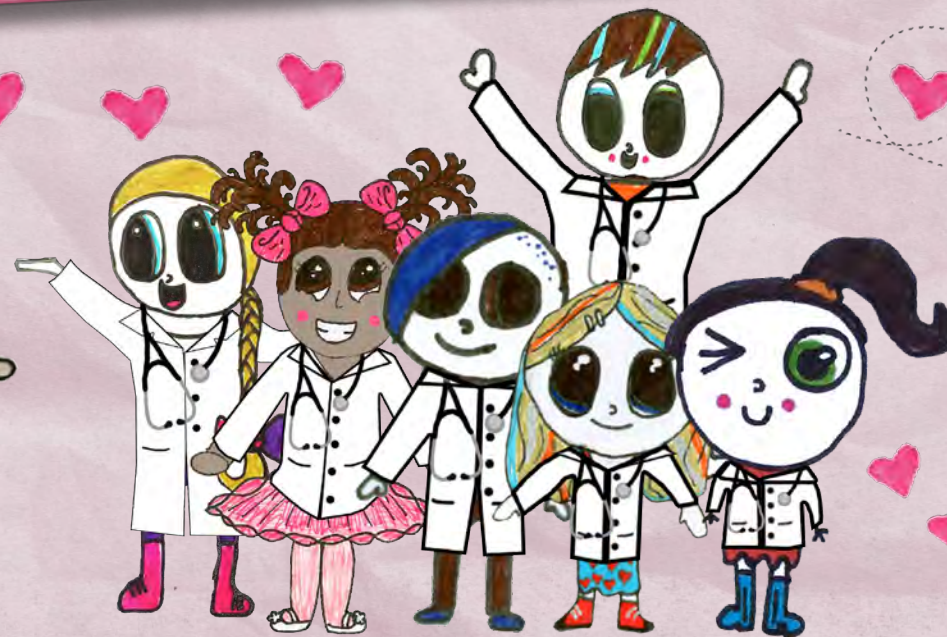


societi

We are the UK Foundation
for Kawasaki Disease

Case studies - A learning resource



societi.org.uk

Introduction



- ♥ This resource is designed to be used by healthcare professionals to explore a range of different clinical scenarios and associated learning outcomes.
- ♥ They could be used in teaching or used individually or in small groups for learning or revision.
- ♥ Where cases are based on actual patients there is a reference in the top corner, some details may have been changed to ensure a broad range of learning.
- ♥ The resource has been developed with expert clinical input.



Case 1 - Jimmy

Jimmy is a 6 month old boy

He attends A&E with his mum who reports that he has had a fever on and off for 5 days. Mum says he had a rash on day 1-3.

Jimmy has been to the GP who thought he had conjunctivitis as he has red eyes.

On examination you notice he has a sore mouth and his lips are cracked and bleeding. Jimmy is cranky, his fingers are swollen and his perineum is red. He presents as an unwell child.



Blood test results

- Low haemoglobin
- Low platelets
- Low albumin
- Low sodium
- C-reactive protein high
- Neutrophils high

Blood culture not back.









Case 1 - Jimmy

Diagnosis - He is diagnosed with Kawasaki Disease and admitted to the ward.

Treatment - He is given IVIG over 12 hours along with aspirin orally. IV antibiotics were given until blood cultures came back negative. Steroid withheld and Echocardiogram (ECHO) booked in a few days.



If a child has a **PERSISTENT FEVER** and two or more of these symptoms **THINK Kawasaki Disease!** societi.org.uk

 Persistent fever	 Swollen fingers/toes
 Bloodshot eyes	 Cracked lips/strawberry tongue
 Rash	 Swollen glands

OUTCOME:
ECHO normal. He went home when the CRP and temperature had returned to normal.

Case 1 - Jimmy

Learning points:

- ♥ Typical age for Kawasaki Disease.
- ♥ Symptoms are not all present at the same time. A good history is needed.
- ♥ IF recognised early and treated early, the outcome is often excellent.



