MUMPS VIRUS

Mumps Virus (MV)

- **It is an acute infectious disease of children & young adults**
- **Characterized by enlargement of parotid glands**
- **Organs: CNS, pancreas, testes & ovaries can be involved**

Properties

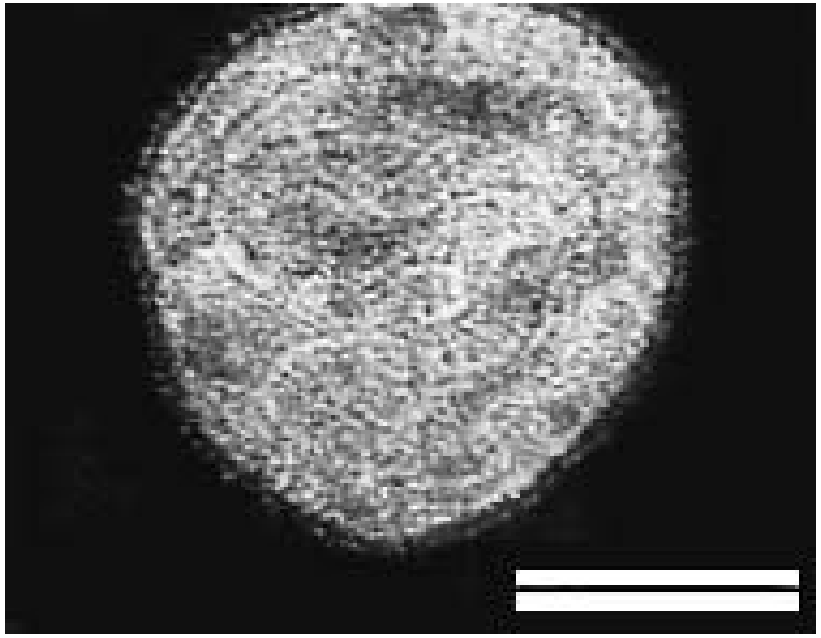
- **Member of paramyxo viruses**
- **ss RNA**

- **Enveloped with helical symmetry**
- **Only one sero type exist (thermo labile)**
- **Cross reaction (other paramyxo virus members)**

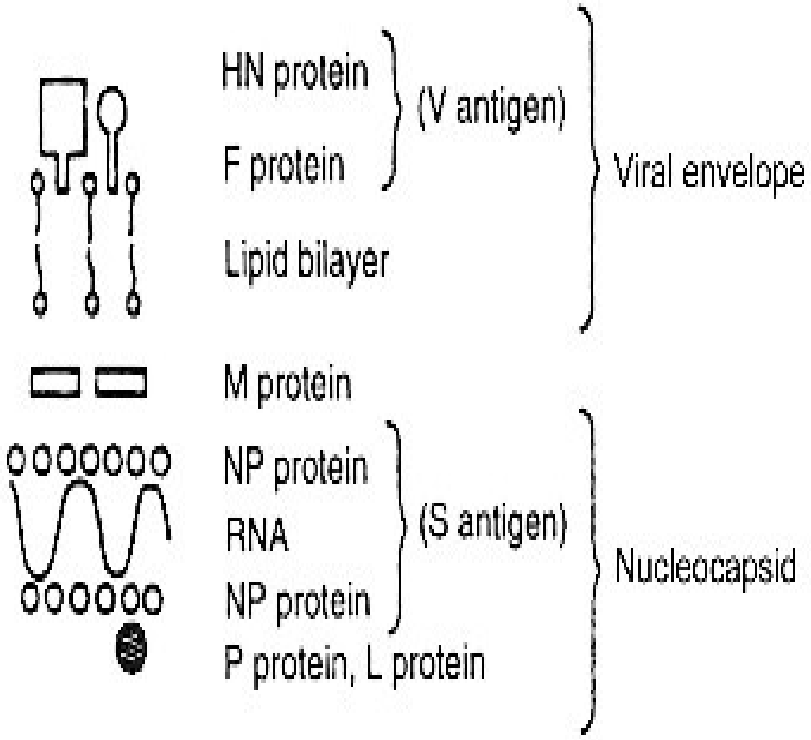
The virial proteins:

- **RNA polymerase (L - protein)**
- **haemagglutinin**
- **neuraminidase (HN)**
- **nucleocapsid protein (NP)**
- **matrix protein (M)**

