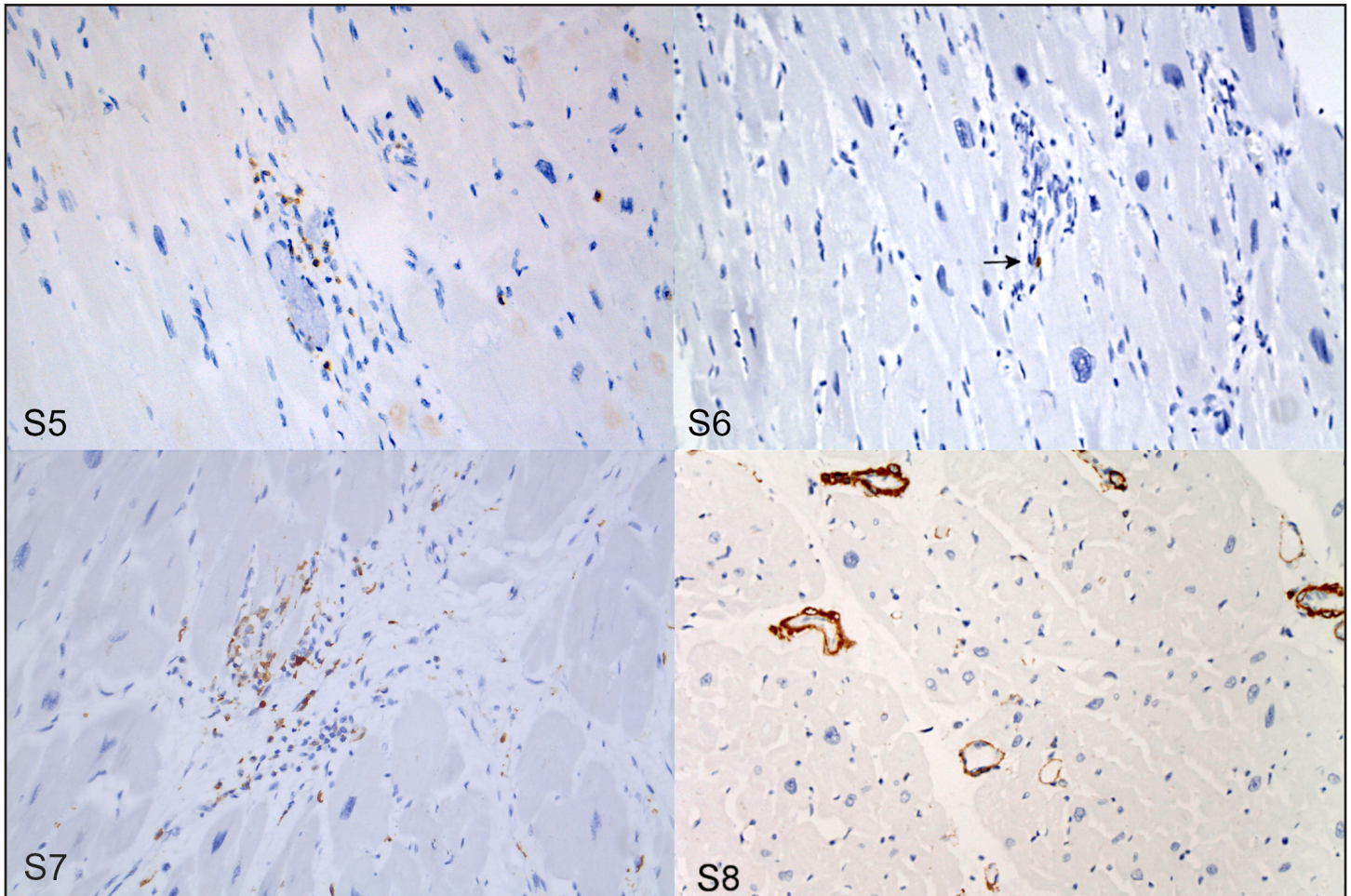


Supplemental Figure S1: Spleen, chimpanzee, case C25, positive control. Immunohistochemistry (IHC) for CD3.

Supplemental Figure S2: Spleen, chimpanzee, case C25, positive control. IHC for CD20.

Supplemental Figure S3: Spleen, chimpanzee, case C25, positive control. IHC for Iba1.

Supplemental Figure S4: Myocardium, chimpanzee, case C4, negative control. IHC for CD3.



Supplemental Figure S5: Idiopathic Myocardial Fibrosis (IMF), heart, chimpanzee, case C10. There is a mild leukocytic perivascular infiltrate and multifocal immunolabeling. Immunohistochemistry (IHC) for CD3.

Supplemental Figure S6: IMF, heart, chimpanzee, case C10. There is a mild leukocytic perivascular infiltrate and scattered immunolabeling (arrow). IHC for CD20.

Supplemental Figure S7: IMF, heart, chimpanzee, case C10. There is a mild leukocytic perivascular infiltrate and prominent immunolabeling. IHC for IBA 1.

