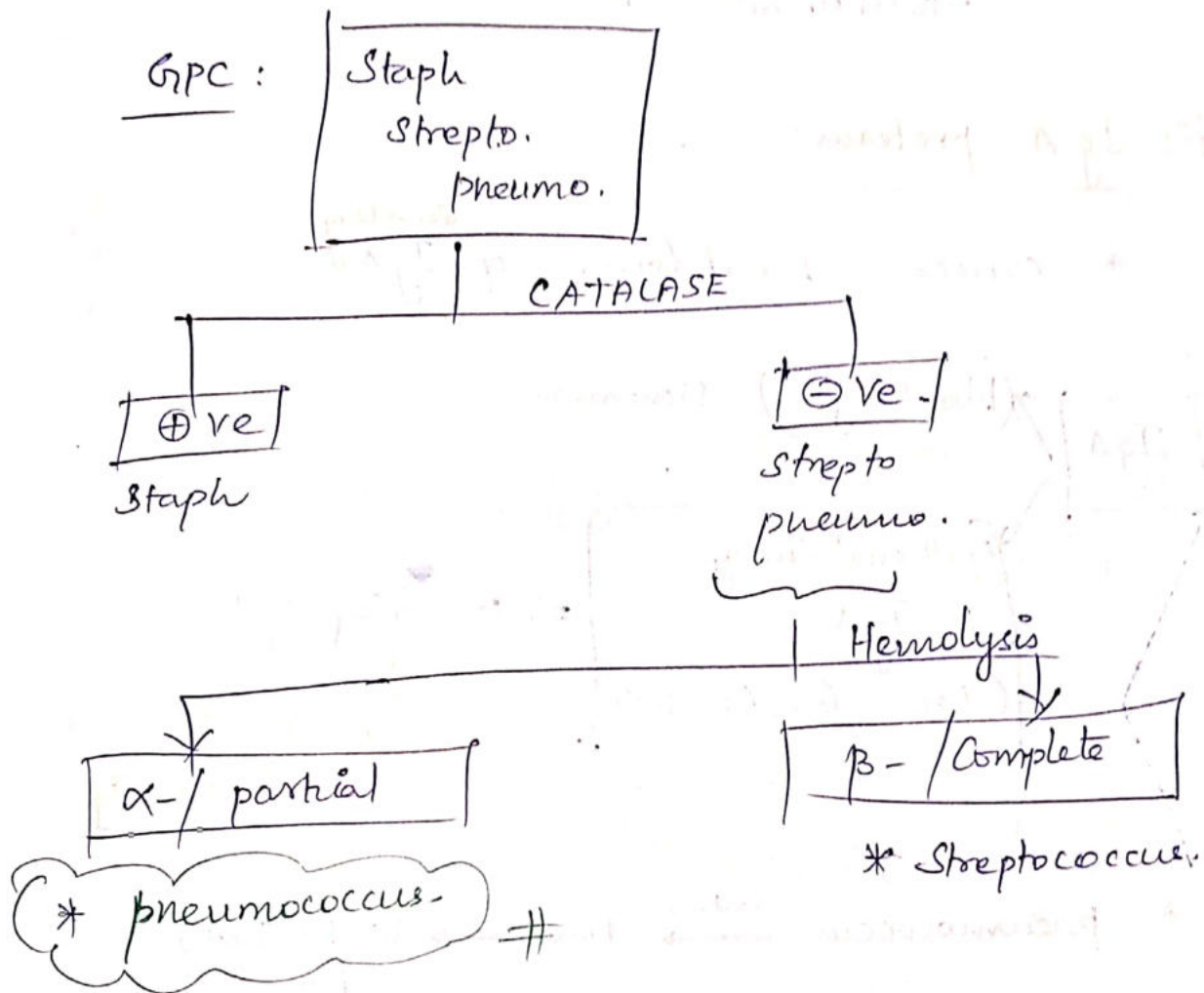
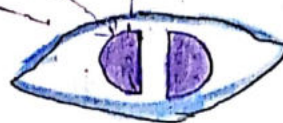


Note: β -Hemolytic Streptococcus is the actual Streptococcus but pneumococcus is aka α -Hemolysis.