Electron micrograph of MV, revealing enveloped structure



Structural components of the MV

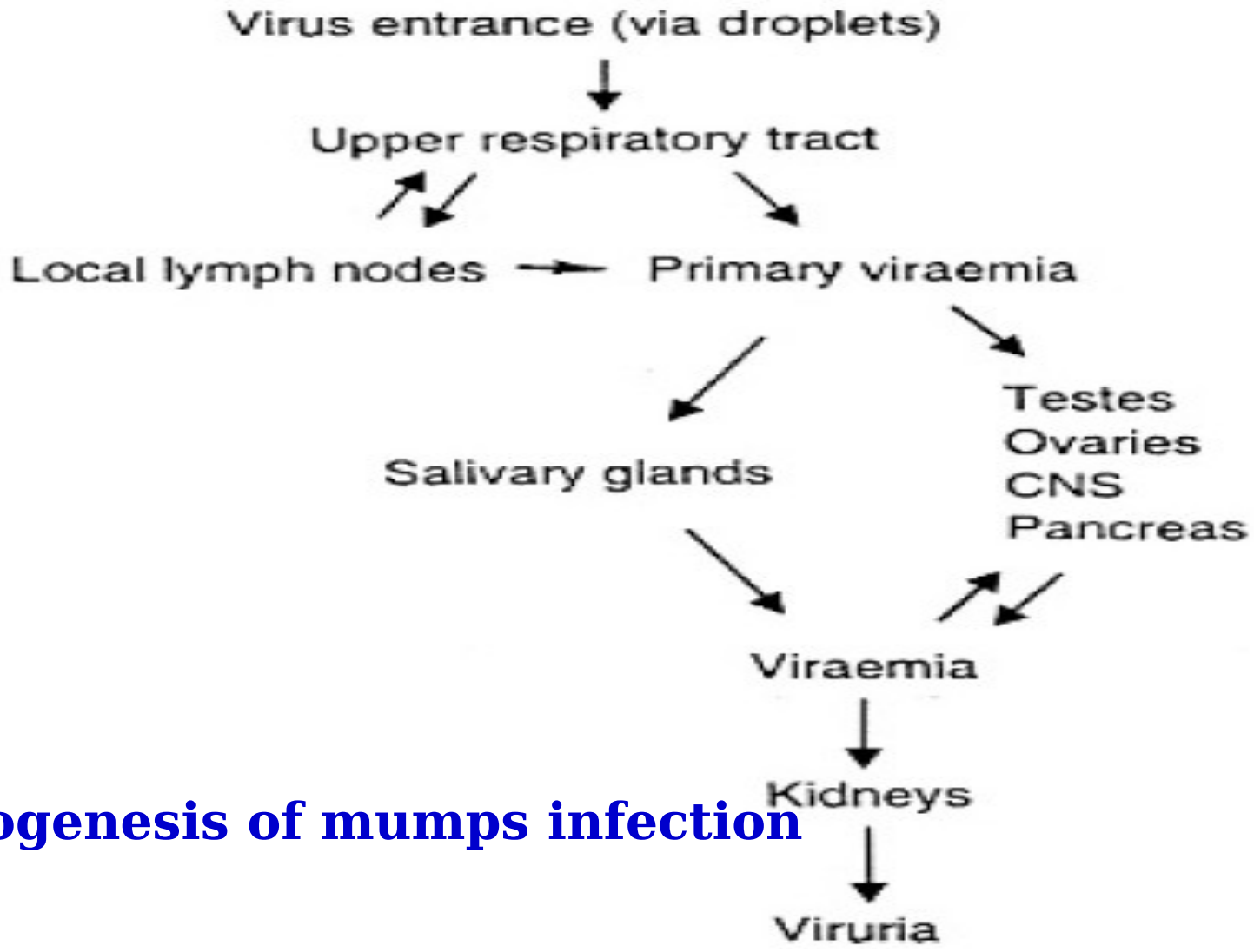


Epidemiology

- Global occurrence (endemic)
- Over crowding favors outbreaks
- Primarily affects children (5-15yrs)
- Infection occurs through out the year

Transmission

- Direct contact (person to person)
- Aerosol
- Fomites contaminated with saliva / urine
- Man is the only natural host



Pathogenesis of mumps infection

Clinical findings

- **Swelling of salivary glands (95% of patients)**
- **Enlargement of parotid glands, thyroiditis**
- **Deafness (in untreated cases)**
- **Pancreatitis, anorexia, malaise, nephritis**

