

Best of SOFFOET

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SoFFœt

Société Française de Fœtopathologie

When neonatal restrictive cardiopathy goes viral

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Case study:

17 days old male infant

Perinatal context:

Born at 37 GW

Context of maternal hyperthermia (unidentified etiology)

Amniotic fluid culture: *Staphylococcus epidermidis*

Antibiotic therapy (Cefotaxime, Amoxicillin, Amikacin): 3 days (exclusion of fetal infection)

Neonatal context:

5 days of life: acute gastroenteritis

12 days of life: hospital discharge (symptomatology resolved)

14 days of life: polypnea, hypothermia, non-specific inflammatory syndrome, severe metabolic acidosis

body fluids – negative for pathogenic bacteria , viruses (CMV, EBV, Parovirus B19, HSV 1,2)

serology Coxsackievirus IgM – negative

restrictive left heart cardiopathy

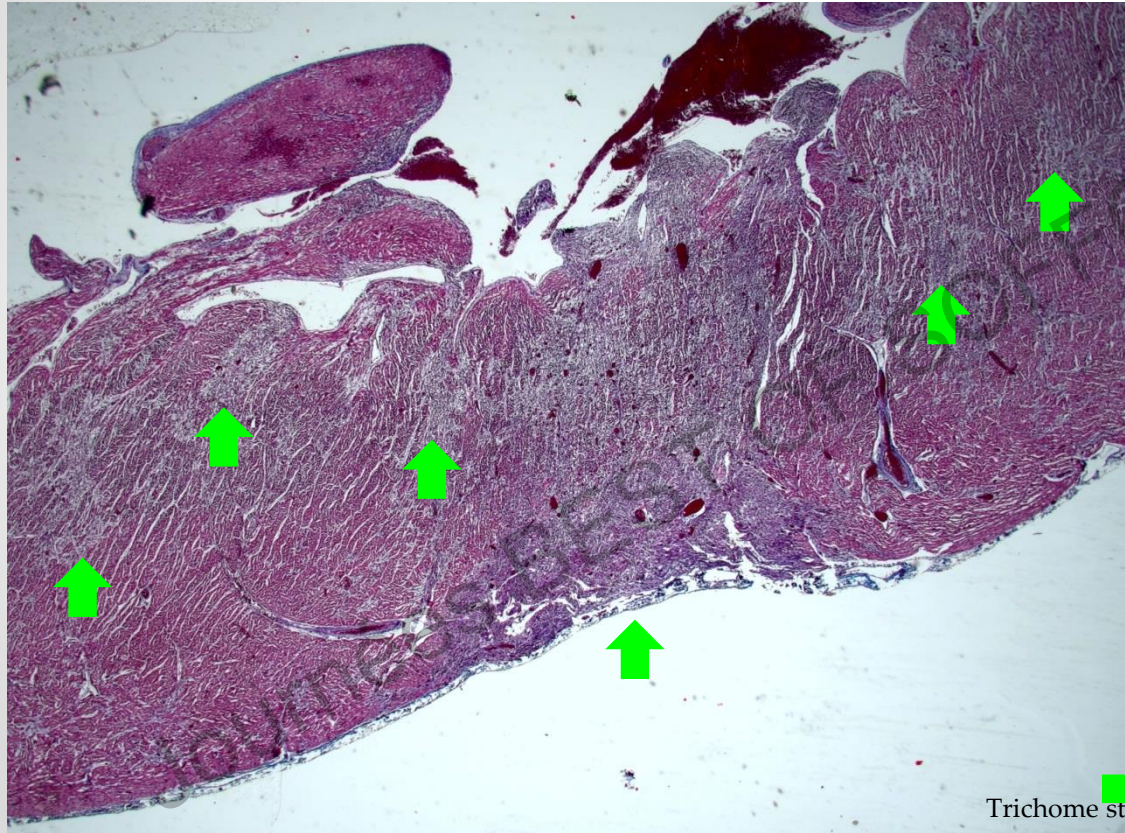
investigations excluded malformations, metabolic and infectious causes

ECMO – rejected (no proof of reversible myocardial damage)

