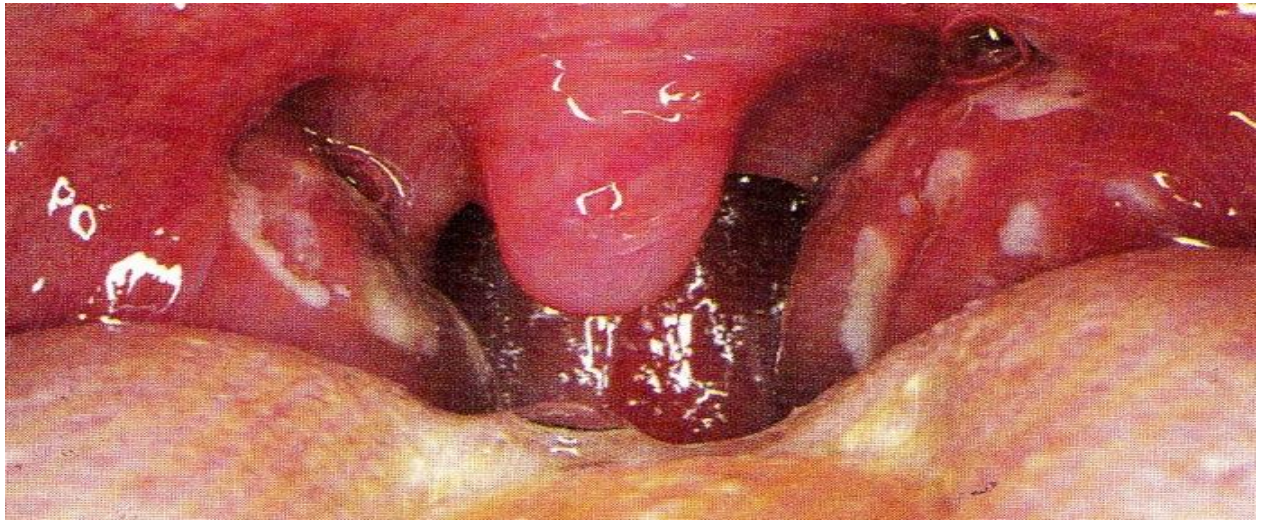
Respiratory tract infections I

Case reports

Bacterial infections

Case report 1

- 6-years old boy comes to the pediatrition for sore throat and fever 38,7°C
- Objective: enlarged tonsils with white spots (coverings)



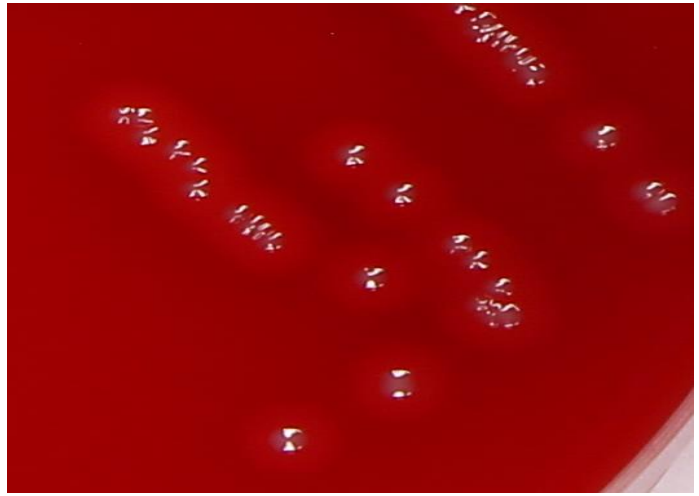
Case report 1

Questions:

1. What is the suspected diagnosis?
2. Which laboratory examinations are indicated?

Case report 1

- Direct Antigen (Ag) of *Streptococcus pyogenes* detection – positive
  - Detection of Ag of *Str.pyogenes* from throat swab
    - Examination of orientation in doctor´s office, ATB susceptibility testing is not possible
    - In negative detection and in patient´s allergy to betalactam ATB cultivation is necessary
- Throat swab - cultivation findings:
  - Gray glossy colonies with a zone of betahemolysis



Case report 1

Questions:

3. Which agens is suspected?
4. Which test will be used for bacteria identification?
5. Which ATB will be used for therapy?
6. Is there any risk in unadequate or none infection therapy?

