Autopsia practice

Treated B-ALL in remission,

bone marrow insuffitiency,

bronchiolitis, haemorrhagic pneumonia leading to diffúz alveolar damage (DAD), fibrinous pericarditis.

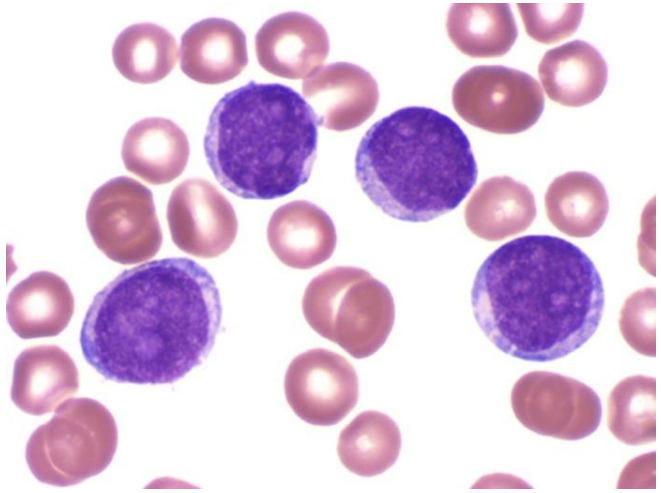
Anamnesis:

- Previously healthy boy, 5 year old
- Frequent bacterial infections in the last month
- Lab: 3 lineage cytopenia: severe neutropenia, anemia and thrombocytopenia, WBC: 46,8 G/L.
- Clinical diagnosis: Acut leukaemia.

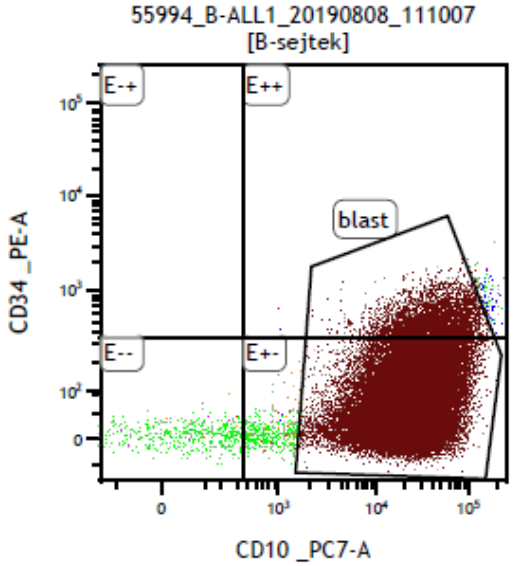
Acut B-cell leukemia/B-cell lymphoblastic leukemia (B-ALL)

- Diagnostic- bone marrow examination:
  - Cytology
  - Flow cytometry of the aspirate
  - Core biopsy with immunhistochemistry

