

# Sternal Wound Infection following Coronary Artery Bypass Grafting by *Prevotella Loescheii*

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## ABSTRACT

Surgical wound infection with *Prevotella loescheii* is an uncommon complication in general, and never before reported in the cardiac surgical literature. This case report describes a deep sternal wound infection with *Prevotella loescheii* in an adult who underwent coronary artery bypass grafting. Wound and blood cultures were positive for the gram negative anaerobe. Specific intravenous antibiotics and surgical wound debridement were necessary to eradicate this infection.

**Key words:** *Prevotella*, infection, cardiac, surgery

## INTRODUCTION

**D**eep sternal wound infection (DSWI) is a relatively infrequent but potentially fatal complication of cardiac surgery following median sternotomy. Typically, the most common causes of a DSWI are Gram-positive organisms followed by Gram-negative organisms. In this case report, we describe an SWI caused by *Prevotella loescheii*, a Gram-negative anaerobe. This unusual occurrence is believed to be the first of its kind reported in the literature with respect to cardiac surgery.

## CASE REPORT

A 73-year-old man with a medical history of hypertension, hyperlipidemia, diabetes mellitus, and gastroesophageal reflux disease presented with shortness of breath on exertion and dyspnea 1 week before admission. He was found to have an abnormal electrocardiogram. Pre-operative echocardiography and cardiac catheterization demonstrated a diminished ejection fraction and severe multivessel coronary artery disease, respectively. Coronary artery bypass grafting (CABG) was recommended.

The patient was prepped and draped in the standard fashion. Operative antibiotics consisted of intravenous vancomycin

(1000 mg) and cefazolin (2 g). Skin preparation included hair clipping and application of a topical chlorhexidine solution as well as the placement of an iodine-based covering (Ioban™, 3M Company, St. Paul, MN, USA). Of note, a 5 cm oval keloid was noted in the midline atop the location of the sternal incision.

A three-vessel CABG was completed without incident through a median sternotomy. The keloid was divided down the middle and realigned on skin closure. The patient had an unremarkable post-operative recovery and was discharged on the 5<sup>th</sup> post-operative day. A slight dehiscence was noted at the keloid location - this was treated with a sterile dressing to the area. A 10-day course of oral cephalexin was initiated prophylactically.

On the 8<sup>th</sup> post-operative day, the sternal dehiscence became worse and was accompanied by tenderness, erythema, and tan-colored drainage - the discharge was cultured. In addition, the patient mounted a fever (37.5°C) and an elevated white blood count. Cultures of the sternal wound were obtained. In view of these findings, the patient was readmitted to the hospital and blood cultures drawn.

Operative wound exploration was performed demonstrating soft tissue infection requiring debridement and placement of a

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vacuum-assisted closure system (VAC™, KCI Technologies Inc., Sparks, MD, USA). Further, cultures were obtained and empiric antibiotics initiated with intravenous vancomycin and cefepime.

The results of the blood cultures and tissue cultures were positive for *Prevotella loescheii*. In accordance with sensitivities, the antibiotics were changed to intravenous ceftriaxone (1 g) and metronidazole (500 mg) every 24 h; vancomycin was added following a spike in the leukocyte count. Further, surgical debridement was performed including excision of the entire keloid - of note, the keloid was necrotic.

A final debridement of soft tissue, sternal bone, and cartilage was performed allowing for the placement of bilateral pectoralis muscle flaps - this was completed on the 23<sup>rd</sup> post-operative day. All remaining tissue cultures were negative for bacteria. The patient was discharged 6 days later and has remained infection free.

## DISCUSSION

*Prevotella loescheii*, named after the American dental microbiologist, Walter J. Loesche, is an anaerobic Gram-negative rod typically found in the human mouth. It is also among the flora of the gastrointestinal tract and vagina. Published literature regarding *Prevotella loescheii* infection is limited with few case reports including skin and soft tissue infection,<sup>[1]</sup> septic arthritis of the knee,<sup>[2]</sup> infection of a total hip arthroplasty,<sup>[3]</sup> subdural empyema,<sup>[4]</sup> and foot infection.<sup>[5]</sup> To date, *P. loescheii* SWI following CABG - or any cardiac surgery - has never been reported.

The etiology of the SWI, in this case, remains unsolved. Despite investigation of the mouth and GI tracts with direct physical examination as well as imaging studies including dental radiographs, computed tomographic images of the

abdomen, and pelvis, no identifiable source could be found. The possibility that the necrotic keloid may have been a source remains suspect, although the wound breakdown and underlying purulence were in this area. Since these bacteria are an anaerobic Gram-negative organism, the typical prophylactic antibiotics regimen was ineffective. Extensive surgical debridement and tailored intravenous antibiotic therapies were necessary to eradicate this atypical infection.

In summary, we report the first case *Prevotella loescheii* SWI following CABG. Treatment required extensive wound debridement and specific antibiotics for this anaerobic Gram-negative organism.

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