non-spore forming

Actinomyces

Intro.

1) Gram +ve

2) facultatively anaerobic
or strictly anaerobic

3) grow slowly

4) produce chronic + slowly
developing infections

5) colonize the upper respiratory
, GI and female genital Not Skin

6) infections → endogenous

7) develop delicate filamentous form
or hyphae in specimens or in culture

8) fastidious + grow slowly under anaerobic

7) treatment → combination of drainage of
localized abscess or surgical debridement
AND prolonged administration of Antibiotics

Actinomycosis

1) develop chronic granulomatous lesion
→ suppurative + abscess connected by
sinus tracts

2) most infection are cervicofacial
A) invasive B) oral trauma
c) dental procedure

3) signs for Actinomycosis:
A) Swelling with fibrosis + Scarring
B) drainage sinus

4) major sites, cervicofacial
+ abdominopelvic + thoracic

4) abdominal + pelvic → abdominal
surgery, Tuboovarian abscess.
rupture appendicitis + IUCD

Sinus / fistula

1) sinus :
A) Connection between a cavity lined
with granulation tissue + epi. surface
B) abnormal channel that originates
or ends in one opening

2) fistula :
A) connection between 2 epi. surface
B) abnormal pathway between 2 spaces
or pathway that leads from an internal
cavity OR organ to the surface of the body

non-spore forming

Nocardia

intro.
1) strict aerobic rod
2) form branched filaments
3) weakly acid fast :
   weak decolonizing of
   hydrochloric acid must be used
   to demonstrate the acid fast properly
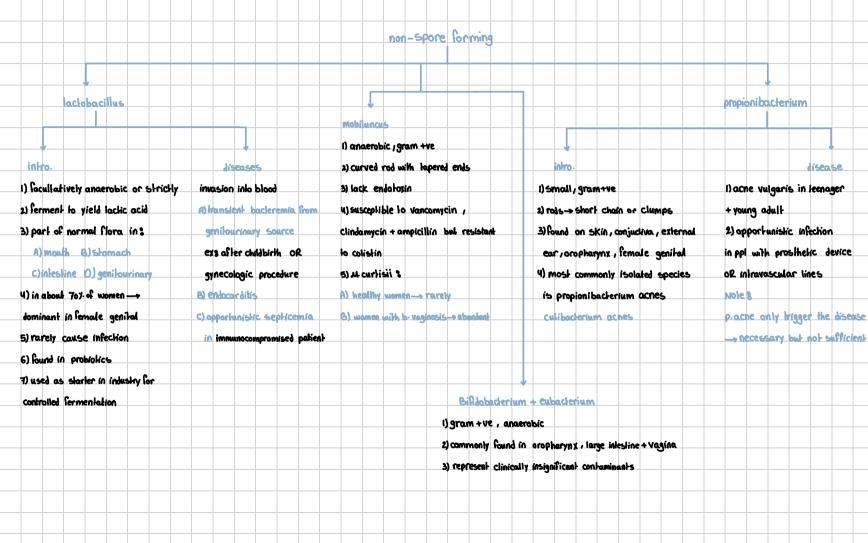4) weakly acid fast → distinguish it from
   Actinomyces
5) slow growth, 3-5 days for incubation
6) its infections are exogenous
7) ubiquitous, found in soil rich
   with organic matter
8) most affected ones are
   immunocompromised ppl

identification
1) present of both of aerial hypae
   and acid fastness
2) rapid test
3) unique feature

virulence factor
1) catalase
2) superoxide dismutase
3) prevent fusion of the
   phagosome-lysosome by cord factor
4) prevent acidification of phagosome

diseases
1) Bronchopulmonary disease
A) initially in upper respiratory by inhalation
B) then aspiration of oral secretion into lower airway
C) always in immunocompromised patients
2) brain abscess :
A) single or multiple
B) when infection dissemination to brain
3) cutaneous nocardiosis :
traumatic induction into subcutaneous + can be present as Mycetoma
4) Mycetoma :
A) chronic suppurative disease of skin + subcutaneous
B) symptoms : tumor + fistulas + grains
C) caused by fungi (ex.) + bacteria
D) slow progression, painless nature
E) late infection treatment → amputation

non-spore forming

lactobacillus

intro.

