



Adressograph Label

Name:

DOB:

Number:

Consultant:

First line investigations for clinically suspected myocarditis (discuss with on-call Cardiologist)

Diagnostic criteria for clinically suspected myocarditis (>1 symptom and >1 clinical criteria in the absence of pre-existing cardiovascular disease or extracardiac causes; if no symptoms then >2 clinical criteria) Caforio et al, Eur Heart J 2013

Symptoms:	Clinical criteria:
<ul style="list-style-type: none"> ❖ Chest pain ❖ Recent onset dyspnoea on exercise or at rest ❖ Palpitations ❖ Syncope ❖ Aborted sudden cardiac death ❖ Cardiogenic shock 	<ul style="list-style-type: none"> ❖ Newly abnormal 12 lead ECG: AV block, new BBB, ST/T changes, SVT incl AF, frequent PVCs, VT/VF, low QRS voltages, pathological Q waves ❖ Myocardioctolysis markers: elevated Troponin (TnT or TnI) ❖ Functional and structural abnormalities on cardiac imaging (Echo/Angio/MRI): new regional wall motion abnormality or global systolic or diastolic dysfunction with or without ventricular dilatation, hypertrophy, pericardial effusion or intracavitary thrombi ❖ Tissue characterization by CMR: oedema and/or LGE of classical myocarditis pattern

Investigation	Date(s)	Result
CXR		Cardiothoracic ratio =
ECG		
24 hour ECG		

Sample	Investigation	Date sent	Result	Lab	Sample
Blood	FBC and film (incl. vacuolated lymphocytes)			Haem	EDTA
	ESR			Haem	EDTA - minimum 4 mls
	Ferritin			Haem	Plain clotted sample
	Serum Glucose			Biochem	Grey top
	UE, LFT, Bone, Mg CRP			Biochem	Lithium Heparin
	HS-TnI (High sensitivity Troponin I)			Biochem	Lithium Heparin
	Blood gas				Capillary tube
	Acute viral serology: EBV IgM, CMV IgM, ParvoB19 IgM, HIV antigen/antibody			Virology	EDTA
	Bacterial culture			Micro	Blood culture bottle(s)
	Borrelia (Lyme's disease) serology			Micro	EDTA
Blood	ASOT			Micro	Clotted blood
Throat swab	Bacterial culture (incl Group A strep)			Micro	Charcoal medium swab

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Updated 15/01/2020 by Dr Maria Iliina, Consultant Paediatric Cardiologist, Dr Conor Doherty, Consultant in Paediatric Infectious Disease RHC, Dr Celia Jackson, Consultant Virologist, GRI/QEIH, Dr Peter Robinson and Dr Alison Cozens, Consultants in Paediatric Metabolic Medicine RHC



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Sample	Investigation	Date sent	Result	Lab	Sample
Throat swab	Extended respiratory viral screen by PCR including: Influenza A&B RSV Adenovirus Mycoplasma Parainfluenza1&2 Human MPV Coronavirus Rhinovirus Enterovirus			Virol	Swab viral medium
Throat swab	HHV6-(HHV6 can reactivate or can be chromisomally integrated so a positive result may not indicate acute infection- DW virology if unsure)			Virol	Swab viral medium
Urine	Clean catch/catheter urine for MC&S			Micro	Universal container
Stool/rectal swab	Enterovirus PCR			Virol	Stool sample container

Check recent travel history
If recent foreign travel, discuss rationale for 2nd line test with ID

Check immunisation status
MMR (infants under 1 – maternal rubella status)
DTP
Meningococcus
Pneumococcus

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First line investigations for dilated and hypertrophic cardiomyopathy (select tests in discussion with on-call Cardiologist)

