

Salmonella and *Streptococcus*

Two bacteria which produce a range of common diseases and have specialized invasins

Lecture 2: Objectives

- Understand the virulence determinants of *Salmonella spp*
- Understand the role of invasins and endotoxin in typhoid fever
- Be aware of the diseases cause by *Streptococcus spp*
- Understand the virulence determinants in suppurative and non-suppurative Strep. infections

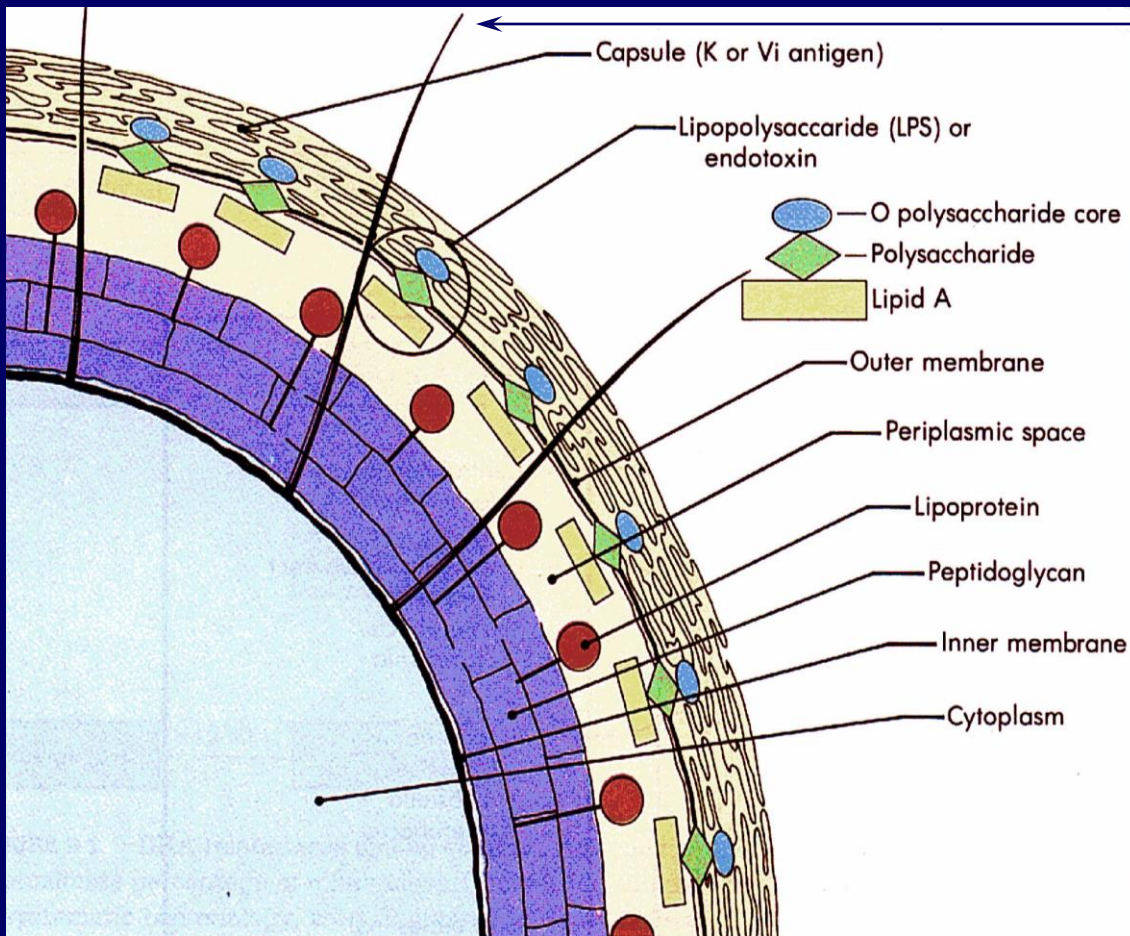
Varieties of Diarrhoea

- Watery diarrhoea: *V cholerae*, EPEC
- Gastroenteritis: *Salmonella spp.* type 3
- Dysentery: *Shigella*, EIEC
- Enteric fever: *Salmonella spp.* type 1

Food poisoning: epidemiology, etc.