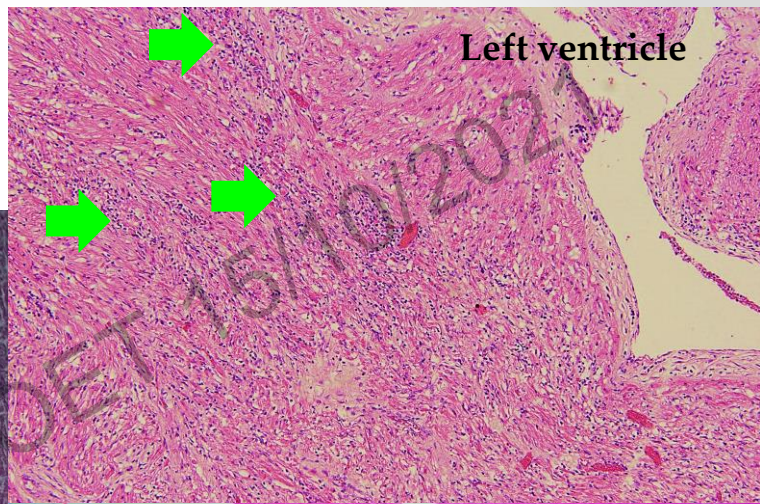
17 days of life: failure of symptomatic treatment -> death

Postmortem examination

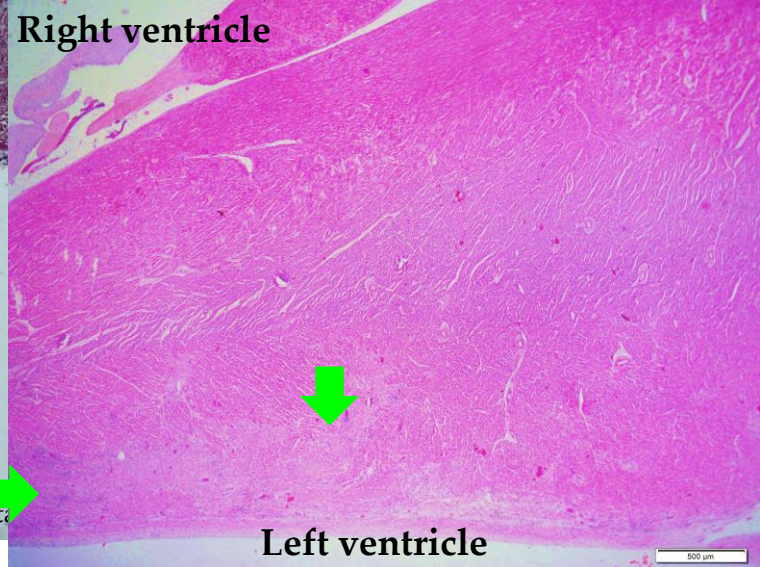
(*thoracic organs*):



Trichome sta



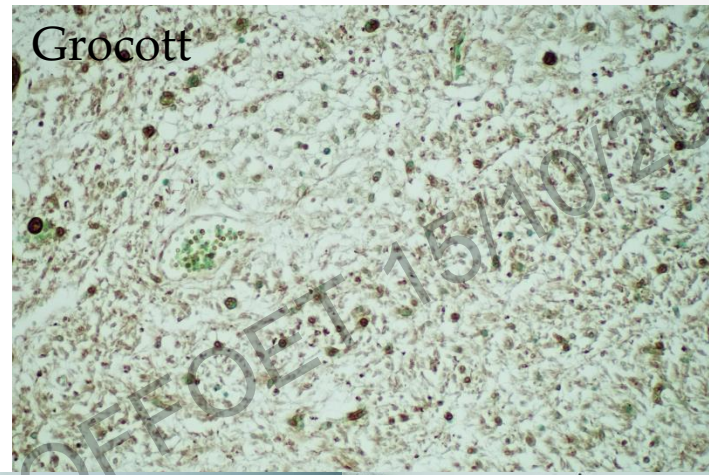
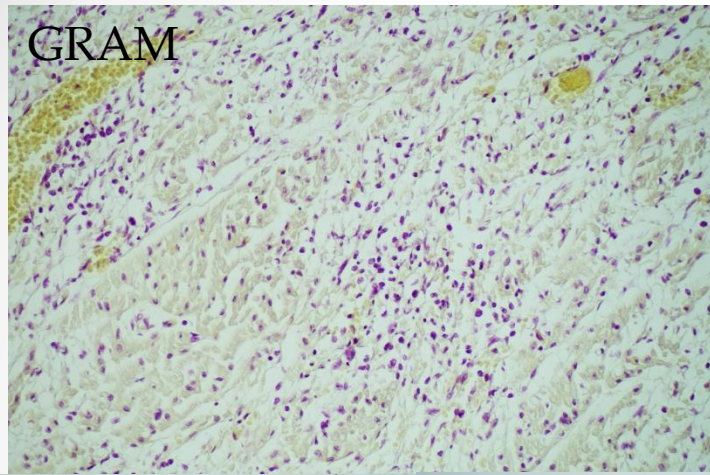
Left ventricle