Cytology: lymphoblasts



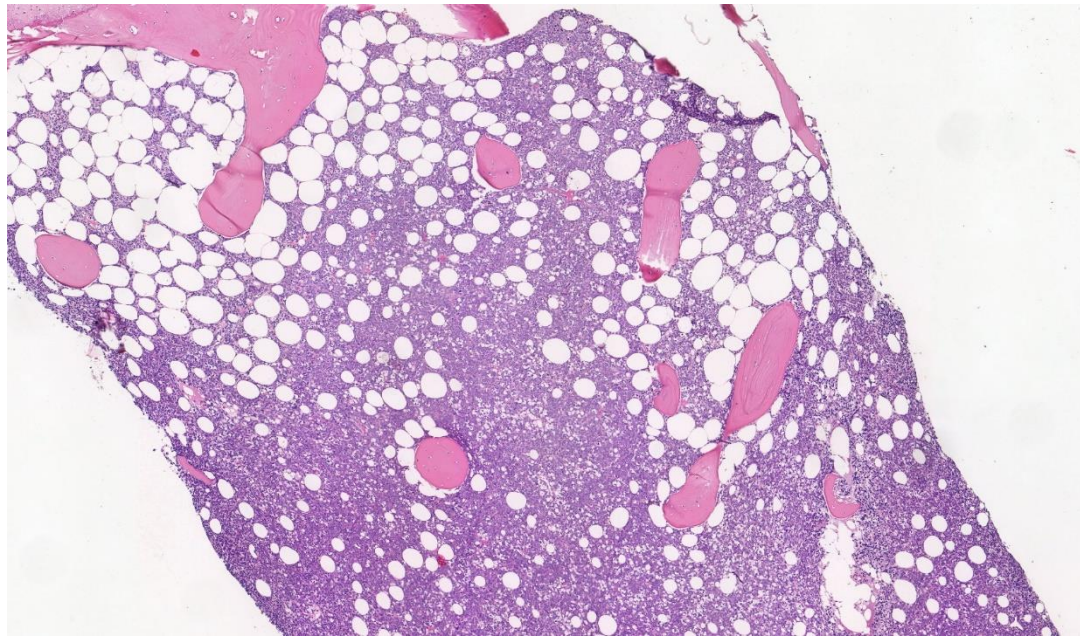
Fenotype:
CD19+, CD34+, CD10+

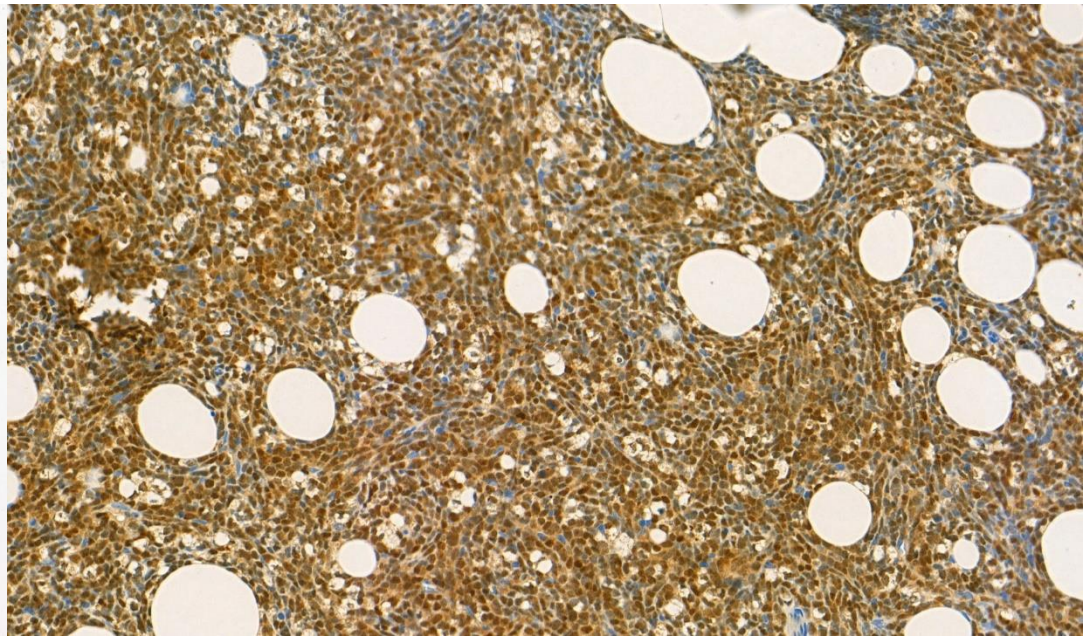


Gate	Number	%Total	%Gated
All	56 666	93,75	100,00
blast	55 642	92,05	98,19
E--	467	0,77	0,82
E-+	0	0,00	0,00
E+-	51 619	85,40	91,09
E++	4 580	7,58	8,08

Bone marrow biopsy

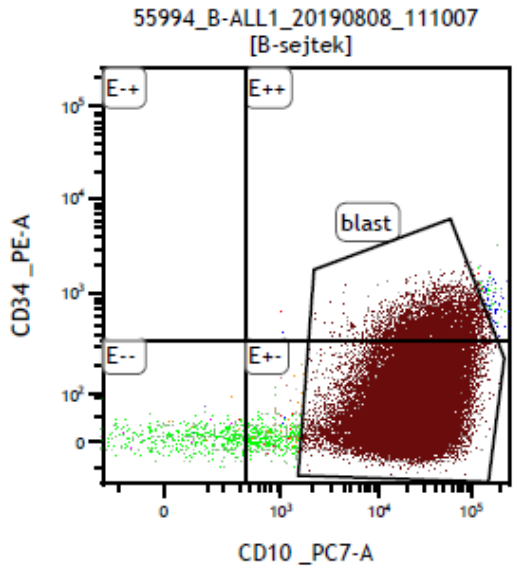
Immunhistochemistry: TDT (terminal-deoxynucleotid transferase) positive blasts





Precursor B-cell lymphoblastic leukaemia
29. day controll bone marrow examination:

Blasts at diagnosis



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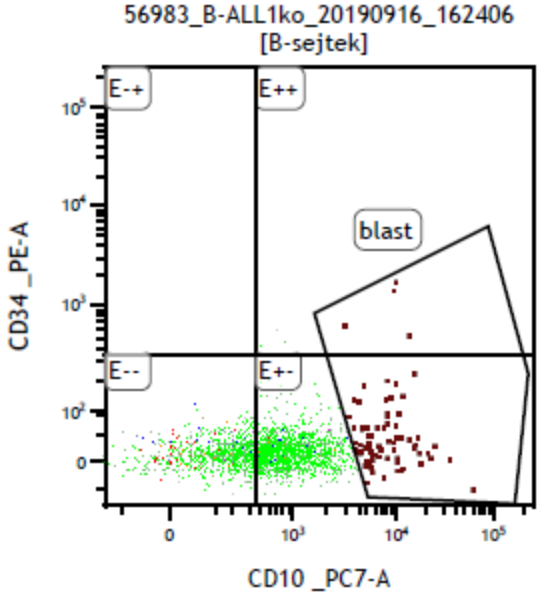
E-+	0	0,00	0,00
E+-	51 619	85,40	91,09
E++	4 580	7,58	8,08

Controll



Gate	Number	%Total	%Gated
All	2 402	0,36	100,00
blast	79	0,01	3,29
E--	861	0,13	35,85
E-+	0	0,00	0,00
E+-	1 534	0,23	63,86
E++	7	0,00	0,29

