

Anaerobes

Microscopy+cultivation: pleomorphism, VL
agar/broth, growth 3-5 days

Biochemical signs: various activity, smell

Dg.: microscopy, cultivation, biochemistry

Pathogenity: component of common
nasopharyngeal flora, vagina etc. Conditional
patogenic, originate absceses, inflammation of
abdominal cavity, little pelvic, endogenous origin

Therapy: incision, drenage, linkomycin,
klindamycin, metronidazol

Anaerobes

G-cocci

- *Veillonella parvula*
- raises mixed endogenous infection

G+cocci

- *Peptococcus niger*
has dark colonies
- *Peptostreptococcus*
split peptides



G-rods

Bacteroides fragilis - grey colonies, is resistant to penicillin, kanamycin, susceptible to rifampicin

Porfyromonas gingivalis – brown/black pigment with fluorescence in UV rays, resistant to kanamycin, susceptible to PNC, rifampicin, raises inflammation of oral cavity

Prevotella melanogenica - black pigment, originates tonsilitis, usual cultivation is negative

G-rods

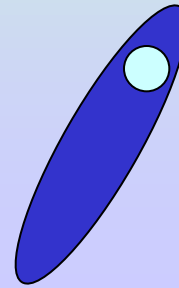
Fusobacterium nucleatum, necrophorum – looks like fibre, originates pneumonia, liver absces

Fusospirochetosis - originates gangrenous disintegration of a tissue

Mobiluncus sp. - movable, originates bacterial female vaginosis, difficult cultivation, usually we don't practise

G+rods forming spores

- *C. botulinum*
- *C. tetani*
- *C. difficile*
- *C. perfringens, novyi, septicum* etc.



C. botulinum



Microscopy+cultivation: G⁺ rods, colonies with irregular borders (blood agar) and β -hemolysis

Factors of virulence: Component of intestine, produce toxin (food contamination). Botulotoxin A-G (A and B preserve vegetables, E preserve meat) – has influence on neuromuscle disc, causes inhibition of acetylcholin release - muscle paralysis

Pathogenity: 3 types of a botulinism - alimentary, wound (spors are taken into the wound), suckling (toxin is produced direct in intestine).

Manifestation of poisoning: vomiting, weakness, double sight, mydriasis, ileus, muscle paralysis including respiratory muscle

Botulotoxin is used in plastic surgery, bioterrorism

Dg.: neutralisation mouse demonstration, toxin detection (chromatography) in blood, vomiting, food remainders

Therapy+ prevention: antitoxic serum, regular preservation

C. tetani



Microscopy+cultivation: G+rods, terminal spores, weak coated and weak hemolysis

Pathogenity+pathogenesis: in digestive tract of mammalia, spors are taken into the wound (for ex. fork), germinate and produce toxins (tetanolysin and **tetanospasmin** - inhibition of release of inhibitory mediators). Clinical signs: convulsion (mim. muscles-risus sardonius, bow bended body-opistotonus, trismus-impossibility to open the mouth), muscle ruptures, fractures

Dg.: microscopy, cultivation, demonstration on mouse

Therapy+prevention: antitetanic globulin, myorelaxantia, vaccination

Tetanus



C. difficile



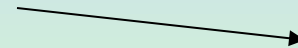
Microscopy+cultivation: G+rods, subterminal spores, on selective soil form colonies with rough surface, big 3-5 mm, without hemolysis

Pathogenity+pathogenesis: long-term using of antibiotics like klindamycin, cefalosporins lead to inhibition of common flore, discover of ulceration covered with pablans, diarrhoea, temperature – “pseudomembraneous colitis”

Factors of a virulence: A and B toxins, only both together cause the disease

Dg.: cultivation on selective media, toxin detection via ELISA method

Therapy: vankomycin, metronidazol



Clostridia of anaerobic traumata

C. perfringens, novyi, septicum, histolyticum etc.

Patogenity: wound infection, fasciitis, gangrenes
accompanied with pain in wound, swelling, bubble
crepitation in tissue

Dg.: microscopy, cultivation

Therapy: PNC, linkosamids, hyperbaric chamber,
anti-shock therapy, surgical therapy,
antigangrenous serum

C. perfringens

Factors of virulence: toxic enzymes – α -toxin (phospholipase, lecithinase), enterotoxin, β -toxin etc.

Dg.: microscopy, cultivation, detection of α -toxin (lecithinase) - coagulation of egg lecithin, specificity of lecithinase we demonstrate with inhibition of precipitation

Anaerobox



Source: Zahradníček O.

Anaerobic jar

Citric acid + NaHCO_3 + O_2 + N_2

Pd catalysator



CO_2 + H_2O + H_2 + N_2

Anaerobic atmosphere



Photo: Zahradníček O.



Photo: Čer