Anaerobes

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

Biochemical signs: various activity, smell

Dg.: microscopy, cultivation, biochemistry

Patogenity: 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 penicilin, 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

Faktors 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

Patogenity: 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 also in plastic surgery, bioterrorism

Dg.: neutralisation mouse demonstration, toxin detection (chromatografy) in blood, vomitting, food remainders

Therapy+ prevention: antitoxic serum, regular preservation

C. tetani

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

Patogenity+patogenesis: 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 sardonicus, bow bended body-opistotonus, trismus-impossibility to open the mouth), muscle ruptures, fractures

Dg.: microscopy, cultivation, demonstration on mouse

Therapy+prevention: antitetanic globulin, myorelaxantia, vacccination

Tetanus

C. difficile

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

Patogenity+patogenesis: long-term using of antibiotics like klindamycin, cefalosporins lead to inhibition of common flore, discover of ulceration covered with pablanes, 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, fascitis, gangrenes companied 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 (fosfolipase, lecitinase), enterotoxin, β-toxin etc.

Dg.: microscopy, cultivation, detection of α-toxin (lecitinase) - coagulation of egg lecitin, specifity of lecitinase we demonstrate with inhibition of precipitation

Anaerobox

Anaerostat

Citric acid + $NaHCO_3$ + O_2 + N_2

Pd catalysator

CO_2 + H_2O + H_2 + N_2

Anaerobic atmosphere