Arrangement:

- * GPC - pairs, lens shaped
- * Capsulated

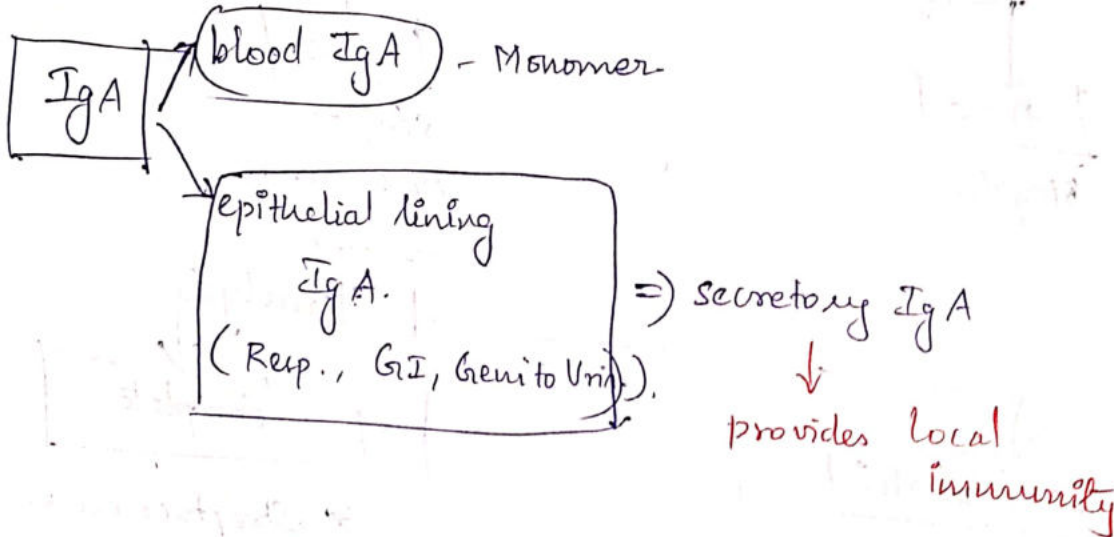


(i) for all capsulated bacteria, CAPSULE is the ⊗ virulence factor why?

↓
ANTIPHAGOCYTIC.

ii) IgA proteases:

* causes breakdown of secretory IgA.



* pneumococcus enters Nose → URT (IgA).
↓ IgA proteases
lungs

(iii) Pneumolysin:

* lysis of cell membrane
↓ #
Host cell death



Diagnosis:

i) Microscopy:

Gram stain



GPC - pairs
- lens shaped
- capsulated

ii) Culture:

Selective Media:

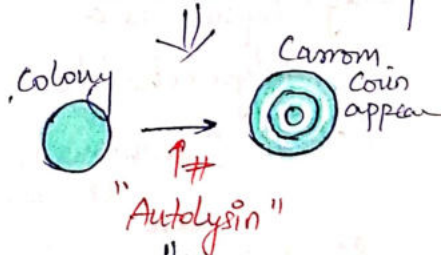
No selective media for pneumo- & entero-but

