Yersinia and Yersiniosis
Enteropathogenic yersiniae have been widely recognised as agents of acute enteritis since the
early 1960s. Reported cases are historically largely from temperate regions and they are not
recognised as major causes of diarrhoea in most countries, but some studies have found them to
be commonly isolated from water supplies and diarrhoea cases in tropical countries. The genus
Yersinia
contains eighteen species, of which three are well recognised pathogens of humans:
Yersinia pestis
Yersinia enterocolitica
All three are zoonotic.
pathogens, with limited spread of disease in humans, and all contain a similar virulence
Yersinia pestis
causes bubonic plague, an acute systemic illness transmitted by flea
bite or close respiratory contact, and
Yersinia enterocolitica
cause enteric disease known as yersiniosis.
Yersinia enterocolitica
is reported to cause
diarrhoeal disease in humans at least 10-100 fold more often than
will be the organism primarily dealt with in this chapter.
is typically associated
with terminal ileitis and
Y. pseudotuberculosis
with mesenteric adenitis. However, both
organisms may cause mesenteric adenitis and symptoms of pain and tenderness in the right
lower quadrant of the abdomen that mimic appendicitis (pseudoappendicitis), leading to the
surgical removal of a normal or mildly inflamed appendix. Diagnosis is based on culture of the
organism or convalescent serology.
Y. pseudotuberculosis
and some rarer strains of
are especially likely to cause systemic infection, which is also more likely in
patients with diabetes or iron overload. Systemic sepsis is treatable with antimicrobial agents,
but postinfective arthropathy responds poorly to such therapy.
Y. enterocolitica
has been isolated from treated drinking water in India and untreated water in
many countries. Both
Y. enterocolitica
have been isolated from faeces
of many wild and domesticated animals and this is thought to be the primary reservoir, affecting
humans via contamination of food and water. Both
Y. enterocolitica
Y. pseudotuberculosis
can survive inside
persists in the
cytoplasm, and
inside phagocytic vacuoles. Long term persistence of
has recently been demonstrated in the caeca of laboratory mice
and in the gut of soil nematodes.
has been shown to enter a viable but not culturable
state in water and persists in soil and it is likely that
Y. pseudotuberculosis