- *Salmonella spp.* are commensals of domestic animals
- Infection is the result of poor hygiene
- Multiply-resistant strains increasing (agricultural practice)
- Disease causes £1 billion/yr in UK

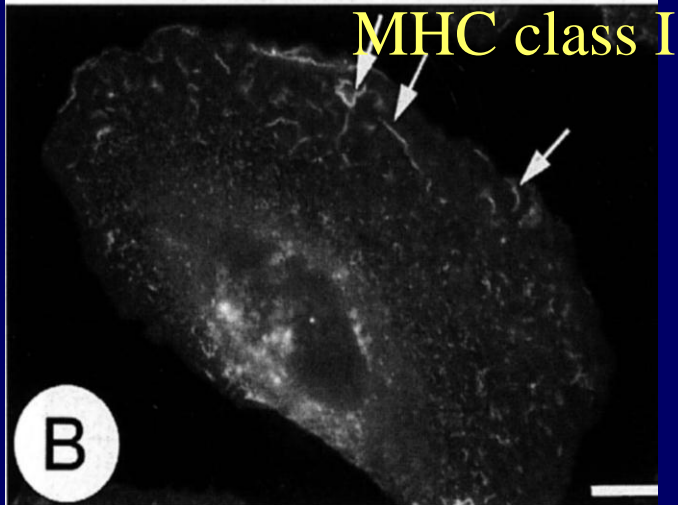
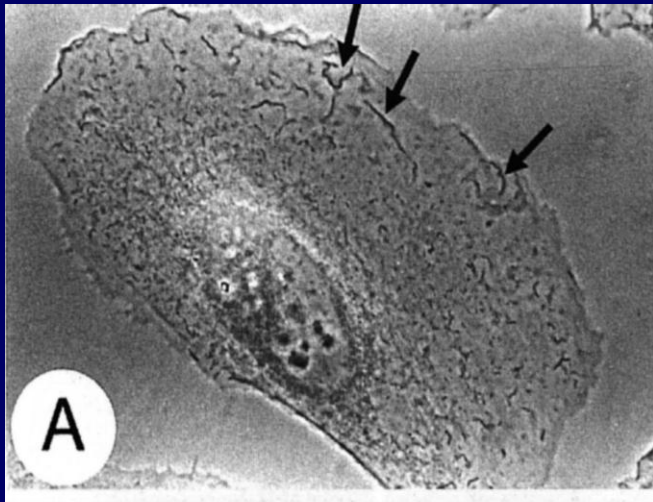
Salmonella virulence determinants



