Necrotising Fasciitis with Multi-Drug Resistant Colonisers

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Case Presentation
- 77 year old male presented with a painful right leg on return from holiday
- He had been treated for gastroenteritis with IV fluids at a hospital in India

Examination
- Afebrile, stable
- Right lower leg: tender, swollen and erythematous. Two dusky areas (on the lateral aspect and on the dorsum of the foot) which were open and purulent

Investigations
- CRP and WCC elevated
- USS and MRI: 2 x subcutaneous collections at the dorsum of the foot (5 x 7 x 2 cm) and lateral margin of right leg (> 9 cm long)
- Wound swabs:
  - S. aureus - fully sensitive
  - Group A Streptococcus – fully sensitive
  - Enterobacter cloacae
  - E. coli
  - Acinetobacter spp.
  - Carbapenemase-Producing Enterobacteriaceae (CPE): resistant to amoxicillin, co-amoxiclav, ceftriaxone, ciprofloxacin, co-trimoxazole, gentamicin, piperacillin/tazobactam, temocillin; and sensitive only to fosfomycin, tigecycline and polymixin

Microbiology
- Group A Streptococcus most likely pathogen +/- S. aureus
- The Gram negative organisms were likely colonisers
- These were Carbapenemase-Producing Enterobacteriaceae
- Carbapenemase is an extended spectrum beta-lactamase enzyme which confers extensive resistance
  - CPE commonly nosocomial – and an epidemiological link with the Indian subcontinent
  - Their eradication was important in case they caused infection in this patient or in others
  - They were not sensitive to flucloxacillin or clindamycin and were not targeted with antibiotics – but they were eradicated
- Wound swabs were consistently sterile 10 days after debridement and treatment with daily Surgihoney RO dressings

Surgihoney RO (Reactive Oxygen)

Surgihoney RO is pharmaceutical grade honey that has been engineered to increase its antimicrobial activity. It works by several mechanisms: its low pH, osmotic dehydration, and the continuous release of highly antimicrobial oxygen radicals. It is a novel therapy for open soft tissue lesions and may prove an important therapy in lesions with a high bacterial bioburden and biofilm, to eradicate or reduce heavy bacterial loads, and promote healing. Surgihoney RO is the first agent available for clinical use that employs novel Reactive Oxygen technology. It works as a powerful antimicrobial in vitro against Gram positive and Gram negative organisms, including multi-drug resistant strains. It is effective in acute and chronic wound infection and in the prevention of surgical wound infection.

Conclusions
- This case is important as an example of:
  - Necrotising fasciitis – a rare and dangerous surgical emergency
  - Successful management of necrotising fasciitis through a combination of debridement and plastic surgery, antibiotics, Surgihoney RO and infection control procedures
  - Multi-drug resistant organisms likely imported from abroad
  - The eradication of those organisms through debridement surgery, Surgihoney RO and infection control measures