Case report 2

- 70-years old woman, diabetic, smoker, comes to emergency for 2 days lasting fever, intermittent shivers, caugh with expectoration of purulent sputum
- Pectoral pain during breathing
- Objective: fever 38.1°C, puls 103/min, breathing frequency 18/min, auscultation: weakened breathing on the right side
- Lung RTG: shadow in right low lung lobe
- Laboratory examinations – results:
  - CRP 367 mg/l, blood count: 11 600 leucocytes with 77% of polymorphonuclears and 20% bars

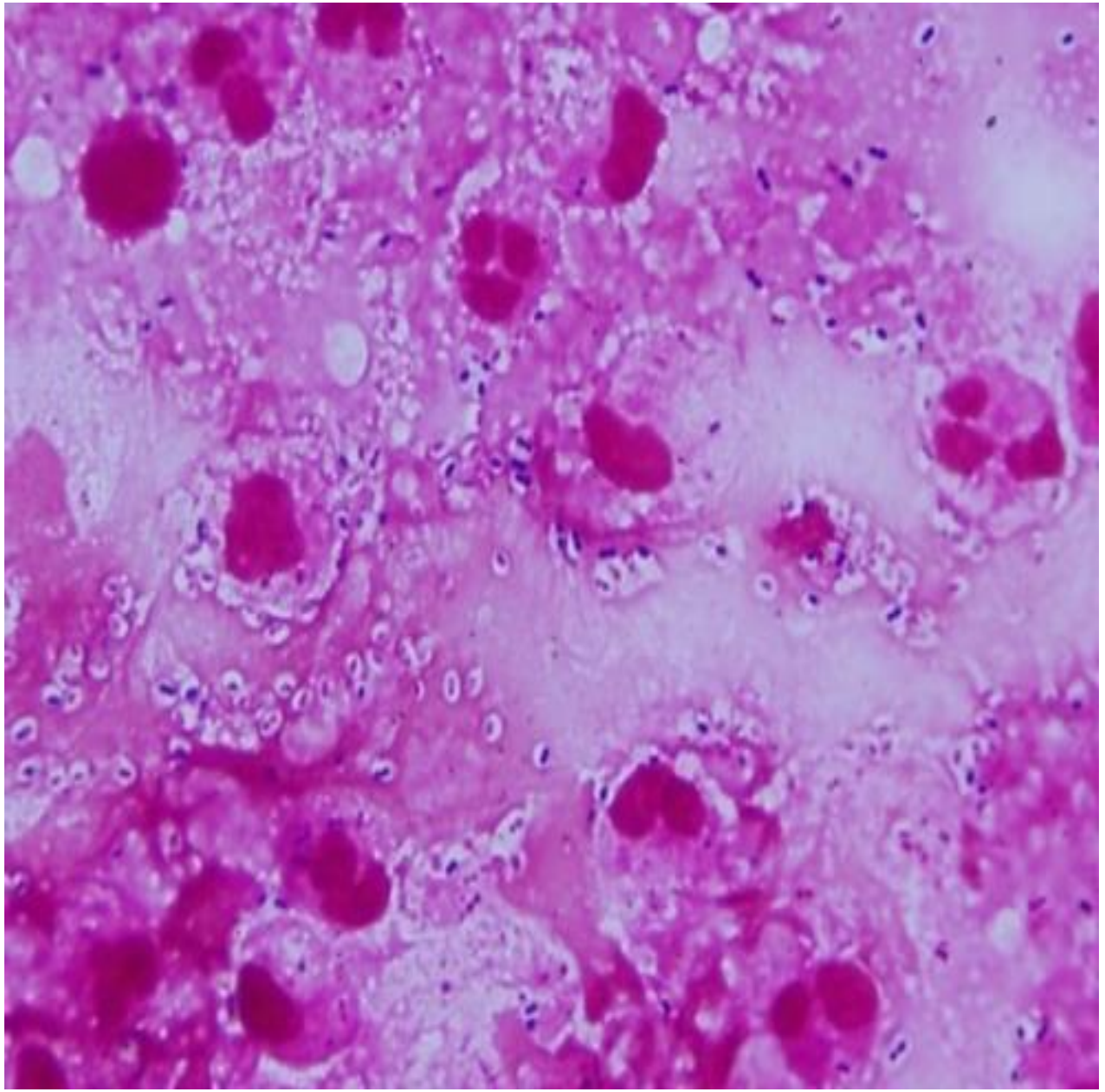
Case report 2

1. Which agents are suspected?
2. Which microbiologic examinations will be performed?
3. Which antibiotics will you choose for empiric therapy?