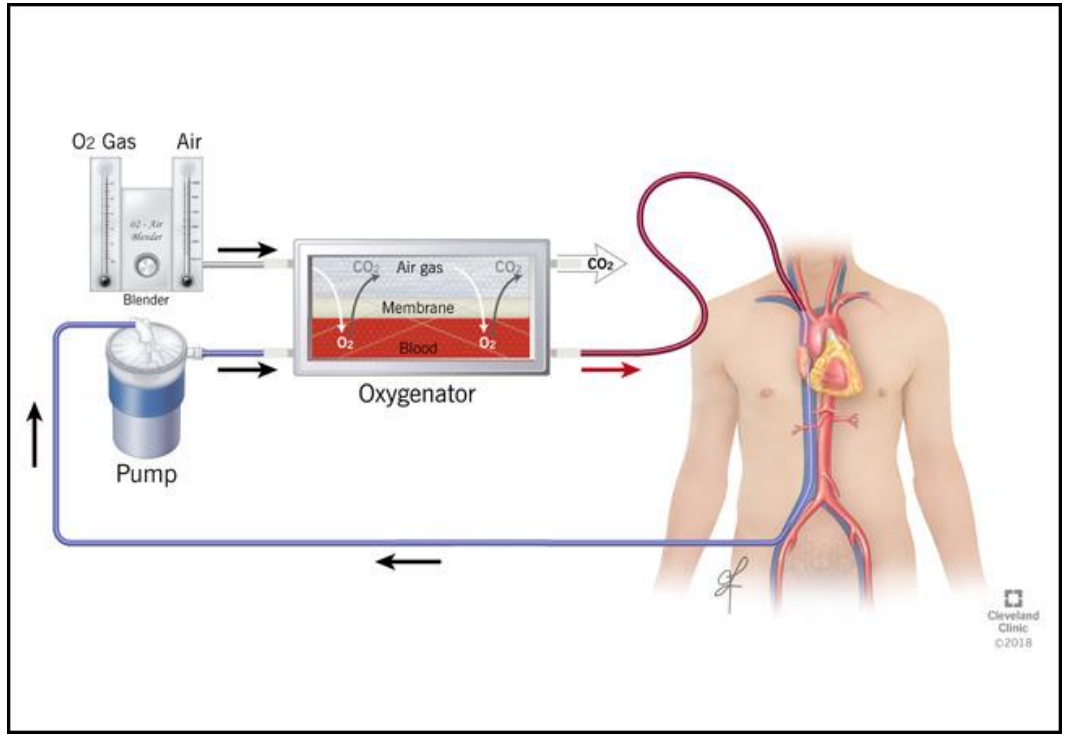
Minimal residual disease: 0,01%

Clinical data I.

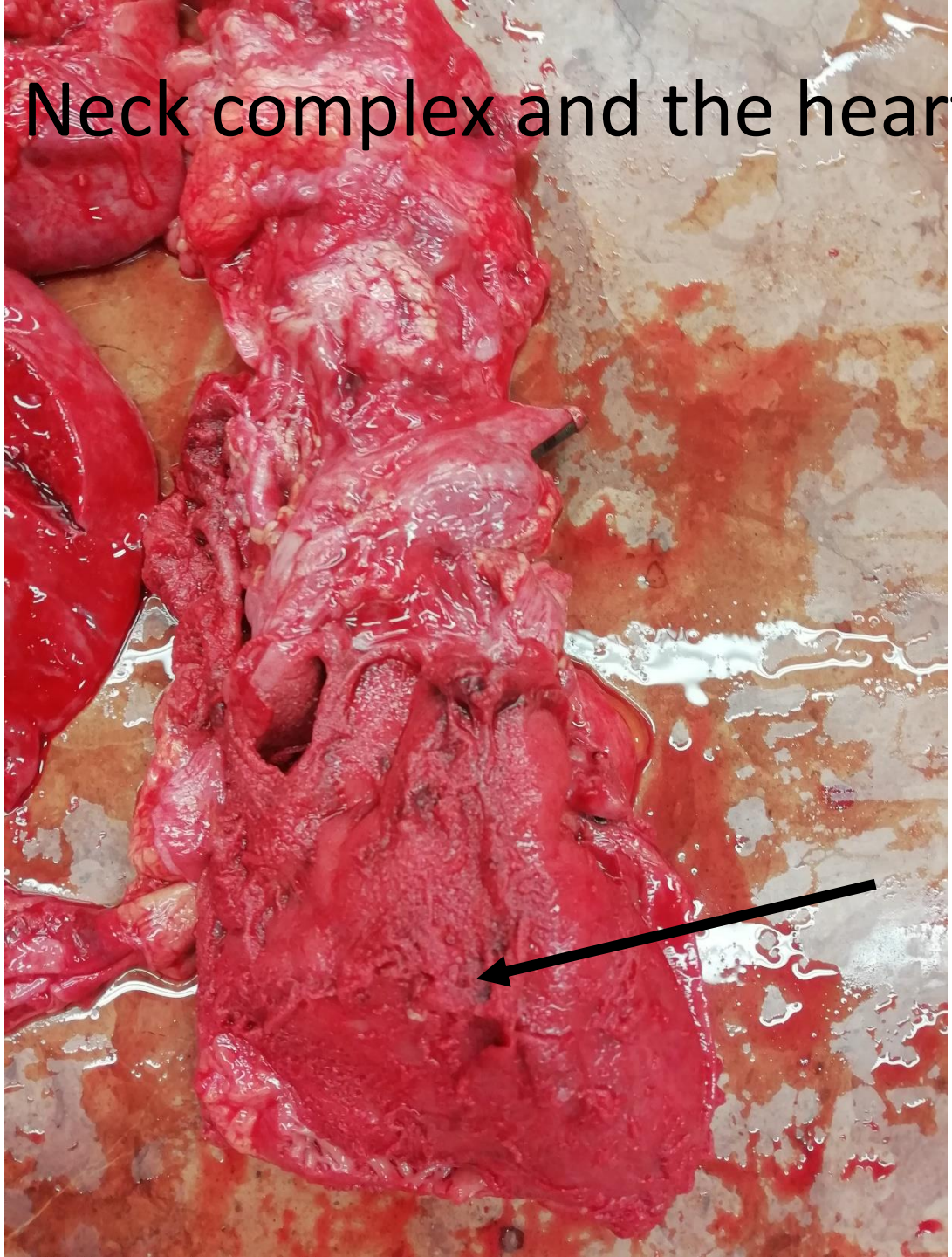
- Chemotherapy had to be stopped after introduction because of septicaemia
- Wide spectrum antibiotic and antimycotic therapy was introduced
- Hemoculture was negative
- US: pericarditis and pleuritis
  - Inflammation/leukemic infiltration?
- Pericardial fluid suctioned:
  - Aspiration cytology: haemorrhagic pericarditis
  - Flow cytometry: T-cell rich, blasts are not present.

Clinical data II.