Case 2 - Benjamin

Benjamin is 3 months old.

- He attends A&E for the third time with a fever, which he has had for 8 days.
- Mum reports a rash that came and went on day 1-2, he also has red eyes and a possible sore mouth.
- He has no finger changes, no swollen lymph nodes.
- Bloods were not performed but he was admitted because it was his third visit to A&E.

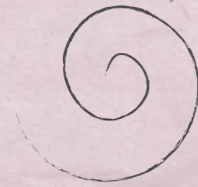


Case 2 - Benjamin

Diagnosis – Viral infection, he was observed for 7 days. His fingers then started to peel at which point Kawasaki Disease was diagnosed.

Treatment – IVIG and aspirin was given.

Outcome – ECHO at day 15 showed giant coronary artery aneurysms. 6 weeks later these thrombosed. Benjamin was transferred urgently where he required a ventricle assistance device and a heart transplant.



Case 2 - Benjamin

Learning points:

- ♥ Worst cases of Kawasaki Disease are in young boys < 6 months.
- ♥ Symptoms are not all present at the same time. A good history is needed.
- ♥ Don't wait for peeling fingers, this occurs late and often after the damage is done.
- ♥ Failure to recognise early and treat early can lead to lifelong, life limiting cardiac disease.



Case 3 - Amida



1. 3 month old girl, presents at GP with high fever for 3 days. Examination unremarkable but urine shows abnormal white blood cells

Diagnosis –
Urinary tract infection
Treatment –
antibiotics given

2. Develops generalised rash over her body

Thought to be a reaction to the antibiotics so was admitted

Lertamonkitti, N. (2018) A 3 month old infant with atypical Kawasaki disease. BMJ Case reports

Case 3 - Amida



3. On admission to hospital she had fever and was irritable

Diagnosis – sepsis
Treatment –
broad spectrum
antibiotic

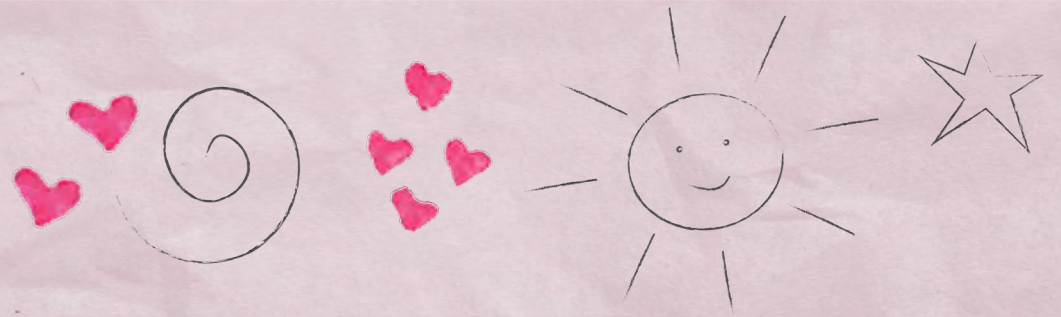
4. 2 days later fever still present and redness at site of BCG inoculation scar

Diagnosis –
Kawasaki Disease
Treatment –
IVIG and aspirin

Outcome: fever went down quickly when IVIG given. ECHO was normal

Lertamonkitti, N. (2018) A 3 month old infant with atypical Kawasaki disease. BMJ Case reports

Case 3 - Amida



Learning points:

- ♥ Girls get Kawasaki Disease as well as boys.
- ♥ Symptoms are not all present at the same time. A good history is needed.
- ♥ Do not always rely on someone else's presumed diagnosis.
- ♥ Intravenous IVIG and aspirin will effectively treat most cases.



Case 4 - Ellie

1 month old girl presents with fever, 2 days later a maculopapular rash on her trunk and extremities. Her lips are red as are her eyes.

