

- sense - शारू enveloped

RNA Viruses - Cytolytic. Replication

Retro: Rev. Trans. + Int

Nucleus
Retro (B29)
Borna

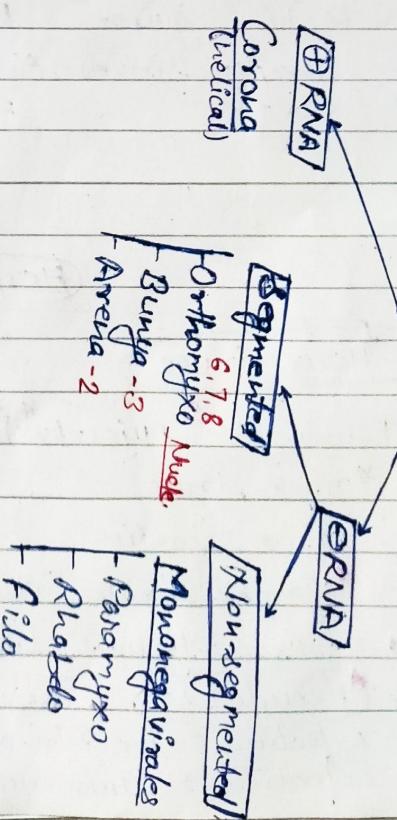
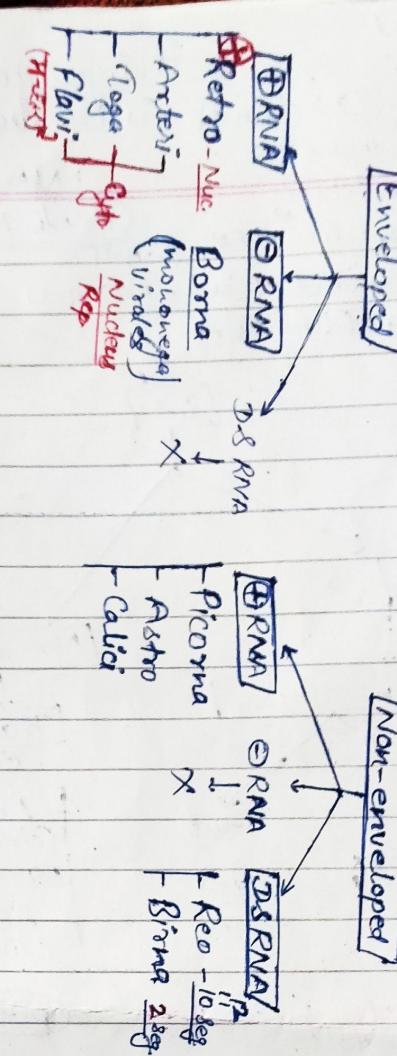
Orthomyxo

Helical

Enveloped

Cospherical

Enveloped



can pass on → may sickness

Bovine ephemeral fever (Arthropod borne virus)

(*) Tick-borne disease in humans is caused → Small Pox virus

Page No.

Date: / / 1201

⇒ Flaviviridae →

3 genera → Flavivirus -

Pestivirus - Swine fever, Bovine viral diarrhoea

Hepacivirus -

⇒ Swine fever → Hog cholera

→ Highly contagious potentially fatal disease of pig

→ abortion, coughing,

→ still birth

→ weak new born piglet 1) * petechia on the kidney surface

→ convulsion

2) * haemorrhage intestine and

* mesenteric lymph node

3) * enlarged haemorrhage spleen

4) * lymph node

~~marked
egg appearance
of kidney~~

⇒ Kyasanur forest disease →

Kyasanur forest disease virus → a member of the
Flaviviridae family

(*) Ephemeral fever is → 3 day sickness

Bovine Ephemeral fever (Arthropod borne virus)

(*) Hydropericardium syndrome is caused ⇒ fowl Adeno virus

(*) EDS Egg Drop syndrome ⇒ Adeno viruses

(*) Jaagsiekte ⇒ In sheep JSRV

→ I neonatal disease

✓ pulmonary oedema

✓ pulmonary carcinoma

✓ Cataract Nasal discharge

retrovirus

(Jaagsiekte Sheep Retrovirus)