Lab. DX

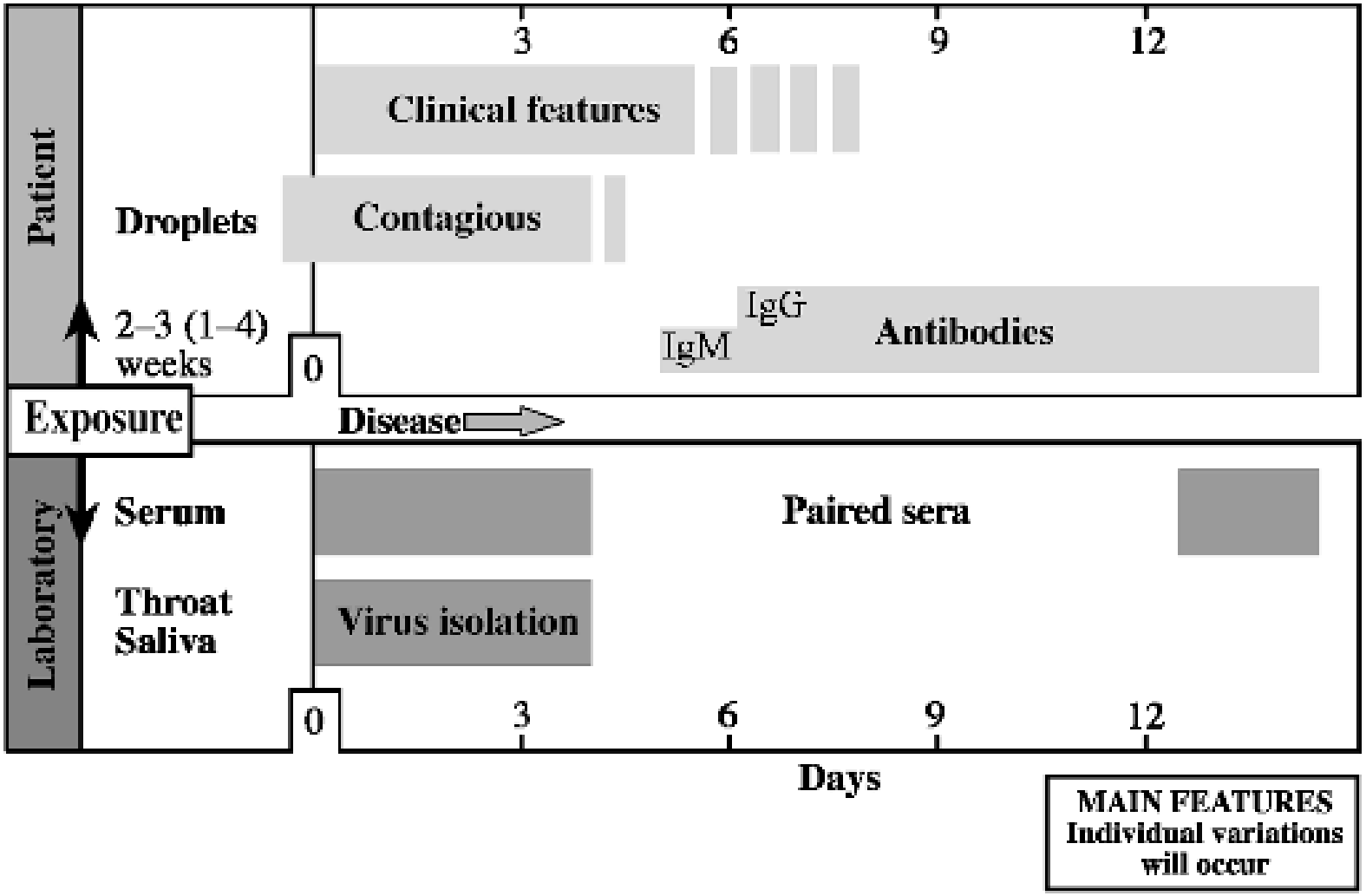
A. Virus isolation

- **Cell culture: Monkey kidney cells (characteristic CPE)**
- **Samples: Saliva, CSF & urine: Positive in up to 2 weeks**

B. Serological tests

Note: Cross reactive Ab. induced by para influenza virus

Mumps virus


Patient
Droplets
2–3 (1–4) weeks
Exposure
Laboratory
Serum
Throat
Saliva
0
3
6
9
12
Clinical features
Contagious
IgG
IgM
Antibodies
Disease
Paired sera
Virus isolation
0
3
6
9
12
Days
MAIN FEATURES
Individual variations will occur

Prevention & control

- **Immunization (live attenuated vaccine)**

  ► ↓ morbidity & mortality rates

N.B: The vaccine is contra indicated in pregnancy