CASE STUDY
SCARLET FEVER
Chief Complaint

- Sore throat and rash
**HPI**

- Sophie* aged 19 had experienced a ten day history of a sore throat and an eight-day history of a rash on her legs. She had been to see her GP who thought it likely strep throat. A throat swab was taken and she was commenced on a ten-day course of oral penicillin and analgesia. Two days later Sophie had felt worse and had now developed a fever. Her rash had now spread to her arms and a little on her trunk. She attended an after-hours acute doctor. Her throat swab had come back as negative for Strep. This GP thought her symptoms were related to an allergy. The penicillin was stopped and Sophie was started on loratadine 10mg daily. Two days later re-presented to Student Health. She still felt 'unwell'. Sore throat much less but skin 'aching'
Subjective

- Medications – Jadelle implant. Loratadine 10mg od, ibuprofen 200mg 2 tabs qid prn, paracetamol 500mg 2 tabs qid prn. NKA
- Immunisations – fully immunised as a child. Received Menz-B and Gardisil at school. Last ADT age 11
- Medical hx – EBV on past serology. Positive strep A last year. Eczema as a child
- Family hx – parents and two brothers alive and well. Maternal grandmother breast cancer. Nil diabetes or IHD.
- Social hx – first year at University and first year away from home. Lives in a Hall of Residence. Studying commerce, hopes to become an accountant. Is fairly active. Goes to the gym 3x per week and walks 'everywhere'
Review of Systems

- General – feeling feverish, tired and generally unwell
- HEENT – nil headaches, blurred vision, sore ears, facial swelling. Sore throat and 'snuffy' nose. Nil neck pain or stiffness
- Respiratory/Cardiac – nil wheeze, SOB or increased work of breathing. Occasional dry cough at night. Nil chest pain, palpitations or dizziness
- Gastro – eating and drinking normally. Nil vomiting, nausea or diarrhoea
- Integumentary – hot, itchy and 'aching'. Eczema as a child but nil other history of rashes or allergies
Objective

- General – looks miserable but alert. Slim build, appears stated age. Good eye contact, appropriate speech. Dressed appropriately for season (Winter), clean and tidy with hair tied up.

- Obs - Temp 38.5, HR 108 reg, Resps 16, BP – 110/76

- HEENT plus neck – Throat red, tonsils slightly enlarged, slight exudate R>L. Nil Kopliks, tongue red with some white distally. Nil lymphadenopathy, non-tender. Neck supple

- Respiratory/Cardiac – good equal air entry, vesicular, nil crepes or wheeze

- Gastro – abdomen soft, non-tender. Nil guarding or tenderness. Nil masses

- Integumentary – widespread maculopatchy rash all over body, confluent around knees and shoulders, face and neck spared. Nil papules, blanches easily. Feels hot to touch

Demonstrates competency 2.1
Objective continued…

Photo Credit Dermnet NZ (2012)
Objective continued…

Photo credit Dermnet (2012)
Assessment

- Possible Scarlet Fever
- Possible rash related to strep throat
- Possible other viral exanthem including measles, rubella and other non-specific viruses
- Possible Epstein-Barr Virus
- Other rashes such as erythema multiforme, exfoliative dermatitis, pityriasis rosea, drug rashes, severe sunburn, plant allergies, toxic epidermal necrolysis and staphyloccoccal scalded skin syndrome
- Possible toxic shock syndrome though unlikely due to absence of high fever (>38.9), hypotension, vaginal symptoms, and GI.
- Possible Kawasaki disease

Demonstrates competencies 1.1, 2.1, 2.2, 2.4
Plan

1) (RX) - re-start antibiotics - Phenoxymethylpenicillin 500mg bd for ten days*

2) (DX) – throat swab, bloods (CRP, FBC and ASO titre)

3) (ED) – rest, fluids, advise red flags for urgent review

4) (F/U) – review in two days with results unless any deterioration

Demonstrates competencies 1.1, 2.1, 2.4 & Domain Four
Results

- **Haemoglobin:** 136 g/L (120 - 155)
- **PCV:** 0.40 (0.35 - 0.46)
- **MCV:** 92 fL (81 - 98)
- **MCH:** 31.3 pg (27.0 - 33.0)
- **Platelets:** 292 x 10^9/L (150 - 430)
- **WBC:** 13.8 x 10^9/L (4.0 - 11.0)
- **Neutrophils:** 10.6 x 10^9/L (1.90 - 7.50)
- **Lymphocytes:** 1.8 x 10^9/L (1.00 - 4.00)
- **Monocytes:** 0.8 x 10^9/L (0.20 - 1.00)
- **Eosinophils:** 0.6 x 10^9/L (< 0.6)
- **Basophils:** 0.0 x 10^9/L (< 0.3)

Demonstrates competency 2.1
Results continued...

- **A.S.O.T:** 1022 IU/mL ( < 240 ) H

- **CRP:** 41 mg/L ( < 5 ) H

Demonstrates competency 2.1
Follow-up Appointment

• Sophie feeling quite a bit better. Rash starting to fade and a lot less itchy

• Throat swab positive for Streptococci A

• Bloods showed an elevated CRP, neutrophilia, eosinophilia and an elevated WBC count. Also her ASOT was nearly four times the normal

• Highly likely Scarlet Fever
Decision Making

- Diagnosis of scarlet fever
  - Clinical findings
  - Throat culture for group A strep
  - Blood test

- The blood test shows neutrophilia and increased eosinophils, elevated C-reactive protein (CRP) and elevation of antistreptolysin O titer.

- Blood culture not used as is rarely positive but the streptococci can usually be demonstrated in throat culture

Demonstrates competencies 1.1, 2.1, 2.2, 2.4
Links to Nurse Practitioner Competencies

- **Domain One**
  - Contains competencies that relate to the professional understanding of the role of the nurse practitioner and the associated responsibilities and leadership

- **Domain Two**
  - Contains competencies related to independent and collaborative practice in delivering and managing client care within a specialty area of practice

- **Domain Three**
  - The nurse practitioner operates within a nursing framework and ensures the centrality of the client in all aspects of practice. Health outcomes are evaluated and advanced through quality improvement and scholarship activities

- **Domain Four**
  - Nurse Practitioners are able to prescribe under the Medicines Act 1981 and the Medicines Regulations 2005.
Film/Media

- Gene Wilder's character in See No Evil, Hear No Evil went deaf due to scarlet fever.

- In the movie Anne of Green Gables: the Sequel, Gilbert Blythe (Anne's love interest) contracts scarlet fever from the hospital while studying medicine. During this time, Anne promises to marry him, which is said to be what helped him survive.

- Beth, the third sister in Little Women, suffered from the effects of scarlet fever before dying.

- Mary Ingalls from the Little House on the Prairie book and TV series lost her sight from the effects of scarlet fever.
References*


* A more extensive list is available on request