Ovine pulmonary adenocarcinoma

(OPA)

Wet Barlow

test

Hold the head
less of sheep
are up

(*) Hog cholera \Rightarrow Severe fever like
Turkey egg kidney appearance

(*) scrapie ⇒ sheep
prions at once

Retroviridae
↳ triple layer

(*) Bovine disease ⇒ Flaviviridae at once

(*) Blue eye disease ⇒ pig, paramyxoviridae \xrightarrow{PPP}

(*) Caprine arthritis encephalitis → Retroviruses

(*) RABV-h → main neutralizing protein of rabies virus

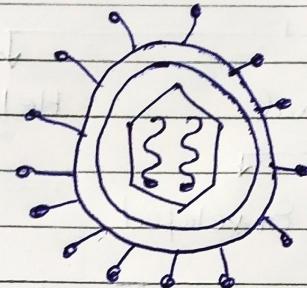
(*) PPR virus cultivation ⇒ Vero cells

Retroviridae \rightarrow symmetry of capsid \Rightarrow Icosahedral Enveloped (+)

two linear (+) sense B.S. of RNA

\rightarrow S-S RNA virus

reverse polymerase (+)



Labile viruses

unique feature include
a Reverse transcriptase
(viral RNA \rightarrow dS DNA)

\rightarrow Enzootic bovine leukaemia

~~Labile viruses~~ \Rightarrow Equine infectious anaemia
 \Rightarrow madai / visna

Picornaviridae \rightarrow

Aphthovirus \rightarrow fMD, Equine rhinitis A, Bovine rhinitis B

Enterovirus \rightarrow Swine vesicular disease virus

Sapelovirus \rightarrow Porcine sapelovirus

Echovirus \rightarrow Equine rhinitis B

Cardiovirus \rightarrow Encephalomyocarditis virus

Tremovirus \rightarrow Avian encephalomyelitis virus

Teschovirus \rightarrow porcine teschovirus 1-13

fMD (FMD)

Sea mewal

sea lion virus
swine virus

(Caliciviridae) Vesivirus \rightarrow feline calicivirus disease, vesicular exanthema of