BLOOD AGAR

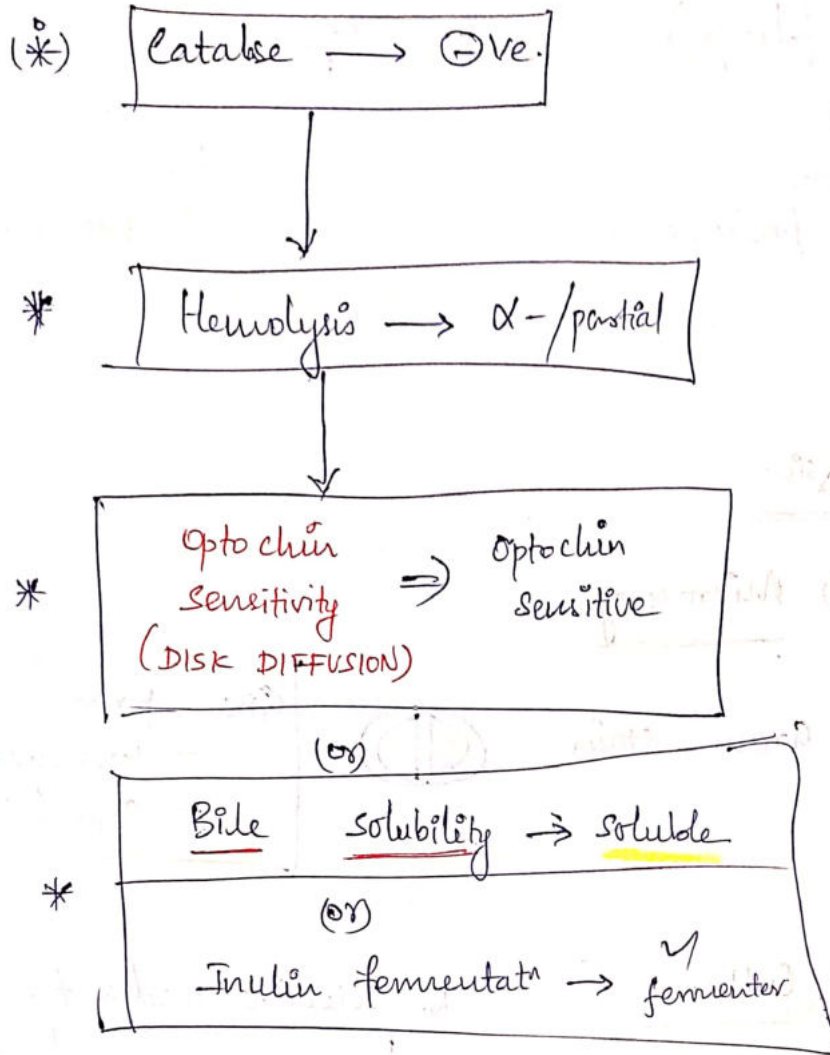
identified by

α- / partial Hemolysis

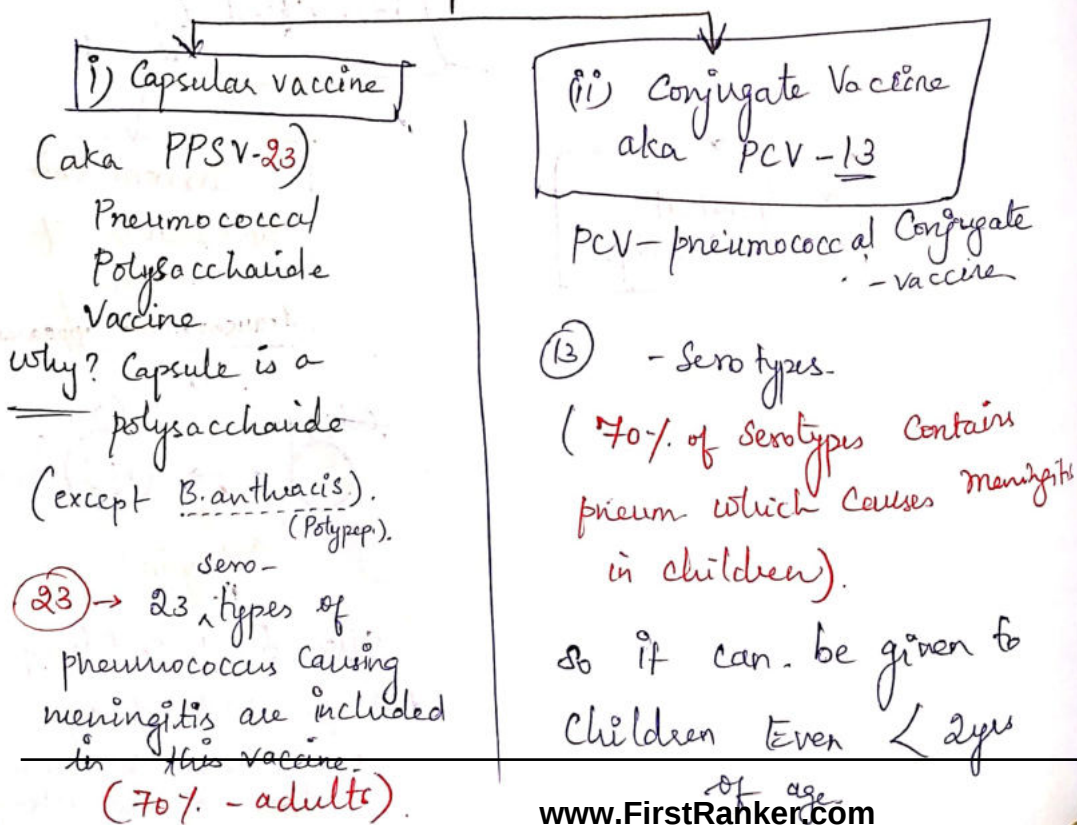
Carrom coin appearance of (or) colony draughtmann appearance



