# Taking the mickey.

Dr Helen Casey, Dr Rebecca Annis, Dr Zoe Riches, Dr Martin Williams. University Hospitals Bristol, UK.

Public Health England

Mr E is a 50 year old man. He presented to his GP with a red hot swollen knee. Diagnosed with gout and given anti-inflammatories.

Three days later seen in A&E with worsening symptoms. He is apyrexial, CRP is 345, patient self-discharged.

Patient presents to A&E again 2 days later. He is now pyrexial with a CRP 375, WCC 12.95 and a large knee effusion.

His knee is aspirated, he is admitted under Orthopaedics with a likely septic arthritis and started on IV flucloxacillin.

In hospital his temperature and CRP increase. The knee aspirate has raised white cells, no crystals and no growth on culture. After 48 hours he is not improving.

## A further review is carried out…

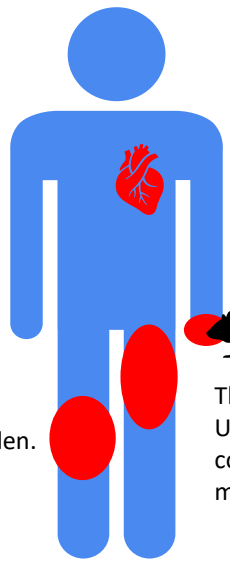
PMH: Schizophrenia and personality disorder

Current smoker, no IVDU, no alcohol

Lives with his long term partner, 2 snakes, a lizard and 2 dogs.

Knee is still hot and swollen.

No foreign travel, lives in an urban location.



Trans thoracic echo showed echogenicity on aortic valve. Non-specific.

Bitten by a field mouse on hand 2 days prior to initial presentation. Bite is well healed.

Thigh is swollen and US shows a large collection and myositis.

## Differential diagnosis:

Rat bite fever

Salmonella

Reiter's Syndrome

Infective endocarditis

The likely diagnosis is thought to be Rat Bite fever and the patient is switched to IV ceftriaxone. He becomes apyrexial in 24 hours. His knee fluid is sent for 16S rDNA PCR.

### Results and Diagnosis

- *Streptobacillus moniliformis* was confirmed on 16S r DNA PCR.
- Diagnosis of rat bite fever confirmed.
- Trans-oesophageal echocardiogram was normal with no signs of infective endocarditis.
- Discharged home to complete 6 weeks of oral amoxicillin.
- Patient seen in outpatients and well on follow-up.

### About Rat Bite Fever

A systemic illness caused by *Streptobacillus moniliformis, Streptobacillus notomytis or Spirillum minus*. The organisms are carried by rodents and can be transferred by bites/scratches or urine/faeces. It is rarely diagnosed as the organism is fastidious and slow growing. On average 1-2 cases are reported in the UK per year[1]. Carriage in laboratory rats has been shown to be up to 100%[2]. Incubation period is typically less than 7 days. The bite/scratch has normally healed prior to symptoms developing. Presents with fever, myalgia and arthralgia often followed by a maculopapular rash and polyarthritis. Complications can include endocarditis, focal abscesses and multi-organ failure. Penicillin or IV ceftriaxone are the first line treatments; in uncomplicated disease 14 days can be used, in complicated disease at least 4 weeks of therapy is recommended.

**References**

1. Health Protection Agency. Rat-bite fever [Internet]. The National Archives. 2010 [cited 2018 Sep 24]. Available from: http://webarchive.nationalarchives.gov.uk/20100417062444/http://www.hpa.nhs.uk/HPA/Topics/InfectiousDiseases/InfectionsAZ/1191942169833/
2. Elliott SP. Rat bite fever, Streptobacillus moniliformis. Clin Microbiol Rev. 2007;20(1):13–22.