Lago virus \rightarrow European bream charron syndrome, Rabbit haemorrhagic

Nebo virus \rightarrow Newbury virus

Noro virus \rightarrow Norwalk virus

Sapovirus \rightarrow Sapovirus

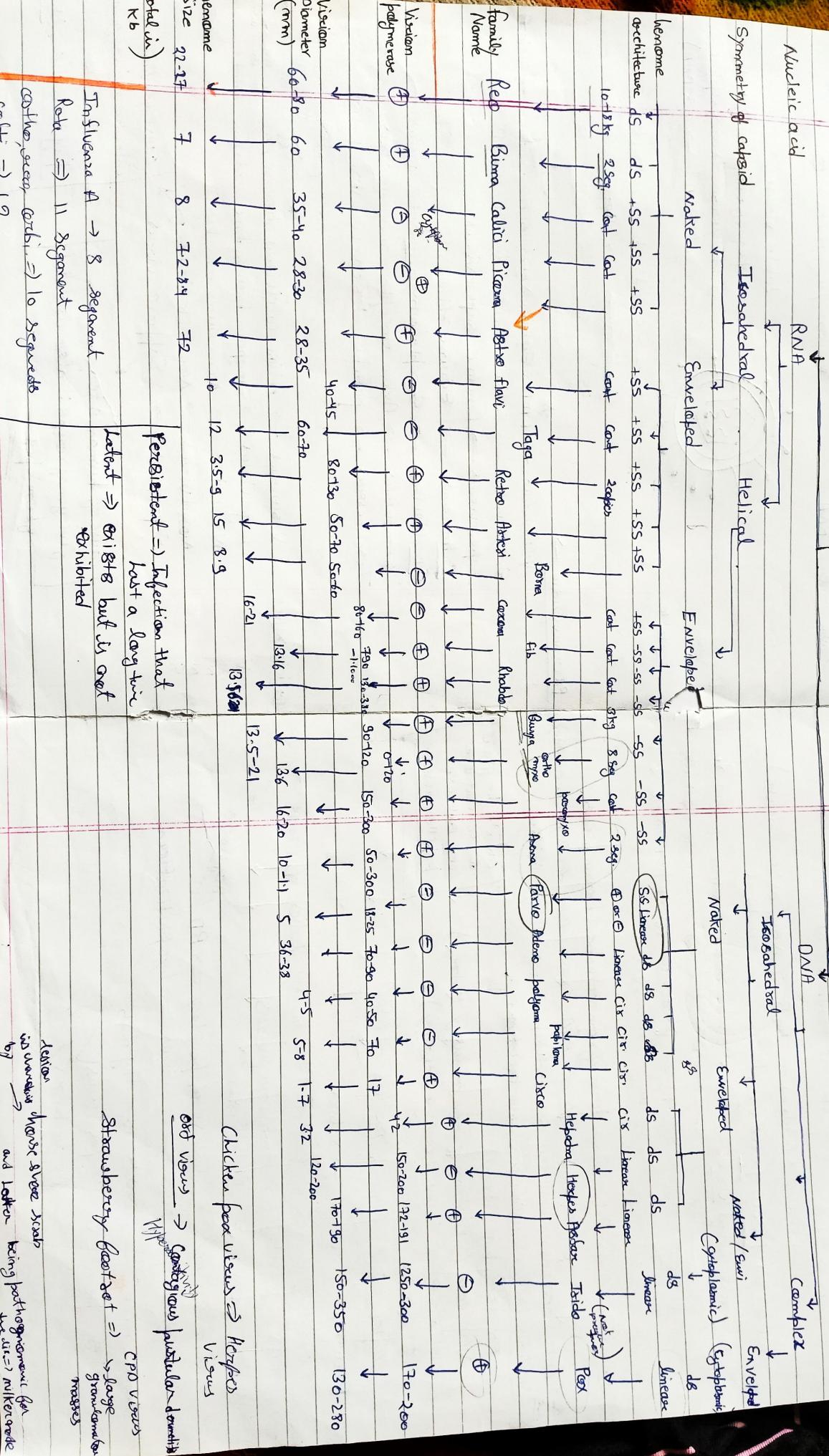
cause of human enteric infection

five genogroups: also isolated from pig

cause of human enteric infection five genogroups isolated from

pig, cattle, sheep

Classification of diseases



- ✓ Inclusion body hepatitis virus belongs to
 → protein fibre → Adenoviridae
 → Mononegavirales order →

Paramyxoviridae
Rhabdoviridae
Filoviridae
Bornaviridae
- ✓ → Cytokines → IL-2
 → mesogenic strain of RD virus → R₂B (new castle disease)
 → SMEDI → porcine parvovirus
- ✓ → Adeno associated virus ⇒ genus Depend viruses member of which are called
hepes viruses as defective they are defective and unable to replicate
 except ⇒ presence of helper viruses usually an Adenovirus
- ✓ VB → Arboviruses ⇒ Arboviruses derived from arthropod borne viruses.
 any of group of RNA viruses that develops in arthropods
- ✗ DNA virus transmitted by arthropod ⇒ Asfarviridae
- ✗ Various cell line used for virus isolation →

PK-15 (pig kidney)	
Vero cells (African green monkey kidney)	
BHK-21 (Baby Hamster Kidney)	
can't be grown in conventional cell culture papillomavirus	
- A1
 Re → Fluorescent ab. test ⇒ rabies
 → Elementary bodies of fowl pox ⇒ Basal bodies Ballinger
 → IBD in poultry ⇒ Avibirna virus
 → Diploid genome ⇒ Retroviridae
 → Button ulcer in intestine of poultry → RD, ^{Hog cholera} hog cholera
- long term preservation of virus ⇒ Lyophilization
 → Nude mice → Lack of thymus
 → Chicken pox ⇒ Herpes virus ✓
 Avian pox X

PAMP → Pathogen associated molecular pattern
 Horse shoe shaped lesion → pseudocowpox
 Dwarfing and curling of chicken embryo → Infectious bronchitis (coronaviridae)

ICH-1 in dogs → Blue eye (corneal edema)

Coggins test ⇒ Equine infectious anemia (specimen fever)
orbivirus reoviridae

Foerst-Degam inclusion body → Bornaviridae A

Psittacine beak & feather disease ⇒ Circovirus

Warmeri bodies → small pox (variola)

Burst size ⇒ Expected no. of ^{virions} produced by ^{one} infected cell over its life time.