after formⁿ of colony, Autolysin produced by pneumococci can cause lysis of own colonies.



Prevention: Vaccines to combat fatal Meningitis.



(1) PPSV
capsular Vaccine mainly for adults why?
(CPPSV).

* Among (23) serotypes, 70% of them are adult serotypes i.e. pneumococcus which causes meningitis in ADULTS.

* PPSV is contraindicated in children < 2 yrs of age

↓
why? bcoz capsular V. is less immunogenic.

↓
why less imm? Capsular Ag is a T-cell independent Ag.

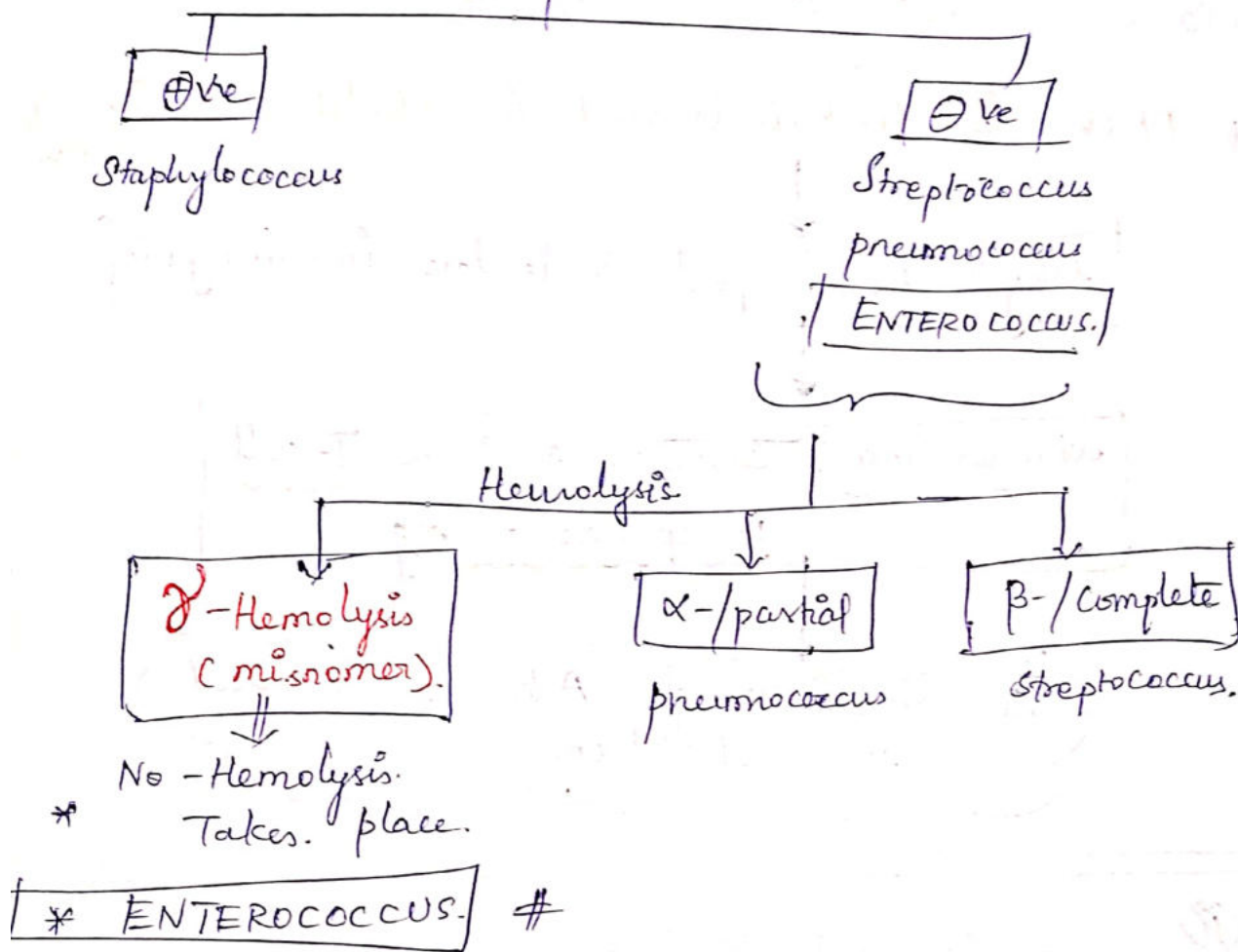
↓
So not enough A-b are produced in children