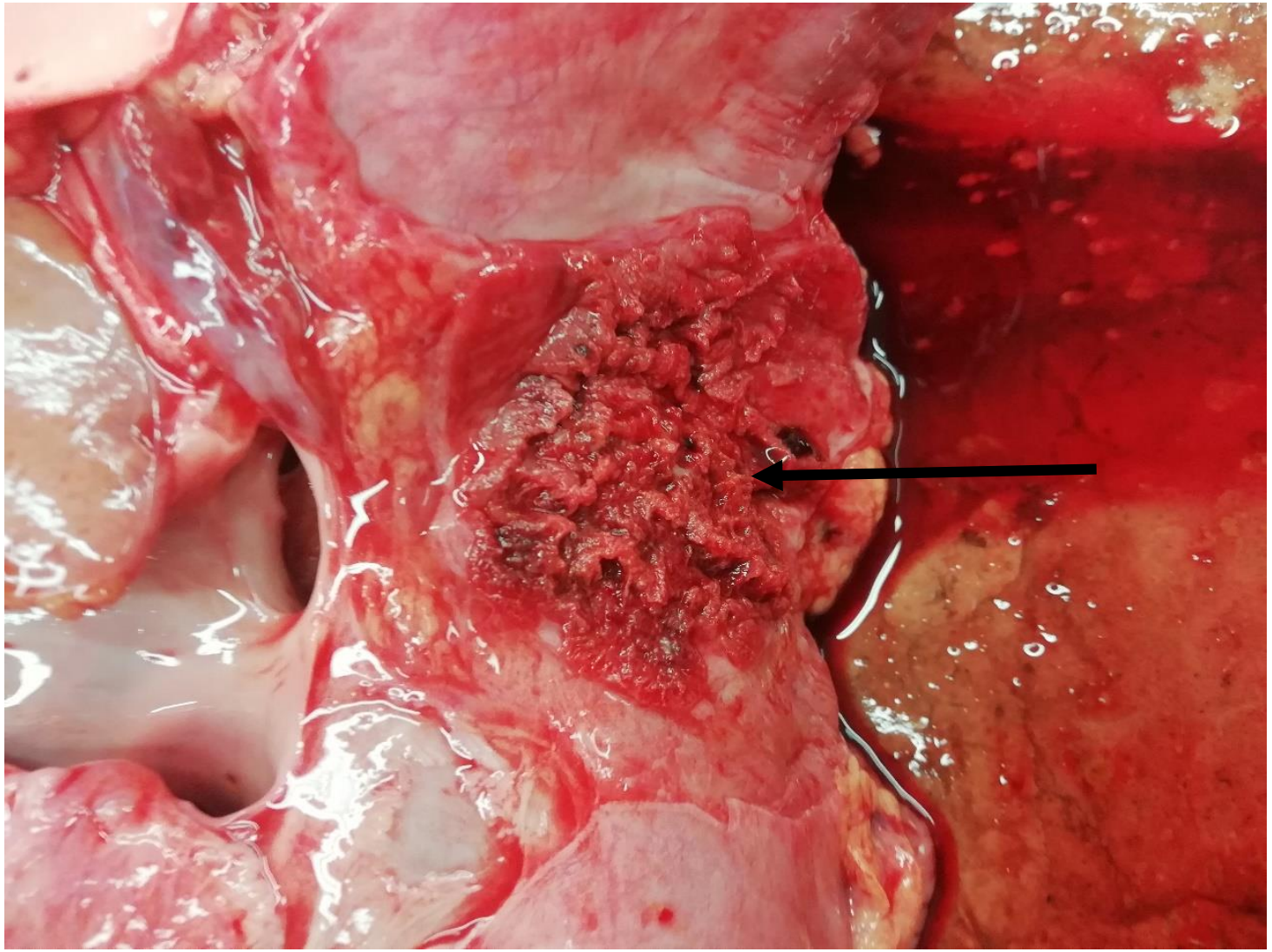
- Severe septicaemia, respiratory and circulatory insuffitiency
- Extracorporal membrane oxigenisation (ECMO) therapy
- Exitus