Plaque assay ⇒ When cells grow as monolayers, they can be used to quantify the number of viruses

Arboviruses ⇒

Replication of enveloped DNA viruses ⇒

i Serological test ⇒

Slow growing viruses ⇒

(*) Strains of NDV differ in their virulence and isolates are categorized into five pathotype on the basis of virulence & tissue tropism in poultry →

→ viscerotrophic viscogenic isolates (Poyle's form)

→ neurotrophic viscogenic isolates (Beach's form) A

→ mesogenic isolates (Beaudette's form)

→ Lenticogenic isolates (Hitchner's form)

→ asymptomatic extrinsic isolates

D BBN

✓

Adenoviridae \Rightarrow pentone fibre

patho
syn \rightarrow Inclusion body Hepatitis belong this virus

\rightarrow Hydropericardium syndrome (Leechi disease)

\rightarrow Egg drop syndrome

Asfarvididae \Rightarrow

African swine fever

DNA virus transmitted by arthropods

✓ Paramaviridae \Rightarrow Boarna disease

Toest-Degam Inclusion body

Parvoviridae \Rightarrow SMEDI \leftarrow porcine parvoviridae
(Still Birth, mummification, Embryonic death, Infertility)

Circoviridae \Rightarrow Beak and feather disease

chicken anaemia virus infection

Retroviridae \rightarrow diploid genome \oplus

Enzootic bovine leukosis

Taagbierte \rightarrow cowpox pulmonary adenocarcinoma
sheep

Lentivirus \Rightarrow Equine Infectious anemia
(Coggins test)

Cattle arthritis encephalitis

Flaviviridae \rightarrow Border disease

New castle disease → Ranikhet disease

↳ Avian paramyxovirus -1

○ pigeons are susceptible to all strains of NPD and may play role in transmission.

↳ viral disease

↳ poultry

↳ High mortality

↳ petechial haemorrhage in proventriculus

↳ ulcer and haemorrhage at caecal tonsil.

↳ RNA virus - 3 types

① Lentogenic → mild virulent

② mesogenic → moderate virulent

③ Velogenic → Highly virulent

virus

contained
feed, aerobes

→ Intestine → replicate

- virus attached to cell with → haemagglutinin glycoprotein
- virus membrane fuses with cell membrane with F glycoprotein
- The nucleocapsid complex enter in the cell
- transcription
The virulent virus invade and replicate in many tissues or organs → Lesions development

sign

→ twitching of neck

→ paralysis

→ mortality High

★ yellowish or greenish diarrhoea

macroscopic feature ⇒

Velogenic form

→ petechial haemorrhage on tip of the proventriculus papillae

→ haemorrhagic ulcers in intercaecal junction (caecal tonsil)

mesogenic form

→ congestion of lungs and brain

→ pneumoencephalitis

Lentogenic form

→ haemorrhagic lesions are few or absent

→ low egg production

micro → Congestion of lungs
..... ovaries and ovaries
Necrosis of mucosa → ulcer formation

Diagnosis → Symptoms & lesions

ELISA

RT PCR

Demonstration of antigen in brain tissue

~~Marek's~~ → Highly contagious disease
→ mostly in young chicks
→ thickening of the nerves
→ malignant lymphoma in glands

Etiology → DNA virus
→ Herpes Virus

Sub family ⇒ Hallid Herpes Virus - 2

Transmission → Contaminated food material,
Respiratory,

Tumor produce specific antigen on the cell membrane
MATSA (Marek's associated tumor surface antigen)

Pathogenesis ⇒ feather follicles → important source of infection
— The virus enter through respiratory tract
and pick up by phagocytic cells