Supplemental Figure S8: Heart, chimpanzee C20. Normal tissue. Internal positive control of immunolabeled smooth muscle cells of the vascular tunica media and capillary pericytes. IHC for α -SMA.

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Supplement S1: Demographic data, circumstances and cause of death (if identified), key histopathological features (+ for mild, ++ for moderate and +++ for marked changes) and final cardiovascular diagnoses for 35 (33 European-zoo and 2 African sanctuary) chimpanzees which underwent macroscopic and histopathologic examination according to the comprehensive protocol.

Study ID	BW (kg)	Sex	Age (yrs)	Circumstances +/- cause of death	Histopathological features				Final cardiovascular diagnoses
					Chronic RF	Chronic IF	Acute AM	Acute CBN	
C1	58	M	10	Accidental death	+ - ++	+	+	+	Mild IMF Acute, multifocal myocardial necrosis
C2	72	M	37	Perianesthetic death	+++	+ - ++	++	++	Mod LVH Marked myocardial fibrosis Acute, multifocal myocardial necrosis
C3	59	M	33	Perianesthetic death	++ - +++	++	+	+	Moderate to marked IMF Acute, multifocal myocardial necrosis
C4	61	M	33	Sudden cardiac death	+++	+++	+	+++	Marked IMF Acute, multifocal myocardial necrosis
C5	69	M	28	Sudden death history of diabetes	+++	++ - +++	+	+	Marked IMF Acute multifocal myocardial necrosis
C6	45	M	31	Perianesthetic death , bronchopneumonia	+	+	-	-	Mild IMF
C7	67	M	22	Sudden cardiac death	++ - +++	++	+	+++	Moderate to marked IMF Acute, multifocal myocardial necrosis
C8	69	M	39	Accidental death	++	+	++	+++	Moderate IMF Acute, multifocal myocardial necrosis
C9	48	F	32	Accidental death	+	+	++	+++	Mild IMF Acute, multifocal myocardial necrosis
C10	40	F	25	Perianesthetic death, pleuritis, pneumonia	++	+++	++	-	Mod LVH Marked myocardial fibrosis, Acute, multifocal myocardial

Supplemental Table S2: Panel of human antibodies used for immunohistochemistry to characterize the scar-related minimal to mild leukocytic infiltrate and presence of myofibroblasts in idiopathic myocardial fibrosis in 10 (8 affected; 2 unaffected) chimpanzees.

Antigen	Antibody	Type	Dilution	Source
IBA-1	AIF1/IBA1	polyclonal goat	1:500	Lifespan Biosciences
α -SMA	Ab5695	polyclonal rabbit	1:500	Abcam
CD3	A0452	polyclonal rabbit	1:500	Dako
CD20	RB 9013-P	polyclonal rabbit	1:500	Thermo fisher

According to the commercial diagnostic lab, antigen retrieval was performed by calibrated water bath capable of maintaining the epitope retrieval solution in 10 mM sodium citrate buffer (pH 6.0) at 97°C for 30 min. Endogenous peroxidase was blocked using 100 μ L DakoREAL TM peroxidase blocking solution for 10 minutes (Dako, USA). Sections were then incubated with the primary antibody (Supplement 1) and evaluated by peroxidase conjugated polymer (EnVision plus Detection KIT; Dako) for 30 min and diaminobenzidine tetrahydrochloride was used as detection system (EnVisionTM FLEX DAB+ Chromogen (DM827), Dako).

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Supplemental Table S3: Overview of virological tests in cardiac tissues showing none to marked IMF with a variable, fibrosis related, minimal to mild, mixed leukocytic infiltrate.

		C15	C20	C8	C9	C4	C11
Cardiac Pathology	Histological diagnosis:	Moderate to marked IMF	None	Moderate IMF	Mild IMF	Marked IMF	Mild IMF
	RF associated leukocytic infiltrate:	Mild ly/mc/neu	-	Mild ly/mc/neu	Minimal ly/mc	Mild ly/mc/eos	-
Viral PCR results	Pan Herpes PCR	+	-	-	+	-	+
	EMCV RNA PCR	-	-	-	-	-	-
	Adenovirus DNA PCR	-	-	-	-	-	-
	Parvovirus (VP2) DNA PCR	-	-	-	-	-	-
	Enterovirus RNA PCR	-	-	-	-	-	-
	HHV6 DNA PCR	-	-	-	-	-	-
IHC	Human herpes simplex virus 1	-	n/d	n/d	-	n/d	-
	Human herpes simplex virus 2	-	n/d	n/d	-	n/d	-
	Cytomegalovirus	-	n/d	n/d	-	n/d	-

Abbreviations: IMF Idiopathic Myocardial Fibrosis; RF Replacement Fibrosis; ly lymphocytes; mc macrophages; neu neutrophils; eos eosinophils; PCR Polymerase chain reaction; IHC Immunohistochemistry; n/d no data.