Neck complex and the heart

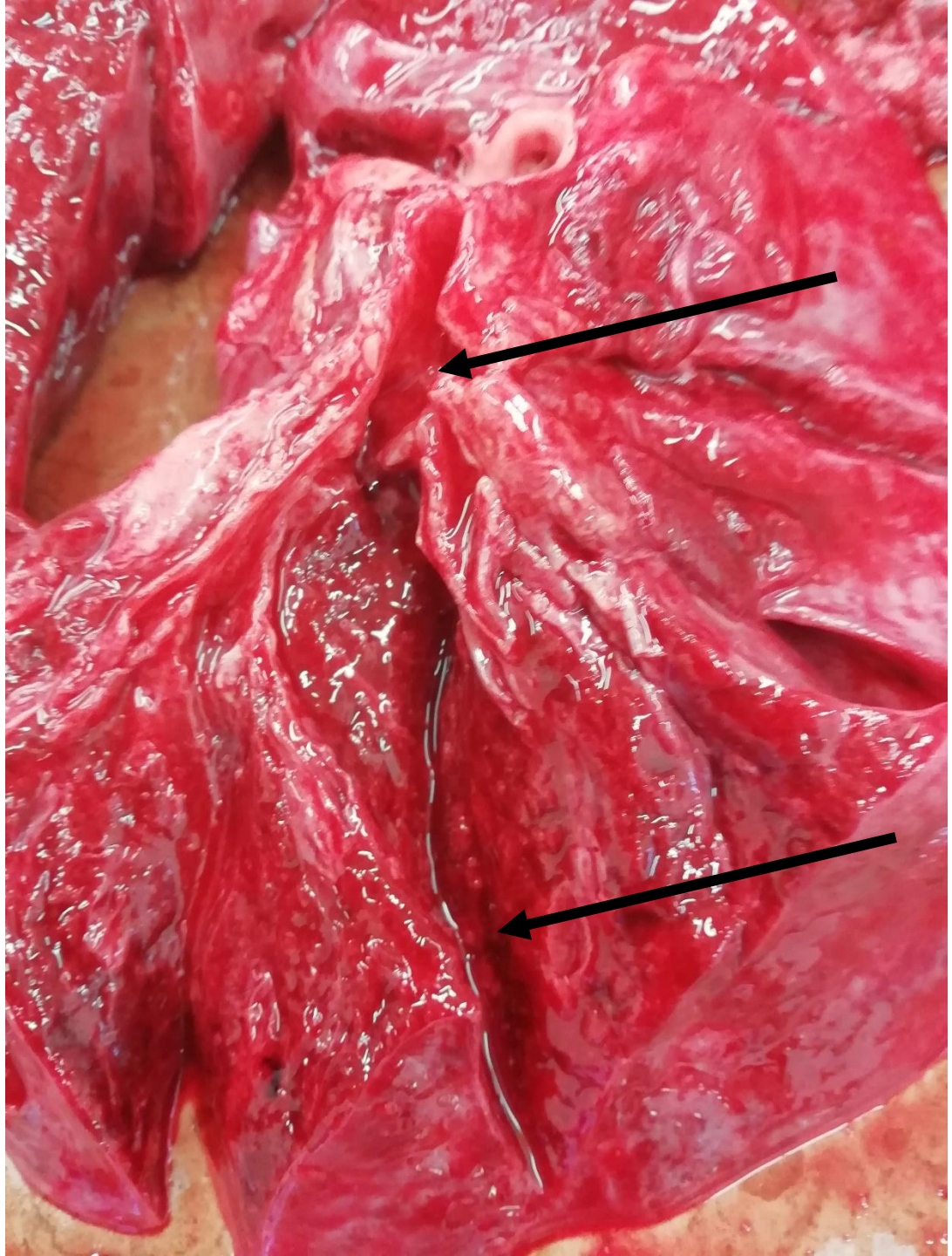


haemorrhagic fibrinous pericarditis



Parietal pericardium, partially organised fibrinous pericarditis

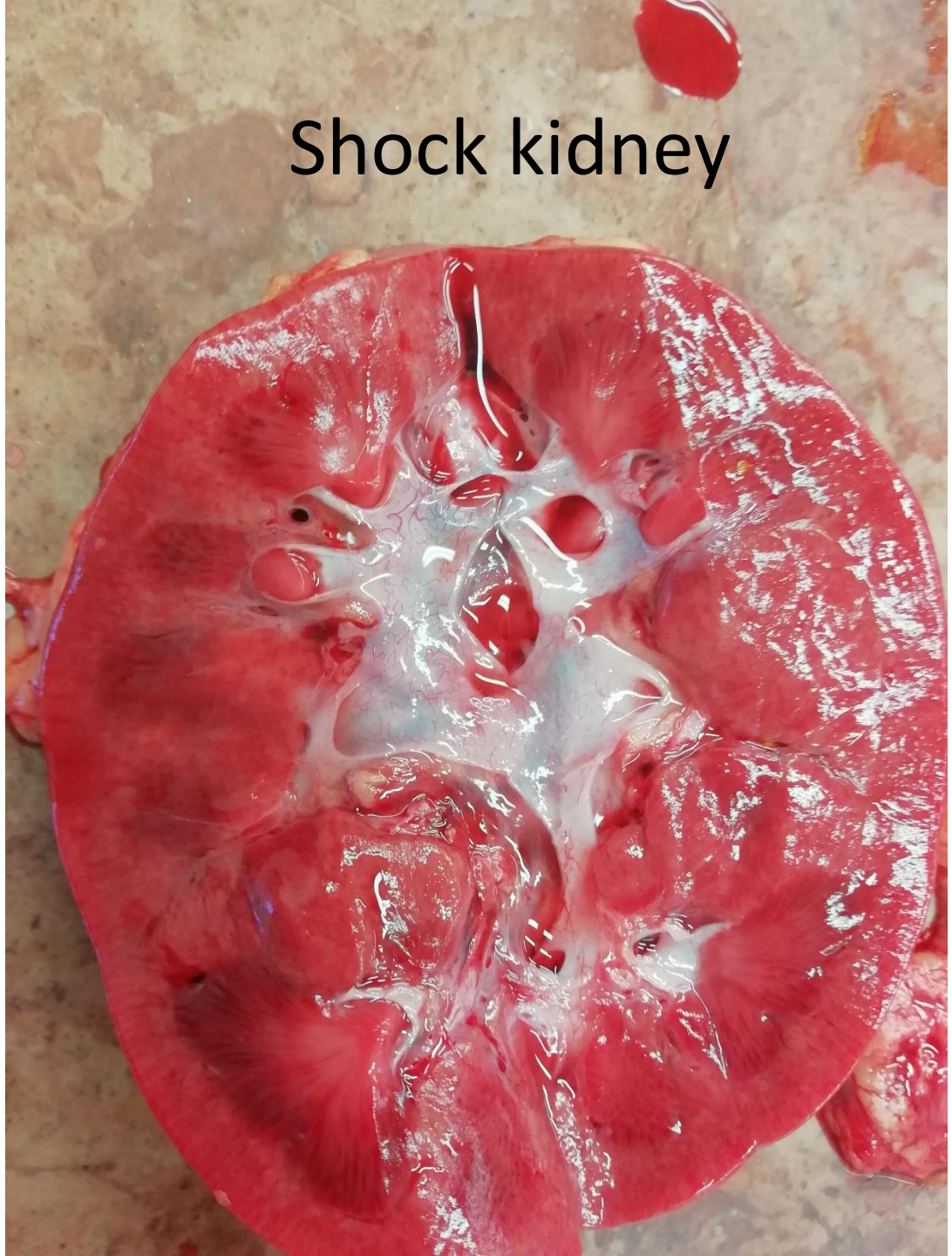
Atelectasia, oedema, ARDS- like macroscopic picture