Four phase ⇒ ① Cytolytic changes
② ^{mostly} T-cell and B-cell are infected
③ Immunosuppression
④ Lymphoma formation → tumor development

Sign ⇒ paralysis
⇒ torticollis
⇒ tumor on skin
⇒ hanging wings

Macro ⇒ Thickening of nerves
⇒ tumor ⇒ liver, spleen, lungs
⇒ malignant lymphoma in ovaries/testes, liver etc.

micro ⇒ Lymphocytic infiltration in nerves

Diagnosis ⇒ Symptoms & lesions
⇒ Demonstration of MATSA

AFRICAN HORSE
SICKNESS

SN

⇒ 9 serotypes
all the serotypes ~~are recognized~~
or has reported in India

Host affect → Horse, Donkey, mule

Transmission → biting of culicoides sp. insect

Sign ⇒ Subcutaneous and pleural edema
fever

several form of disease

per acute

Mortality 95%

↳ frothy serofibrinous
fluid from

Blood tinged nostrils

Respiratory rate ↑
forced expiration

Death ⇒ Anoxia

~~Sub~~ acute

~~60~~

Edema → supra
orbital

→ fossa

edematous swelling

↳ head eyelid

~~acute~~

~~acute~~

~~acute~~

~~cardiac failure~~

Cardiac failure

cardiac failure

Pathogenic
Same

④ PPR — peste des petits ruminants virus

- ↳ goat plague
- ↳ goat & sheep

(S.N)

Characterized by → fever

✓ Lymphopaenia

✓ excessive excretion

✓ Serous discharge from → eyes and nostrils

✓ halitosis (Bad breath)

✓ haemorrhagic ulceration is marked in the ileo-caecal region caecum & rectum where they produced Zebra stripes.

✓ lymphoid organ, payr's patches (most lesions seen)

Diagnosis → RTPCR

ELISA

PPD

④ Rinderpest → cattle plague

↳ cattle

virus inhaled in infected droplet

↓

upper respiratory tract

↓

multiples in the tonsil and regional lymph nodes

Leukopenia

Immune suppression

(Leucocytes production)

Sign → fever (104-106°F)

→ High salivation

→ dehydration

→ diarrhoea

→ Photophobia

→ Intestinal wall → ulcer

→ Haemorrhage → payr's patches

Table 66.1 Part

Genus

Morbillivirus

Avulavirus

Rubulavirus

Respirovirus

Pneumovirus

Metapneumovirus

primarily infections in morbillivirus. Fraviruses. severe resp. Two humans was isolated in disease, with more than 100 be identified virus. Tion Menangle while Map

Zebra striping

or Barred appearance

Vesicles X

abomasum → most common site of the lesion

Large intestine more damage → small intestine

✓ Rinderpest
This acute disease can last for centuries in African buffaloes in Europe resulting in Lyon in 1713 a devastating disease during the

⇒ canine distemper ⇒ Hard pad Disease, Old Dog encephalitis

↳ viral disease

↳ morbillivirus caused by

↳ disease of dog

Symptom ⇒ Discharge from eyes

Discharge from nose

High fever

Vomiting

(S.N)

Canine's disease

→ Involvement of CNS

→ Incubation period = 5 days

✓ Virus infect all types of tissue → Pantropic virus

✓ direct damage to neurons and Indirect damage to

glial cells leads to produce demyelinating encephalitis.

→ Diphasic fever → first fever may be due to virus persists for 3 to 4 days

then temp is normal up to 11-12 days

again fever due to secondary ~~viral~~ bacterial infection.

✓ Hyperkeratosis of digital pad (Hard pad)

Intracytoplasmic or Intranuclear

Table 66.1 Par

Genus

Morbillivirus

Avulavirus

Rubulavirus

Respirovir

Pneumovi

Metapne

primarily infection
morbilliv
livirus. F
paviruse
severe re
Two hu
14 horse
was isol
disease
disease,
than 10
be ident
virus. T
Menang
while M

Rinder
This ac
nants a
for cen
tic buff
Europe
Lyon i
a devas
during