pili for cellular attachment

Induction of “ruffles” by *S. typhimurium*

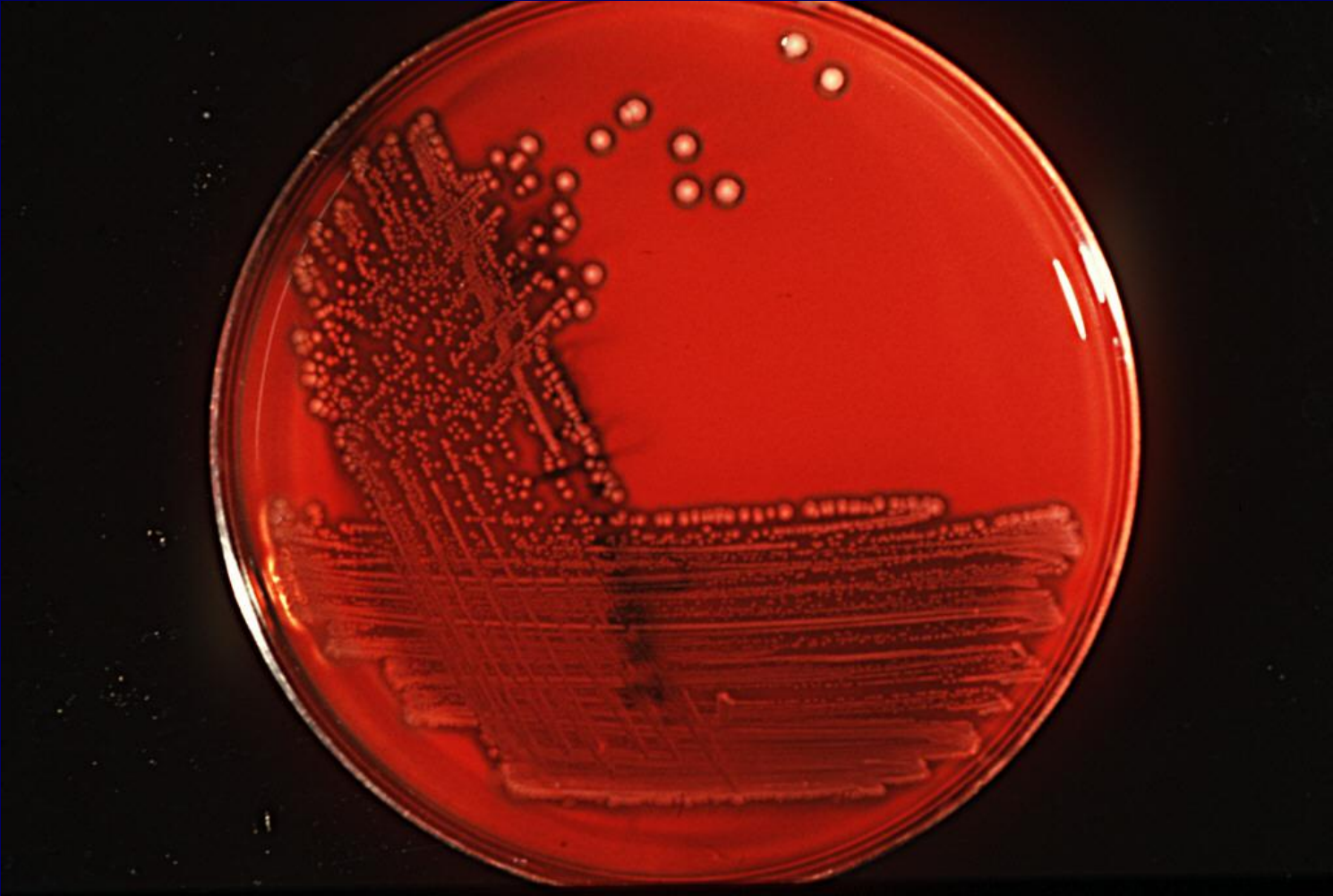
“ruffles” induced by EGF



Sal. typhi and enteric fever

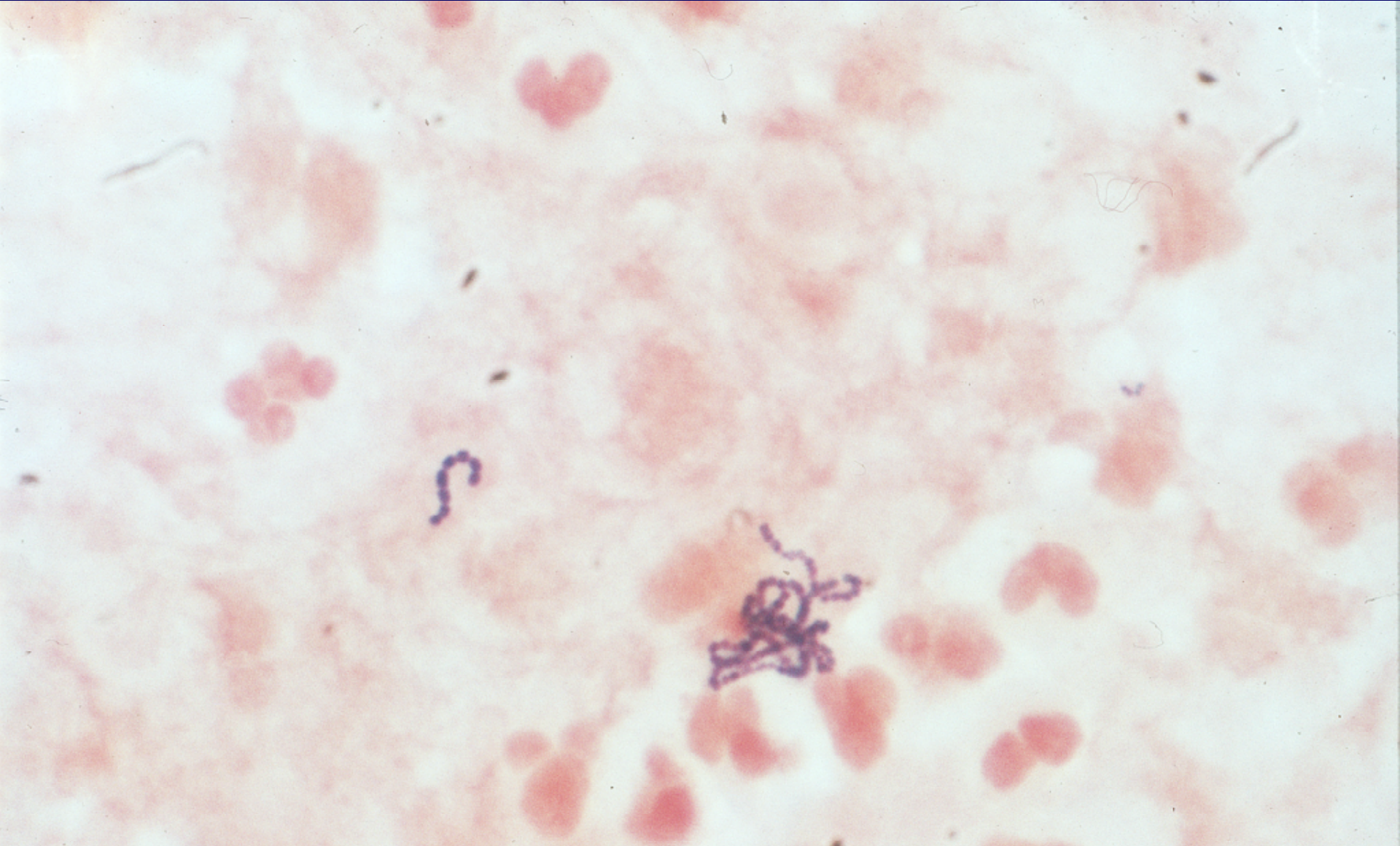


Streptococcus

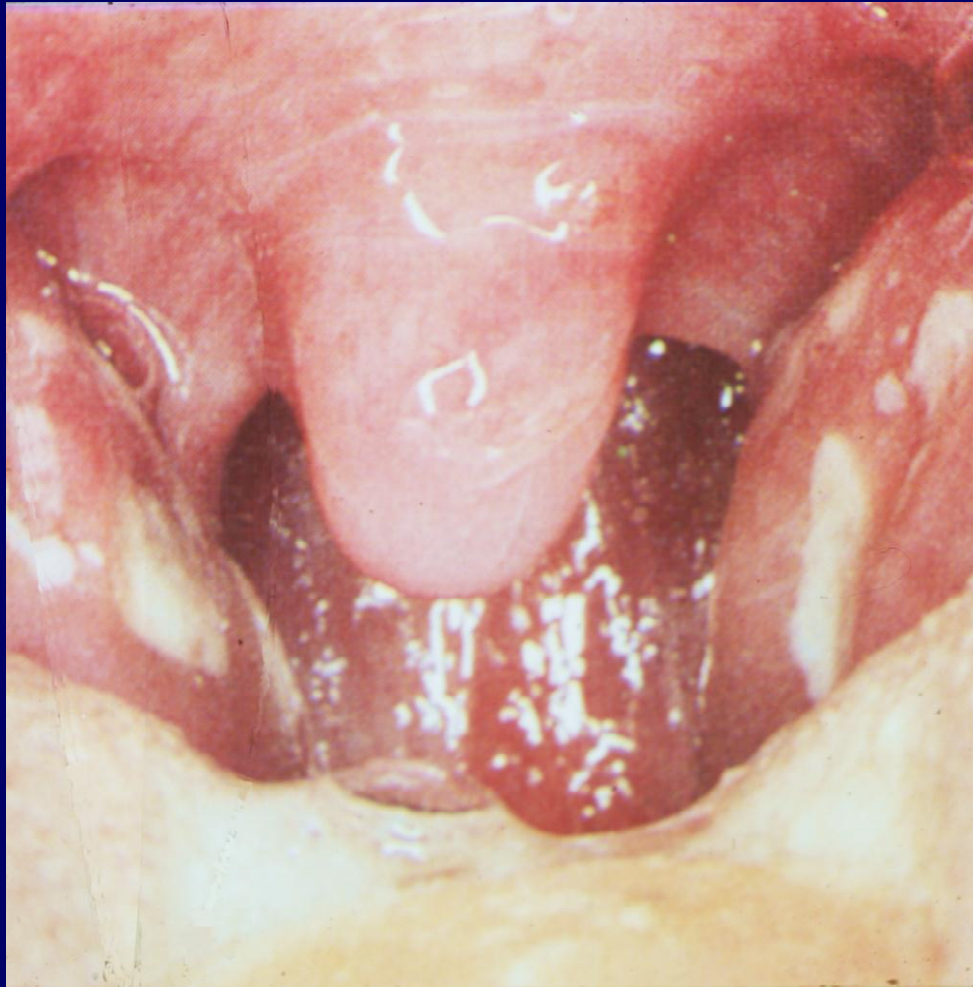


β -haemolysis (*Strep. Pyogenes*)