Acut bronchitis

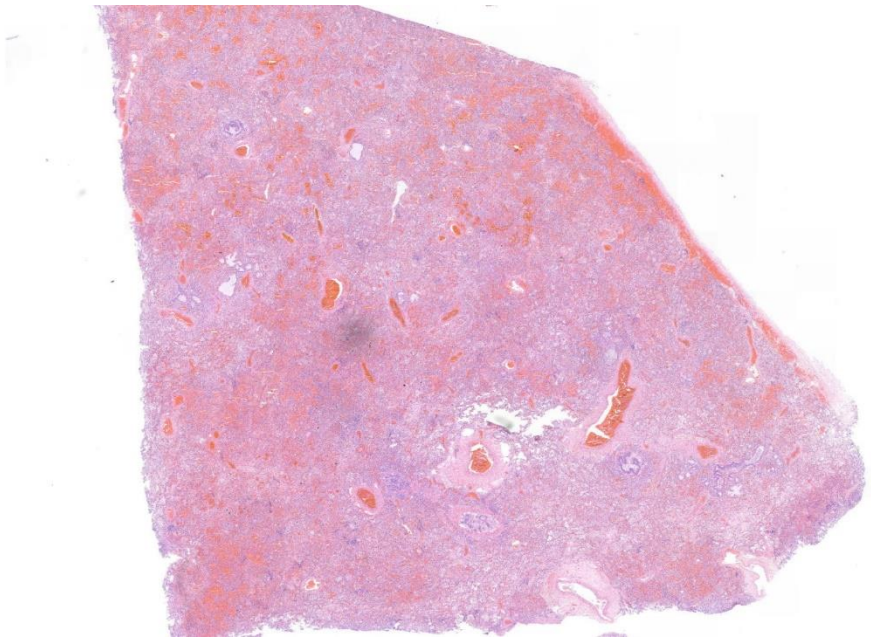
Haemorrhagic pneumonia

Shock kidney

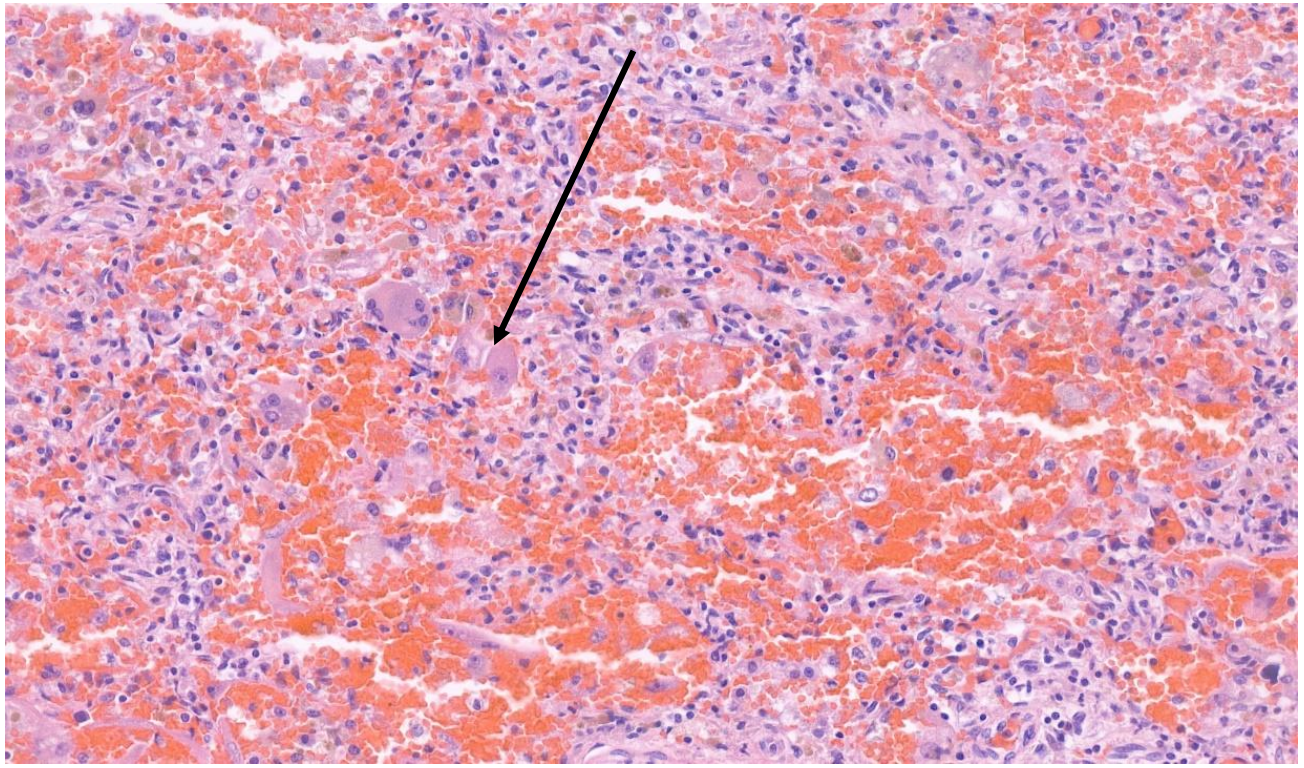


Histology Lung:

Atelectasia, haemorrhagia



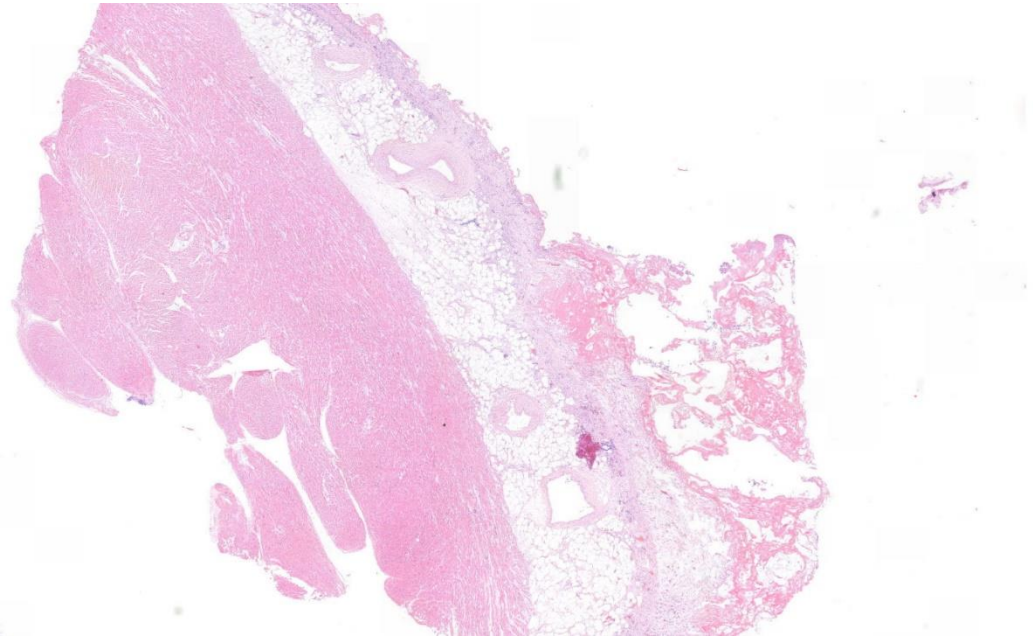
Interstitialis haemorrhagic pneumonia with giant cells

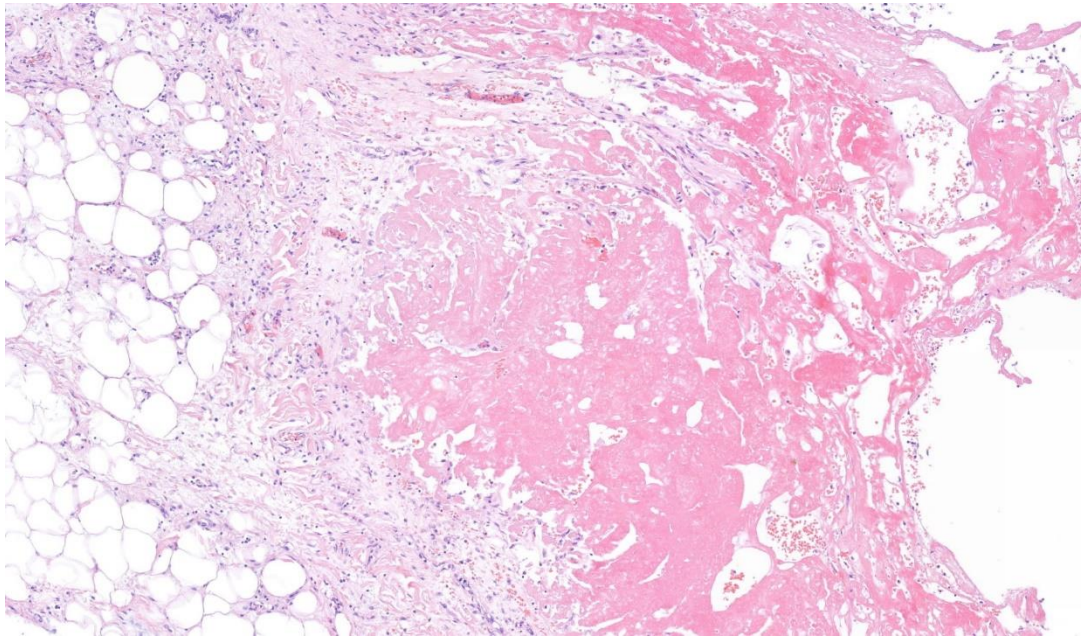


Viral infection?, RSV virus?

Histology Heart:

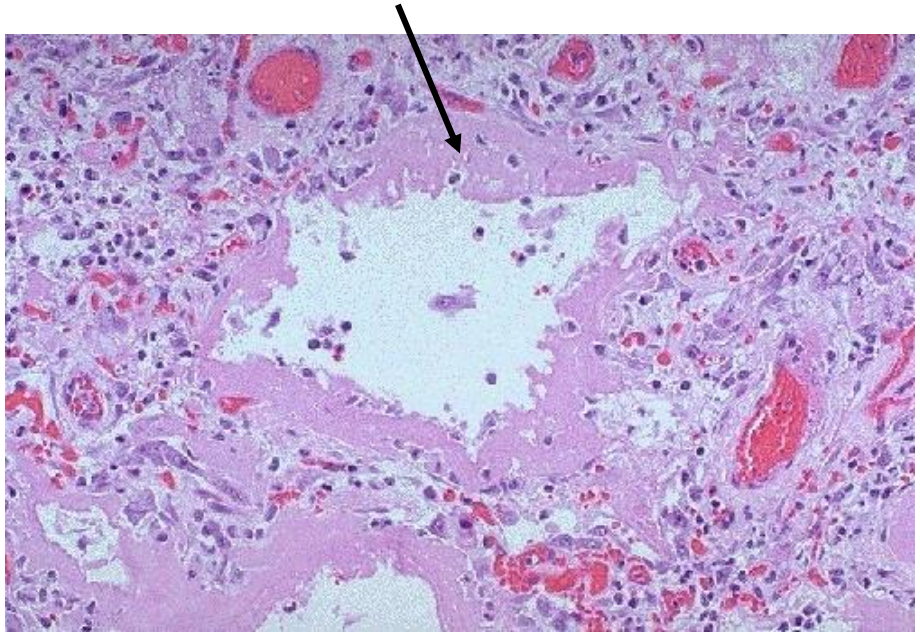
Partially organised fibrinous pericarditis