Case report 2

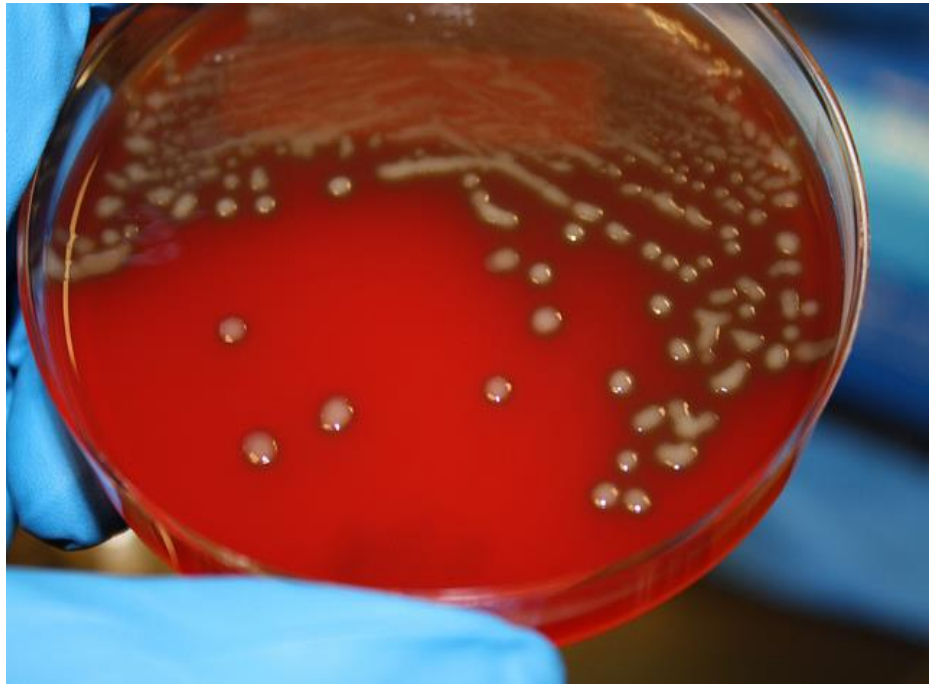
- Microbiologic findings:
  - Microscopy of sputum sample stained by Gram
  - Urine antigen of *Streptococcus pneumoniae* positive

4. What is the causative agent?
5. Describe and evaluate the findings of microscopic examination – the presence of cells, bacteria – is it a significant finding?



Case report 2

- Cultivation of sputum samples after 24 hours - findings



6. Which tests are used for identification of *Streptococcus pneumoniae*?

Case report 2

7. Which risk factors has the reported patient? Which risk factors make the patient more susceptible to mentioned pathogen?
8. Which antibiotics will be used after the results of ATB susceptibility testing ?
9. Which other illnesses can be caused by *Streptococcus pneumoniae*?
10. Which preventive regimen will you recommend to this patient?

Case report 3

- Mother with 6 weeks old infant comes to the pediatric emergency. The infant has got paroxysms of caugh and the mother herself has suffered from the same type of caugh already for more than 2 weeks.
- Objective: during the paroxysm of caugh in the emergency the infant is cyanotic and vomits, in the end of caugh paroxysm apnoic pause occured
- Pulse: 160/min, breathing frequency 72/ min
- Lung roetgenogram – without pathologic findings
- Blood count: leucocytosis with lymphocytes predominance

Case report 3

1. Which agent is suspected?
2. Which microbiologic examination will be performed? Which sample collection set will be used? Is it possible to perform indirect detection of this suspected agent?
3. What are the cultivation requirements of suspected agent?
4. After how long can the cultivation detection of suspected agent be positive?

- Case report 3 – nasopharyngeal swab culture – result after 5 days

Case report 3

5. Which antibiotic/group of antibiotics are the antibiotics of choice? Why?
6. Can this infection be specifically prevented?

Case report 4

- 52-years old woman with rheumatoid arthritis is admitted to hospital for severe respiratory insuficience with fever in suspected pneumonia, confused, intubation and artificial pulmonary ventilation is needed
- Anamnesis: stay in hotel in Spain a week ago
- Objective: fever 39,4°C, CRP 298 mg/l, higher liver enzymes levels and creatinin
- Roentgenogram: bilateral shadow of lungs

1. Which etiologic agents are suspected?
2. Which microbiologic examination will be performed?

Case report 4

- Microbiologic findings:
  - Urine – antigen of *Streptococcus pneumoniae* a *Legionella pneumophila* not proved
  - BAL microscopy: microbes are not detected, leukocytes +++, cultivation of BAL
  - Haemocultures negative

3. Which other examination can be performed?

Case report 4

Microbiologic findings:

- BAL PCR examination: *Legionella pneumophila* DNA detected
- Targeted cultivation, after 4 days *L. pneumophila* (serogroup 2-12) colonies detected

Questions:

4. Which conditions are necessary for legionella cultivation?
5. Explain why the legionella urine antigen was negative
6. What is the typical clinical picture in legionellosis?
7. Which ATB are suitable for targeted legionellosis therapy?
8. What is the route of transmission of legionella? What might be the source of infection in this care report?