amöben, Balantidien, Giardien
- Cryptosporidien
- Toxoplasmose
- Oesophagostomum
- Strongyloides
- Trichuris
- Echinococcus spp.



## Entamöba histolytica

## Flagellats

- Giardia,
- Balantidium
- Trichomonas,....



## Trichuris