1) facultatively anaerobic or strictly
2) ferment to yield lactic acid
3) part of normal flora in:
   A) mouth   B) stomach
   C) intestine   D) genitourinary
4) in about 70% of women →
   dominant in female genital
5) rarely cause infection
6) found in probiotics
7) used as starter in industry for
   controlled fermentation

diseases

invasion into blood

A) transient bacteremia from
   genitourinary source
   ex: after childbirth OR
   gynecologic procedure
B) endocarditis
C) opportunistic septicemia
   in immunocompromised patient

mobiluncus

1) anaerobic , gram +ve
2) curved rod with tapered ends
3) lack endotoxin
4) susceptible to vancomycin ,
   clindamycin + ampicillin but resistant
   to colistin
5) M. curtisii :
A) healthy women → rarely
B) women with b. vaginosis → abundant

Bifidobacterium + eubacterium

1) gram +ve , anaerobic
2) commonly found in oropharynx , large intestine + vagina
3) represent clinically insignificant contaminants

propionibacterium

intro.

1) small , gram +ve
2) rods → short chain or clumps
3) found on skin , conjuctiva , external
   ear , oropharynx , female genital
4) most commonly isolated species
   is propionibacterium acnes
   cutibacterium acnes

disease

1) acne vulgaris in teenager
   + young adult
2) opportunistic infection
   in ppl with prosthetic device
   OR intravascular lines

Note :
p. acne only trigger the disease
→ necessary but not sufficient

non-spore forming

listeria monocytogenes

intro.

1) short, Gram +ve

2) nonbranching, facultatively anaerobic

3) single, in pairs or short chains

4) motile at room Temp. but less at 37°

5) end over end tumbling motion

6) weak β-hemolysis on blood agar

7) widely distributed but uncommonly to cause disease

8) +ve, motility, β → useful for the preliminary identification

9) Cause disease in:

A) neonates

B) elderly

C) pregnant women

D) immunocompromised (cellular immunity)

virulence factor

1) internalin A :

protein on surfae of Bact. which facilitate adhering to host cells via interacting with glycoprotein receptor on host cells (epithelial cadherin)

2) facultative intracellular pathogen

3) bacterial pore-forming cytolysin (listeriolysin O)

4) 2 diff. phospholipase C

Note:

4+3 &1) activated via acid pH of phagolysosome

2) lead to release of bacteria in cytosol

5) movement → ActA (B.protein) → assembly of Actin

6) replicate in Macrophages → avoid AB-mediated clearance

diseases

1) food bore listeriosis : contaminated food

2) neonatal disease : mother → child in utero or at birth

A) early onset disease (transplacentally) abortion, stillbirth, premature birth

B) late onset (at or after 2-3 weeks birth) meningitis, meningoencephalitis with septicaemia

Note:

1) most infection in pregnant women during 3rd trimester → impaired cellular immunity

2) Healthy adult → self limited + Asymptomatic or mild

non-spore forming

Corynebacterium diphtheriae

intro.

1) irregularly staining
2) pleomorphic rod
3) aerobic or facultatively anaerobic
4) nonmotile, catalase +ve
5) ubiquitous in plants, animal
6) normally colonize (skin, upper respiratory
   GIT, UGT) in humans.
7) humans are the only known reservoir
8) respiratory droplet or skin contact
   → person to person

toxin

1) diphtheria toxin
   ex: A-B exotoxin

A subunit → catalytic region
B // → receptor-binding + translocation region

mechanism:
1) toxin bind to HB-EGF factor on epi. mem.
2) endocytosed into the cell
3) A subunit → translocated to the cytosol
4) A // → ADP ribosylates host eEF-2
5) No protein synthesis then dies

Note:
eEF-2 is required for protein synthesis

respiratory diphtheria

1) sudden onset
2) malaise, sore throat
3) exudative pharyngitis
4) low grade fever
5) thick pseudomembrane

Composition:
A) lymphocytes B) plasma cells
C) fibrin D) dead cells E) bacteria

location:
A) tonsils B) uvula C) palate
D) nasopharynx E) larynx
6) uncommon in USA bcz of immunization
→ No cases since 2003

Anaerobic Gram +ve cocci

intro.
1) colonize in oral cavity, GIT
Skin, genitourinary tract
2) cause infection when spread
to sites that are normally sterile

peptostreptoccus
1) recovered more from :
A) subcutaneous
B) soft tissue abscess
c) diabetes-related foot ulcers
2) less from :
intra-abdominal infection
3) its infection → chronic infection (more often)
4) many infection → synergistic