Cellular morphology of *streptococcus*



Pharyngitis (*Strep. Pyogenes*)

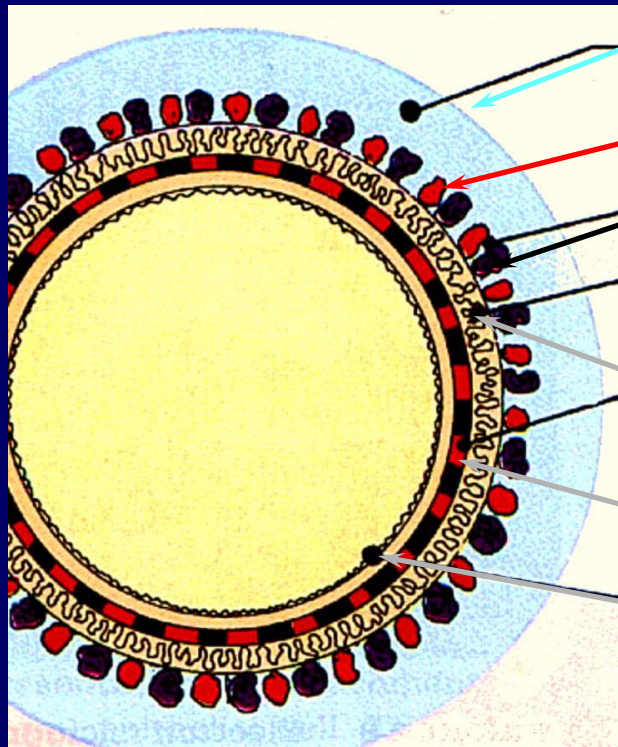


Pyoderma



Virulence determinants of group A *Streptococcus*

(the major subset of β -hemolytic streps)



capsule (hyaluronic acid)

protein F (*ptrF*) binds fibronectin