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 Persistent fever	 Swollen fingers/toes
 Bloodshot eyes	 Cracked lips/strawberry tongue
 Rash	 Swollen glands

Diagnosis: sepsis
Treatment: 12 days antibiotics

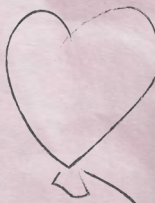

Symptoms remain as does fever

ESR - high
C-reactive protein - high

Blood culture - normal

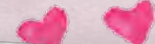



Case 4 - Ellie



On examination peeling skin on fingers and anus are noted.


Diagnosis: Kawasaki Disease.



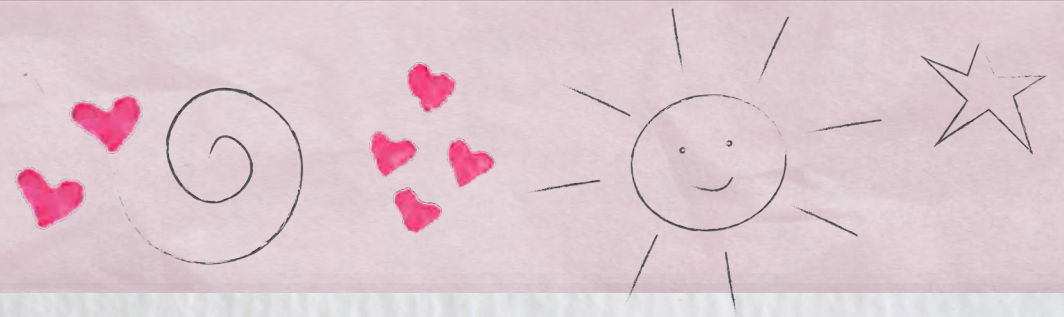
ECHO reveals minimal aneurysmal dilation of coronary arteries.

Treatment: IVIG (2g/kg) for 12 hours and high dose (30-50mg/kg per day divided into 4 doses) aspirin were given. The fever disappeared and ESR and C-reactive protein decreased.

Outcome: dilation resolves by 6 weeks. Mild dilation which resolves by 6 weeks is not an aneurysm and there is no evidence of permanent damage



Case 4 - Ellie



Follow up at:

2 weeks,

6 weeks,

6 mths,

12 mths.

Discharge if normal
at 12 months.



Learning points:

- ♥ Symptoms are not all present at the same time. A good history is needed.
- ♥ Peeling fingers are a symptom that appears late in the illness, do not wait to see this sign.
- ♥ Young children may have poorer outcomes even with fewer symptoms.
- ♥ Incorrect diagnosis can lead to treatment delays increasing the risk of heart damage.



Case 5 - Rosie



Based on Rosie's story World Heart Day
Podcast Transcript - Kawasaki Disease in
Adulthood - Rosie's Story - Societi

Rosie is 19. She feels unwell with persistent fever, swollen glands and pain in her neck, shoulders and back. The fever lasts 7 days. Rosie continues to be exhausted for many weeks after the fever, barely having the energy to get out of bed.



She Attended the GP at 10 days into illness where blood tests show high white blood cells and extremely elevated platelet levels.

Diagnosis: Flu



Case 5 - Rosie



Based on Rosie's story World Heart Day
Podcast Transcript - Kawasaki Disease in
Adulthood - Rosie's Story - Societi

Aged 31 Rosie starts to experience chest pain particularly on exertion.

Diagnosis: Muscular pain

The chest pain continues and Emily feels breathless when exercising.

Diagnosis: Possible asthma.

The pain when exercising worsens and radiates down the arm.

After many visits GP refers to cardiology.



If a child has a **PERSISTENT FEVER** and two or more of these symptoms **THINK Kawasaki Disease!**



Persistent fever



Swollen fingers/toes



Bloodshot eyes



Cracked lips/strawberry tongue



Rash



Swollen glands

OUTCOME: scan reveals extensive heart damage due to undiagnosed Kawasaki Disease.

