REVIEW ARTICLE

Acute Lower Urinary Tract Infection Caused by Lactococcus Garvieae

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We report the 19th case of human infection by Lacotcoccus garvieae and only the 2nd case causing a urinary tract infection. This organism may be an emerging zoonotic pathogen in immunocomprimised individuals.

INTRODUCTION

The *Lactococcus* genus was separated from the Streptococcus genus in 1985 on the basis on genetic analysis. *Lactococcus garvieae* human infections are rare.[1] This unusual pathogen is considered to be of low virulence in human beings except for those with an immunocompromised state.

Lactococcus garvieae is primarily a fish pathogen affecting salt water fish of the Far East (Japan, China). The same organism has been isolated from mastitis infections in cows and water buffalos. Human infection is presumed to be primarily through contaminated cows milk, cheese, or raw fish products. Consumption of raw fish during the summer months and fish handlers who manipulate raw fish have long been suspected as the most probable sources of infections in humans. Risk factors include anatomically or physiologically altered gastrointestinal tract, long term use of H2 blockers or proton-pump inhibitors (PPI's),valvular heart disease and any immunocomprimising condition, such as cirrhosis, chemotherapy, cancer, autoimmune disease.

Human infections total eighteen cases in the English literature in 2014. We report a nineteenth case. The majority of the previously reported cases are infective endocarditis. There have been isolated cases of acalcular cholecystitis, spondylodiscitis, primary septicemia, hip prosthesis infection, liver abscess, peritonitis, diverticulitis and urinary tract infection. [1, 2, 3, 4, 5, 6, 7] We report the second case of a urinary tract infection with *Lactococcus garvieae* in a young female. The previously reported case of a urinary tract infection occurred in an elderly male who underwent a transurethral prostatic resection (TURP). *Lactococcus garvieae* was isolated from both urine and blood cultures in this patient.[1]

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CASE HISTORY

A thirty-six year old Caucasian female was admitted through the emergency department with a two day history of nausea, vomiting & suprapubic abdominal pain. She reported mild dysuria and polyuria. Original urinalysis demonstrated 10-20 WBC's / HPF, 2-4 hyaline casts, and 2+ bacteria. Serum vitamin B12 levels were low at 167pG/ml (180-194), low serum iron 24 mcg/dL (40-135) and a positive urine drug screen for benzodiazepines and cannabinoids. Urine culture revealed *Lactococcus garvieae* as the sole microbiologic agent. Blood cultures were negative for growth.

Two months prior to this admission the patient was hospitalized at a different facility for thrombotic thrombocytopenic purpura (TTP) and Staphylococcus aureus sepsis of an unknown source. This patient has long history of ETOH abuse and dependency associated with recreational drug use. She also has a history of chronic recurrent pancreatitis. She received oral B12 supplementation, thiamine and ceftriaxone one gram IV for 72 hours and was discharged on oral amoxicillin.

DISCUSSION

The *Lactococcus genus* is composed of 8 species and subspecies. *Lactococcus garvieae* is by the far the most common etiologic agent associated with human disease.[1] Human infections with *Lactococcus garvieae* are rare and generally associated with an immunocompromised host. Human infections are associated with significant morbidity and up to a 25% mortality rate.[2]

Lactococcus garvieae is uniformly resistant to clindamycin. Therapy should consist of beta-lactam antibiobitics with or without aminoglycosides or ciprofloxin. Septicemic or endocarditis patient will require prolonged intravenous antibiotic therapy.[1]

The port of entry for *Lactococcus garvieae* has been suggested to a gastrointestinal defect such as a gastric ulcer, inflamed diverticulum, prior GI tract surgery, long term use of

H2blockers or PPI's. Generally no source of entry can be identified. However, manipulation of contaminated fish with unprotected skin surfaces may increase the risk of bacteremia.[3,8]

We report a second case of *Lactococcus garvieae* urinary tract infection. Our patient was without urinary tract manipulation or surgery. Our patient denied exposure to raw fish or raw consumption or any skin lesions that could act as a vehicle for a source of entry. Her risks factors include intermittent long term PPI therapy, ETOH abuse, recreational drug use, TPP. We are unsure if a serum cyanocobalamin deficiency or serum iron deficiency may predispose one to a UTI with this organism. It is unclear how this patient acquired a UTI with this emerging zoonotic pathogen.

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