Ⓜ

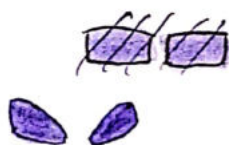
* Conjugate Vaccines.

↳ Highly Immunogenic.

Catalase Test



Arrangement:

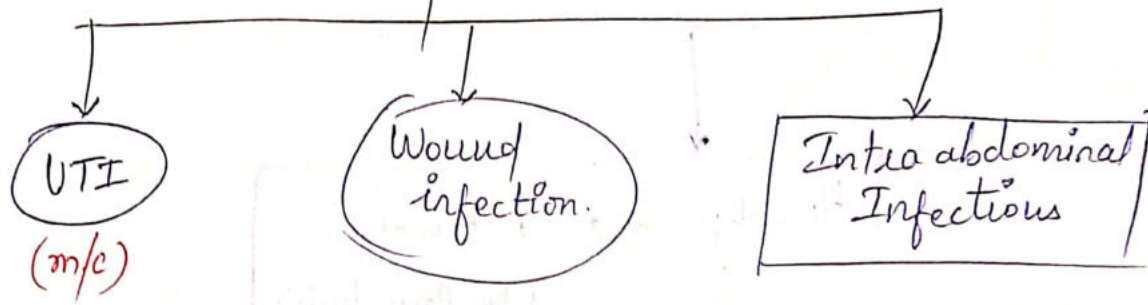


- GPC. - pairs. ✓
- Spectacle shaped ✓
 - Non Capsulated ✓

Virulence factors

present

(Not imp. for exams)



Δ sis:

(i) Microscopy:



GPC - pairs
spectacle.
Non capsulated

(ii) Culture:

No selective media but blood agar can be used.

Blood Agar $\rightarrow$ No Hemolysis (γ -Hemolysis)

Toleration Test.

NaCl/salt toleration.

6.5% NaCl is Tolerable

Bile toleration

40% Bile is Tolerable

ID (iii) next pg

even in High salt &

Catalase Test $\rightarrow \ominus ve.$

Hemolysis $\rightarrow \gamma$ -Hemolysis.
(No Hemolysis).

Toleration Test.

- Salt (NaCl) Toleratn $\rightarrow$ Can Tolerate 6.5 % NaCl
- Bile Toleratn. $\rightarrow$ Can Tolerate 40% bile

Strepto & pneumo can't Tolerate NaCl & Bile

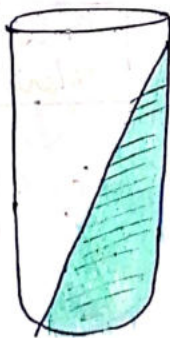
(or)

PyR Test.

(or)

Bile Esculin Test. (m/c used) for ID

Slant - Tube culture media.
with Bile & Esculin Agar



* Bile + Esculin. $\rightarrow$ Esculetin (Black).

* many bacteria can convert Esculin to Esculetin but only in absence of 40% bile.

