

Staphylococcus lugdunensis: Report of first case of skin and soft tissue infection in Singapore

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ABSTRACT

We report the first case of skin and soft tissue infection due to *Staphylococcus lugdunensis* in Singapore. This is a coagulase negative *Staphylococcus* species known to cause a wide variety of more serious infections – brain abscess, sepsis, chronic osteomyelitis and infective endocarditis.

Keywords: *Staphylococcus lugdunensis*, infections

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INTRODUCTION

Staphylococcus lugdunensis was first described in 1988⁽¹⁾ and is mostly isolated as an aetiological agent of skin and soft tissue infections⁽²⁾. In recent years this pathogen has been reported to cause a wide variety of more serious infections - brain abscess, sepsis, chronic osteomyelitis and infective endocarditis^(1,2,3,4).

This article describes our first isolate of *Staphylococcus lugdunensis* in Singapore in a man with right ear sinus infection in 1990.

CASE REPORT

Mr LSW was a 31-year-old Chinese man with a history of a right ear sinus that would enlarge and subside on and off for a few years. He has no other significant past medical history of note. He complained of an acute exacerbation of increased swelling in his right ear sinus associated with purulent discharge. There was no associated history of tinnitus, hearing loss, fever or sore throat.

On examination, he was afebrile with a pulse rate of 86 per minute. The inner right ear was noted to be clean and a right pre-auricular sinus seen discharging pus.

The patient's leucocyte count was 9,000/mm³. An excision and curettage was done for him and two tissue specimens were sent to the Diagnostic Bacteriology Laboratory, Department of Pathology, Singapore General Hospital for culture and sensitivity testing. He was sent home after the procedure with instructions

for daily eusol dressing as an outpatient. He was reviewed two weeks later and the wound was noted to have healed well.

Both specimens yielded pure cultures of coagulase negative *Staphylococcus* species. The tube coagulase was negative but a positive result was seen for the clumping factor test using the Staphaurex (Murex, Wellcome) agglutination kit. The discriminative test of ornithine decarboxylation, positive pyrrolidonyl arylamidase (PYR) reaction and the utilization of mannose diagnosed the isolates as *Staphylococcus lugdunensis*⁽⁵⁾ (see Fig. 1). Disk diffusion testing performed according to National Committee for Clinical Laboratory Standards (NCCLS) performance standards showed

Fig. 1 Results of biochemical tests on patient isolate

Test	Result
Catalase	+
Oxidase	-
Tube coagulase (rabbit plasma)	-
Clumping factor (Staphaurex)	+
Glucose fermentation	+
Nitrate reduction	+
DNase	-
Voges-Proskauer	+
Urease	+
Arginine hydrolysis	-
Ornithine decarboxylase	+
Esculin hydrolysis	-
Acid produced from	
Glucose	+
Lactose	+
Sucrose	+
Mannitol	-
Salicin	-
Sorbitol	-
Arabinose	-
Raffinose	+
Maltose	+
Xylose	-
Trehalose	+
Cellobiose	-
Fructose	+
Galactose	+
Melibiose	-
Mannose	+
Pyrrolidonyl arylamidase	+
CAMP factor	+

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that both isolates were susceptible to ampicillin, cephalexin, cloxacillin, erythromycin, penicillin, tetracycline, sulphamethoxazole-trimethoprim and clindamycin.

DISCUSSION

Staphylococcus lugdunensis, one of the coagulase negative *Staphylococcus* species was first described in 1988 after studies were done on the characterization of eleven strains collected by the French National Reference Center for Staphylococci (Lyon, France)⁽¹⁾. These eleven strains were isolated from blood, intrauterine device, thoracic drain, umbilicus, axillary lymph node and an abscess drain. Subsequently, reports of endocarditis and peritonitis associated with this organism were seen^(5,6,7,8,9,10,11). These indicate that *Staphylococcus lugdunensis* is an important coagulase negative *Staphylococcus* species that required further speciation and identification by microbiology laboratories. *Staphylococcus lugdunensis* is easily identified by performing the tube coagulase and clumping factor tests, and ornithine decarboxylation test.

Staphylococcus lugdunensis is part of the normal human skin flora and has the ability to establish primary infection in deep skin and vascular infections. Herchline *et al*⁽²⁾ showed that its presence in various clinical specimens (respiratory secretions, urogenital specimens, other deep sites) demonstrated its role in relatively minor skin infections and contamination of specimens. Most patients had low grade fevers with absent systemic signs. In cases where it was considered as a colonizer, its isolation include the presence of other common skin commensal organisms e.g. *Micrococcus* species, alpha streptococcus and diptheroids. However, most reports written have been on endocarditis and this emphasized the importance of *Staphylococcus lugdunensis* in serious infections (e.g. peritonitis, infected hip prosthesis, osteomyelitis, and vascular line-bacteremia).

In our case, we believed that it is a possible aetiological agent for the minor right ear sinus infection in our patient since it was a pure isolate from the infected site. The infection responded with simple excision and curettage which correlates with Herchline's report on the role of *Staphylococcus lugdunensis* in mild skin infections. This was our first isolate after the first report of *Staphylococcus lugdunensis* was made in the literature. Since then, we have had a recent isolation from 6 sets of blood culture bottles of an endocarditis patient (December, 1997; unpublished data).

Although majority of laboratory isolates would represent colonization or low grade primary soft tissue infections, its isolation especially from sterile sites of patients with severe invasive disease would require further characterization to the species level.

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