Stent insertion required for coronary artery stenosis.



Case 5 - Rosie

Based on Rosie's story World Heart Day
Podcast Transcript - Kawasaki Disease in
Adulthood - Rosie's Story - Societi

Learning points:

- ♥ Complications of Kawasaki Disease affect older children/young adults
- ♥ Incorrect diagnosis can lead to treatment delays increasing the risk of heart damage.
- ♥ Misdiagnosis can lead to serious cardiac damage.



Case 6 - Ravi

15 year old presents at A&E with 5 day history of fever, fatigue, bilateral conjunctivitis, swollen glands, hand swelling and rash on lateral parts of the body, groin and hands.



Skin rash very prominent -admitted to dermatology
Treatment - antibiotics and steroids for 7 days.

Day 3 fever and skin resolved and rashes start to resolve.
Day 7 develops right sided paralysis and difficulty with speech.

MRI and MRA show brain ischaemia on terminal branches of left medial cerebral artery. Ravi moved to neurology.

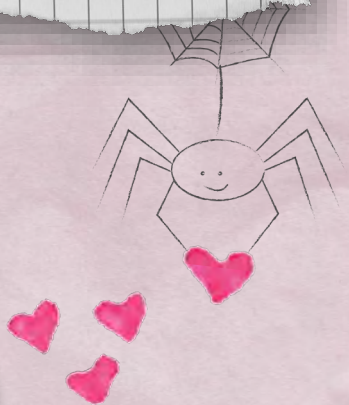
Case 6 - Ravi

Blood tests show: High white blood cells.
Elevated ESR levels.
High d-dimer.
Low albumin levels.
Urine culture clear.

Diagnosis -
Kawasaki
Disease.

Treatment: IVIG
(2g/kg) given,
aspirin and steroid
40mg twice a day.

Outcome: within 48
hours Ravi improved
significantly with near
complete resolution of
neurological symptoms.



Case 6 - Ravi

Learning points:

- ♥ Kawasaki Disease may affect older children and young adults.
- ♥ Symptoms are not all present at the same time. A good history is needed.
- ♥ Kawasaki Disease should be considered in all children with a fever over 5 days.



Case 7 - Ethan

Based on Debbie and Ethan's story
Family Stories - Societi

10 year old has been extremely tired, starts to feel unwell and develops fever. GP prescribes antibiotics. Within 24 hours has a rash, bloodshot eyes, lips are cracking and feet are swelling.



If a child has a **PERSISTENT FEVER** and two or more of these symptoms **THINK Kawasaki Disease!** societi.org.uk

 Persistent fever	 Swollen fingers/toes
 Bloodshot eyes	 Cracked lips/strawberry tongue
 Rash	 Swollen glands

Diagnosis: Allergy to antibiotics.
Treatment:
Different antibiotic.

Symptoms continue so attends A&E.
Diagnosis: Scarlet fever.
Blood tests for glandular fever and throat swab.

Case 7 - Ethan

Based on Debbie and Ethan's story
Family Stories - Societi

Throat swab positive for streptococcal throat infection.
Inflammatory markers VERY high so doctor asks for Charlie
to attend hospital immediately
Heart murmur heard on examination. ECHO shows coronary
artery very dilated
Diagnosis: Kawasaki Disease



Treatment: IVIG given over 12 hours. Charlie improves
dramatically but Coronary Artery Aneurysms persist

Case 7 - Ethan

Based on Debbie and Ethan's story
Family Stories - Societi

Learning points:

- ♥ 20% of children test positive for throat swabs. This does NOT rule out Kawasaki Disease. - The positive rate of testing for GAS was 19.4% in children aged 3-14 years, while it was 1.8% in children less than 3 years of age showing a high proportion of viral features in this study. Based on the results of throat swab culture, the sensitivity of RADT was 100% (95% confidential interval, 2.5-100%). 16 Jul 2021
[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8304790/#:~:text=The%20positive%20rate%20of%20testing,interval%20%202.5-100%25\).](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8304790/#:~:text=The%20positive%20rate%20of%20testing,interval%20%202.5-100%25).)
- ♥ Incorrect diagnosis can lead to treatment delays increasing the risk of heart damage.
- ♥ Kawasaki Disease should be considered in all children with a fever over 5 days



Case 8 - Kris



Kris is 20. He attends the GP as he has been feeling pain in his chest, particularly on exertion. The GP takes a thorough history which reveals Kris had an episode at 10 years old where he was very unwell with a persistent fever, rash, red eyes and a strawberry tongue.

