MEASLES AND RUBELLA VIRUSES - CLASSICAL AND MODERN METHODS OF LABORATORY DIAGNOSIS

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Introduction:

Measles and rubella are viral infections important to public health. Since the middle of the 20th century, they are subject to vaccine prophylaxis, but the number of patients remains high, especially among children under one year.

The **AIM** of the study is to present the methods for laboratory detection of measles and rubella virus.

MATERIALS AND METHODS:

Clinical samples

- The total number of 100 serum and oral fluid samples from patients with measles and rubella were tested.

Laboratory analysis

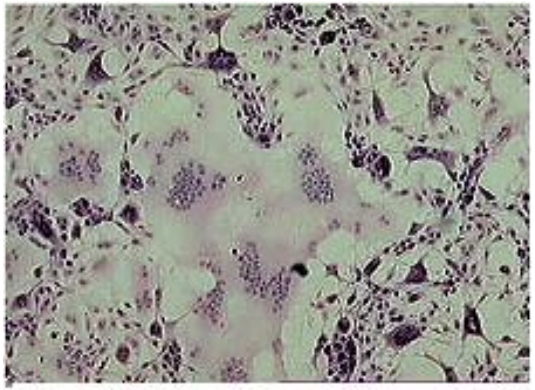
All samples were tested with the following methods:

- Vero cell culture
- Serological analysis:

Indirect EIA test for detection of specific measles/rubella IgG/IgM antibodies

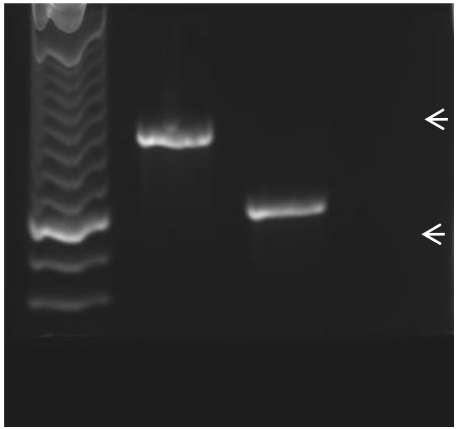
- Molecular analysis
  - Extraction of viral RNA (*PureLink® Viral RNA/DNA test kits*)
  - Amplification - One Step RT-PCR test (*RT-PCR Qiagen Kits*) to detect the nucleic acid.
  - Electrophoresis in 2% agarose gel stained with etidium bromide for visualization of PCR products

RESULTS

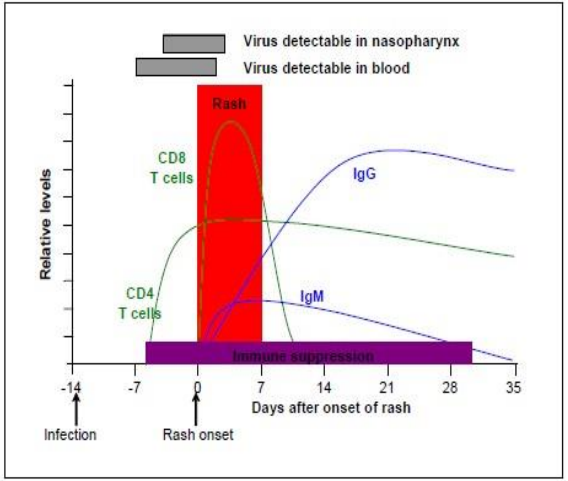


Cytopathic effect of measles virus growth in Vero cells

Typical CPE(formation of syncytia) develops between 2 to 10 days after inoculation, hemadsorbation with monkey erythrocytes and identification with serum specific poly- and monoclonal antibody.



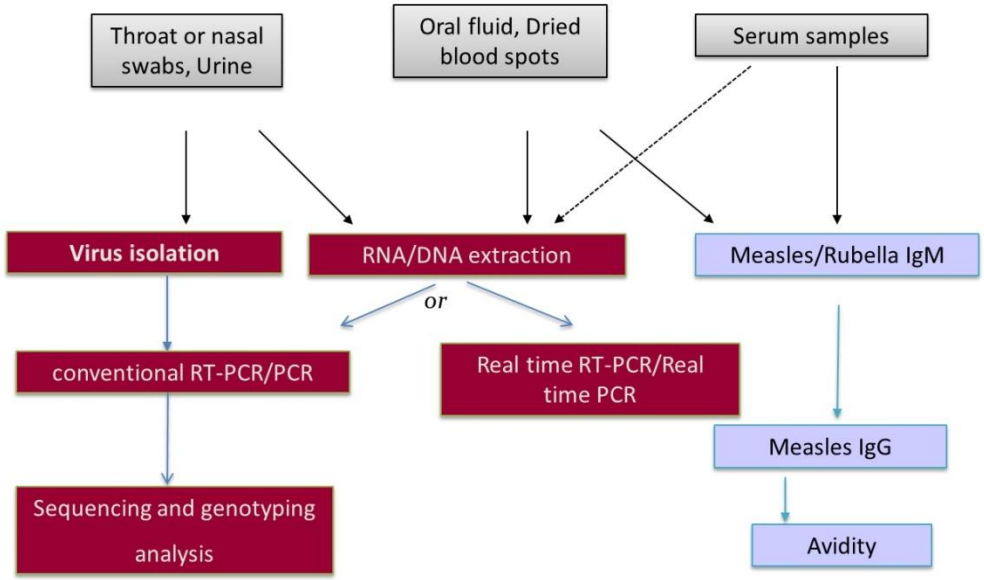
- Lane 1: MW ladder
- Lane 2: Pos control
- Lane 3: Pos sample
- Lane 4: Negative (water) control



Serological diagnosis (detection of specific serum Ig M antibodies) is the “gold standard ” for rapid laboratoty diagnosis of measles and rubella virus.

Diagnostic methods	Sensitivity
Rapid tests	40 – 60 %
ELISA	50 – 70 %
Cell culture	60 – 80 %
PCR	**90 – 100 %**

TEST Scheme



CONCLUSION

The successful isolation of live virus from clinical specimens and detection of viral antibodies and RNA, depends on the timing and type of specimens and correct sample collection.