Sample	Investigation	Date sent	Result	Lab	Sample
Blood	CK			Biochem	Lithium Heparin
	Amino Acids			Biochem	Lithium Heparin
	Acyl carnitine			Biochem	Lithium Heparin
	NT- pro BNP			Biochem	Call lab – labile sample!
	Thyroid Function			Biochem	Lithium Heparin
	Serum Vitamin D			Biochem	Lithium Heparin
	Parathyroid hormone (PTH)			Biochem	Lithium Heparin
Urine	Organic and amino acids			Biochem	Universal container
Urine	GAG and oligosaccharides			Biochem	Universal container
Infants under 1 year of age					
Blood	Ammonia			Biochem	Lithium Heparin
	Lactate, pyruvate (2 hours after carbohydrate – containing meal)			Biochem	Lithium Heparin
Children older than 3 years					
Blood	ASOT (if not already done as part of myocarditis screen)			Micro	Clotted blood
	Auto antibodies: ANA, ANCA, DNA Abs, rheumatoid factor			Immun	Yellow IF

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Consultant:

2nd Line investigations for clinically suspected myocarditis and/or dilated cardiomyopathy (to be requested ONLY after discussion with the duty Paediatric ID and Cardiology Consultants)

<i>Sample</i>	<i>Investigation</i>	<i>Date sent</i>	<i>Result</i>	<i>Lab</i>	<i>Sample</i>
<u>Discuss with Cardiology and/or Metabolic Consultant</u>					
Blood	Copper			Biochem	Lithium Heparin
	Selenium			Biochem	Lithium Heparin
	Fasting lipid profile			Biochem	Lithium Heparin
<u>If recent foreign travel or immunocompromised, discuss with Duty ID Consultant to choose from the following</u>					
Blood	Toxoplasma serology			Virol	EDTA (ON DISCUSSION WITH ID)
Blood	Spirochaetal and rickettsial serology			Virol	EDTA (ON DISCUSSION WITH ID)
Blood	Special bacteriology culture for Brucella, Mycobacterium, Corynebacterium			Micro	Blood culture bottle (ON DISCUSSION WITH ID)
skin lesion swabs	PCR for , VZV, HSV, , other as directed by ID/Virology (if positive 1 st line throat swab and/or skin lesions)			Virol	EDTA Swab (viral medium)
Stool	Protozoal infection (Trypanosoma, Entamoeba, Leishmania)			Micro	Stool sample container
Blood and Stool	Tests for parasitic infestation (trichinella, Echinococcus, Taenia)			Parasitology,	EDTA, Stool sample container
Throat and groin swab	Fungal cultures in immunocompromised			Micro	

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Other consultations (discuss with Cardiology)

Neurology consultation		
Metabolic consultation		
Genetic investigations (discuss with Cardiology and Genetics; parental consent and separate referral required)		
Investigation	Date sent	Sample/Lab information
DCM gene panel		EDTA 1-3 ml (Molecular Genetics) – Genetic lab
HCM gene panel		EDTA 1-3 ml (Molecular Genetics) – Genetic lab
RAS-MAPKinase pathway		EDTA 1-3 ml (Molecular Genetics) – Genetic lab
Friedrich's Ataxia genetics		EDTA 1-3 ml (Molecular Genetics) – Genetic lab
LV non-compaction gene panel		EDTA 1-3 ml (Molecular Genetics) – Genetic lab
Barth syndrome (males)		Cardiolipin sample 1- 3ml EDTA: Biochemistry – handwritten form http://www.uhbristol.nhs.uk/patients-and-visitors/your-hospitals/other-services-in-bristol/barthsyndromeservice/testing/
Cardiolipin analysis & TAZ gene sequencing		TAZ sequencing 1-3ml EDTA (separate sample to cardiolipin) send to genetic and they will forward to Bristol genetics laboratory, see link for details and request form. https://www.nbt.nhs.uk/sites/default/files/NHS%20Specialised%20Barth%20Syndrome%20Service.pdf

Optional investigations as directed by Cardiology, Metabolic and Neurology teams

White cell and RBC enzymology

Fibroblast enzymology

Liver biopsy and enzymology

Marrow Aspiration

Transferrin electrophoresis

Skeletal muscle Biopsy

Cardiac muscle biopsy

DNA studies on lymphocytes or other tissue electrophoresis

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