GP orders blood tests and makes a referral to a cardiologist



Case 8 - Kris



ECHO reveals Coronary Artery Aneurysms.

Diagnosis: Likely missed case of Kawasaki Disease as a child.



Case 8 - Kris

Learning points:

- ♥ 20% of children have positive throat swabs for streptococcus
- ♥ Symptoms are not all present at the same time. A good history is needed.
- ♥ Complications might be seen as an older child/young adult.
- ♥ Incorrect diagnosis can lead to treatment delays increasing the risk of heart damage.
- ♥ Young adults can get angina from damage such as coronary artery stenosis, caused by previous Kawasaki Disease



Case 9 - Lottie



Lottie is 19. She was diagnosed with Kawasaki Disease when she was 4 months old. Her diagnosis was delayed as it was misdiagnosed as a virus. She has coronary artery aneurysms and is under cardiology follow up.

If a child has a **PERSISTENT FEVER** and two or more of these symptoms **THINK Kawasaki Disease!**



Persistent fever



Swollen fingers/toes



Bloodshot eyes



Cracked lips/
strawberry tongue



Rash



Swollen glands







Lottie presents at A&E with chest pain. She is told it is likely a panic attack and sent home.

Case 9 - Lottie

Lottie has another episode and presents at A&E again. This time an ECG is performed which shows ST elevation, suggestive of myocardial ischaemia



If a child has a **PERSISTENT FEVER** and two or more of these symptoms **THINK Kawasaki Disease!**

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 Bloodshot eyes	 Cracked lips/strawberry tongue
 Rash	 Swollen glands

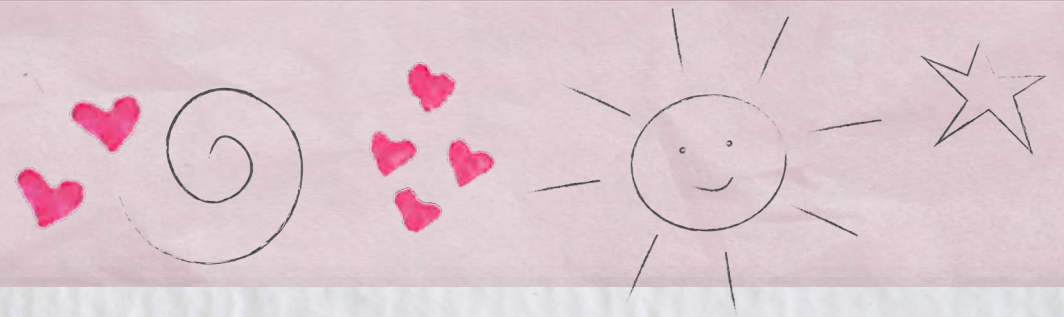
CT scan shows Kawasaki Disease Coronary Artery with stenosis.

societi.org.uk

Lottie taken to catheter lab. Difficult and long procedure with rotational atherectomy.

OUTCOME:
Lottie makes a good recovery.

Case 9 - Lottie



Learning points:

- ♥ Blood flow to the heart can be restricted at ANY age in patients with coronary artery aneurysms.
- ♥ A high suspicion of a cardiac event should be maintained in children and young adults with known coronary artery aneurysms.
 - Misdiagnosis can lead to serious cardiac events and even death.
- ♥
 - Young adults may present in a non-typical manner.

