**Science text**

This story is about the bacteria Enterococcus and Bacteroides, represented by Erica and Badu in this story. Both Enterococcus and Bacteroides are most commonly found in the intestine.

Other bacteria in the bowel, like E. coli, frequently cause urinary tract infections. Enterococcus is an uncommon cause of urinary tract infections in un-catheterised patients as it is non motile and can’t ascend the urethra. It can though contaminate urine samples collected to test for urinary tract infection. Bacteroides never causes urinary tract infection as it can’t survive in oxygen.

Bacteria like Enterococcus use any available oxygen for respiration. This protects bacteria which we call anaerobes, like Bacteroides, which can’t survive in the presence of oxygen.

Whilst Enterococcus and Bacteroides don’t normally cause urine infections they can cause infections in the abdominal cavity. To get there part of the intestinal tract must be damaged. The most common causes of this damage are surgery and perforation, after appendicitis for example.

Some bacteria, like Bacteroides, are able to cause abscesses. In fact, we commonly treat patients with abscesses with antibiotics, like metronidazole, which kill Bacteroides and other anaerobes, even if we don’t grow them in the laboratory. Other antibiotics including amoxicillin-clavulanic acid, piperacillin-tazobactam and meropenem also treat most anaerobic infections. Abscesses can though be “polymicrobial”, meaning lots of bacteria are involved in the infection. As abscesses do not have a vascular supply, it is difficult for antibiotics to get inside and be effective.

There are two main species of Enterococcus. Enterococcus faecalis which can be treated with antibiotics like amoxicillin and piperacillin-tazobactam. Enterococcus faecium are resistant to these antibiotics and are treated with vancomycin or teicoplanin normally. All Enterococcus are resistant to cephalosporin antibiotics like cefuroxime.

As antibiotics and the immune system may find it difficult to treat abscess it is often necessary for surgical source control procedures i.e. surgery that controls the source of an infection.

Plastic tubes (drains) can be inserted into abdominal abscesses under radiological guidance. This is one way to see which bacteria are causing an infection, as the pus can be tested. Draining abscesses like this is a way of achieving source control without the need for an open surgical procedure. Antibiotics are used in combination with surgical/radiological source control to help treat intra-abdominal abscesses.