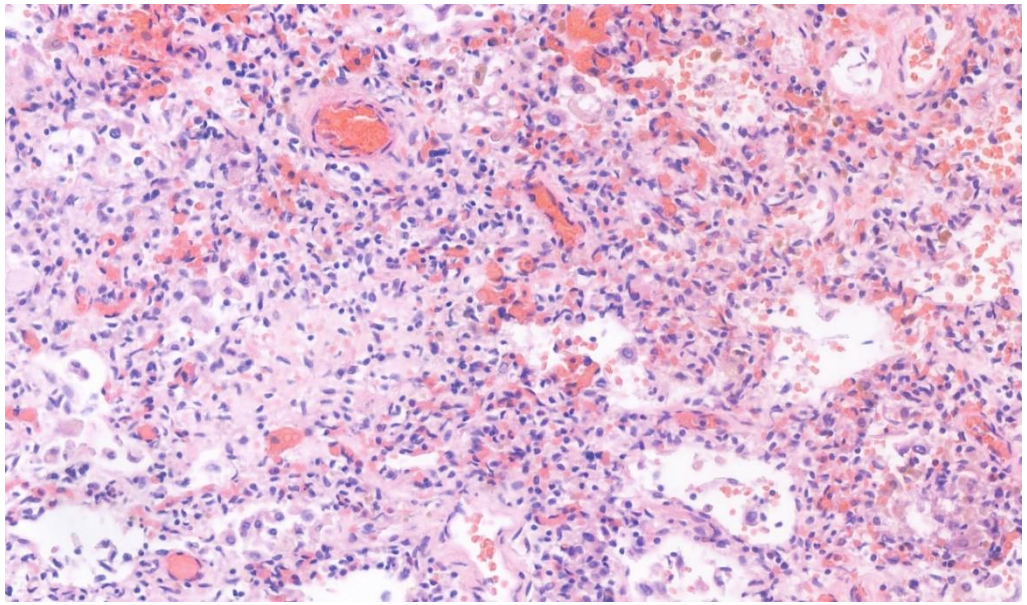


Acut respiratoric distress syndrom-ARDS

Diffuse alveolar damage (DAD),
Hyalin membrane

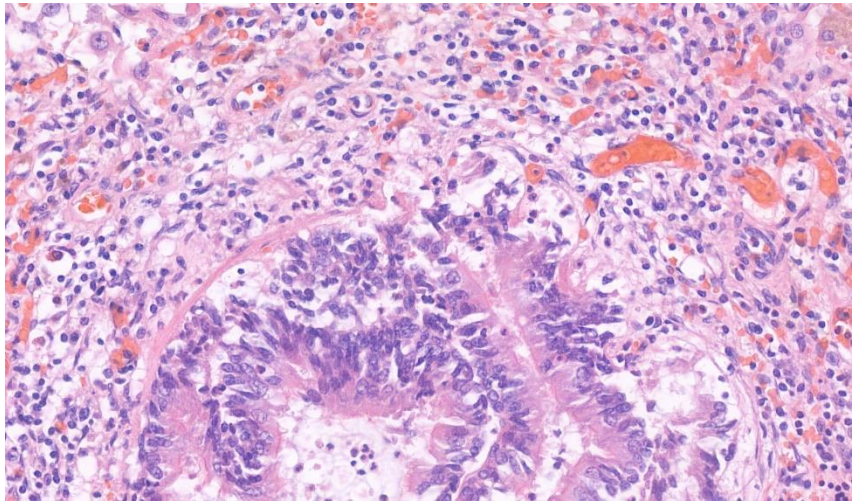


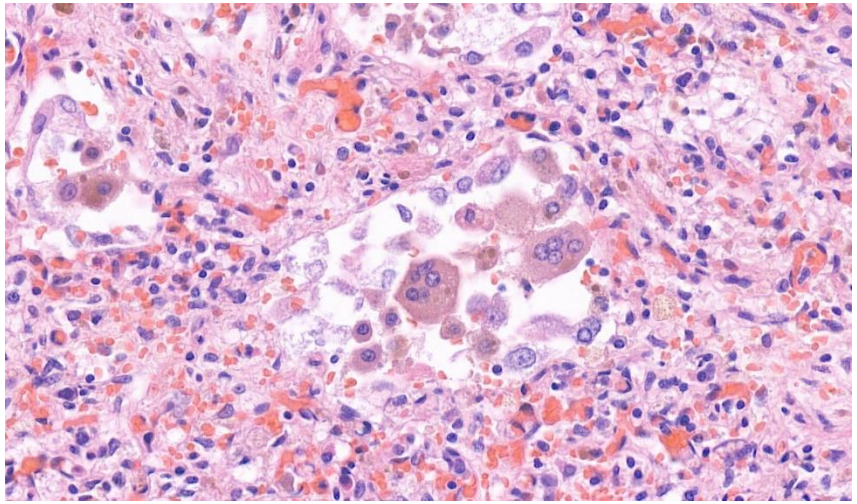
II. Interstitial inflammation, fibrosis, II. pneumocyta proliferation



Human orthopneumovirus / human respiratorikus syncytial virus /RSV

- One of the main cause of lower respiratory tract infection in small children and in hospitalised children,
- Predisposing factor - immunsupressive state
- Bronchiolitis, pneumonia
- Viral cytopathic effect- giant cells





Summary of the autopsy results

- Basic disease: B-cell lymphoblastic leukemia
- Complication: Secundary bone marrow insuffitiency and immunsupressiondue to chemotherapy
- Cause of death: Sepsis, ARDS.

- Other disease: Fibrinous pericarditis

Most common causes of ARDS

- Pneumonia 35-45%
- Sepsis 30-35%

- Rare causes: aspiration, multiplex trauma, abdominal operation, acut pancreatitis, transfusion reaction.

Acut lymphoblastic leukemia (ALL)

- Common malignancy in childhood
- B-cell leukemia is more common than T-cell, 5 year overall survival is over 90% in children
- Cause of death: resistency to chemotherapy, secunder infections, sepsis

Chemotherapy = severe immunsupression