Right ventricle

Left ventricle

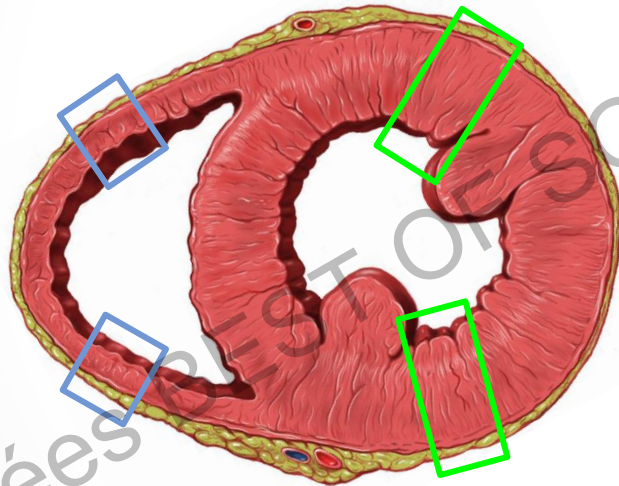
500 μm



Exclusion of CMV, parvovirus B19, HSV1,2

Viral cardiomyopathy

PCR samples



Enterovirus detection
(PCR, relative fold change)



■ Right ventricle

■ Left ventricle

Coxsackievirus B4

Discussion:

Neonatal restrictive cardiomyopathy



Cocksackievirus B4

Neonatal restrictive cardiomyopathy

Extremely rare, poor outcome

Etiology:

Metabolic (e.g., Hurler disease, Gaucher disease)

Neuromuscular disorders

Genetic syndromes (e.g., Coffin-Lowry)

Subendocardial fibroelastosis

Idiopathic

Viral etiology

Coxsackievirus B4

Picornaviridae family, *Enterovirus* genus, group B

Clinical presentation:

Central nervous system, myocarditis, « foot and mouth disease »

Severe CNS, myocarditis, sepsis-like disease (neonates)

Viral entry:

Respiratory, gastrointestinal epithelial cells

Tissue tropism:

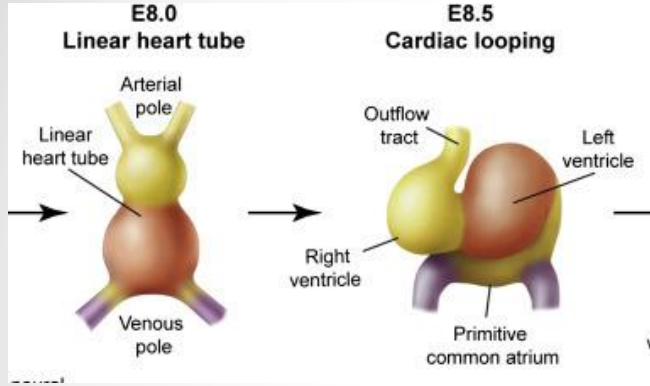
Cardiomyocytes, epithelial cells (e.g., pancreatic acini)

Biphasic evolution

Acute myocarditis, sudden death, dilated cardiomyopathy

chronicisation

Conclusions:



Different embryological origin of left and right ventricles



Different susceptibility to infection?

Endomyocardial biopsy:

histological examination or PCR ?



Favour PCR

Viral myocardial infection – clinical manifestation in very early phases (hours) unknown



Do not exclude reversible myocardial damage in case of restrictive cardiomyopathy



**Fetal Pathology Unit
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THANK YOU!