protein M (*emm*), antiphagocytic,
complement-protective

lipoteichoic acid (epidermis binding)

peptidoglycan

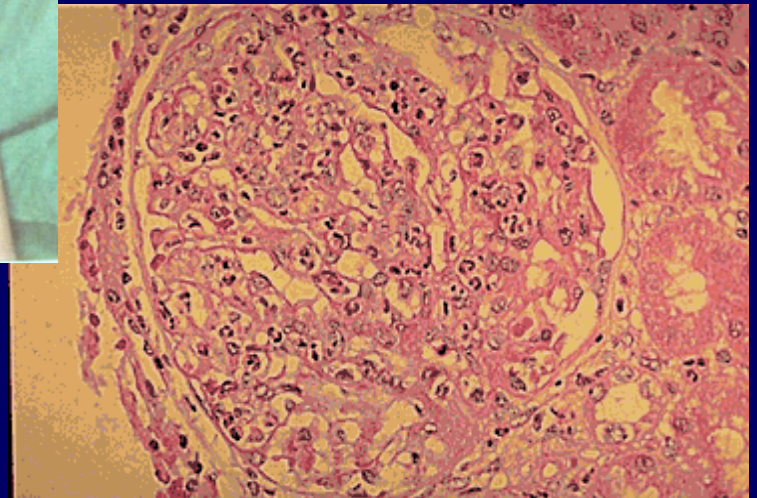
cytoplasmic membrane

Non-suppurative sequelae



Scarlet fever

glomerulonephritis



Cellular morphology of *Strep. pneumoniae*

