

# Skin infection by *Staphylococcus aureus* in a fisherman: difficulty in continuing work on board

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## ABSTRACT

**Background and aim:** The aim of this study was to understand why an infectious skin disease due to colonisation by *Staphylococcus aureus* methi-S led to disembarkation of a fisherman for treatment and follow-up.

**Materials and methods:** While discussing this case we have analysed different reasons why the studied fisherman could not be successfully treated on board.

**Results:** A 42-year-old fisherman was first presented with skin lesions while fishing for hake. When the fisherman had developed a fever and exfoliative skin lesions on both hands, the ship's captain called the radio-medical centre for the maritime consultation in Toulouse and for the advice on treatment. After 3 days on penicillin, the fever decreased, but the dermatitis became incapacitating. On his return to shore, the fisherman was hospitalised. Bacteriological swabs of the skin lesion showed colonisation with *Staphylococcus aureus* methi-S with presence of Panton Valentine leukocidin. Seven-day treatment with a follow-up of antibioticotherapy was necessary to resolve the skin eruption and obtain definitive apyrexia. Treatment ashore was advised because of difficulty in continuing manual work on board whilst suffering from significant skin lesions and also due to fear of contagion.

**Conclusions:** Skin infection with *Staphylococcus aureus* methi-S with presence of Panton Valentine leukocidin is difficult to treat on board because of difficulty in carrying out manual work when hands are affected, and also due to slow improvement of dermatitis even when appropriate treatment is undergone. The maritime environment is also a risk factor for skin abrasion, which can lead to secondary colonisation of pathogenic bacteria.

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**Key words:** *Staphylococcus aureus*, Panton Valentine leukocidin, fisherman, skin disease

## INTRODUCTION

*Staphylococcus aureus* (*S. aureus*) infections can be severe and may involve several organs. In case of osteomyelitis, pneumonia, endocarditis or septicaemia the vital prognosis can then be engaged [1–3]. Moreover, skin infections by *S. aureus* are sometimes impressive [4]. Some serotypes are well known to lead to striking exfoliative lesions. Skin damage must be treated with extreme caution [5].

Specific details of a case of a skin infection by a serotype of *S. aureus* in the maritime sector are here described to explore the difficulties in attempting to treat people on board. By exploring the details of a case of the fisherman presenting with *S. aureus* skin infection, we have analysed different reasons why this fisherman could not be successfully treated on board. We have also tried to understand what kind of infectious skin disease in fishermen is better cared for ashore than on board.



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## CASE REPORT

A 42-year-old fisherman was first presented with skin lesions while fishing for hake. Once the fisherman had developed a fever and inflammatory skin lesions on both hands, the ship's captain called the radio-medical centre for maritime consultation in Toulouse in France for the advice on treatment.

At the beginning of the disease the lesions were small and pustular, but furunculosis developed rapidly. After 2 days on amoxicillin, the fever decreased, but the dermatitis became incapacitating. On his return to shore the fisherman was hospitalised. Bacteriological swabs of the skin lesion showed colonisation with *S. aureus methi-S* with the presence of Panton Valentine leukocidin (PVL+). Twenty-one days of further antibiotic therapy was necessary to calm the skin eruption and obtain definitive improvement.

Treatment ashore was advised due to difficulty in continuing manual work on board whilst suffering from significant skin lesions (Figs. 1–3), and also due to fear of contagion. Local cure (antiseptics and local antibiotic therapy) was also important to avoid progression of exfoliative lesions.

## DISCUSSION

Regarding this case, it would appear inadvisable to continue working on board for different reasons.

Some reasons were related to work in the maritime environment. First of all, grasp with hands, which is necessary for tasks in fishing on a trawler, so that a major inability appears to prevent the work. Secondly, there is a difficulty in obtaining local antiseptics on board – indeed, environment includes biological hazards such as dead fishes. Many halophilic pathogens can then be found [6]. Finally, there was a fear of contagious disease amongst other fishermen. This can be explained by the smallness of fishing vessels and the resulting promiscuity. The maritime work is indeed linked to many epidemics in history [7].

On the other side, the lack of knowledge of the time frame for resolution of exfoliative lesions was another difficulty for the healing of our patient [4]. In addition, maritime environment is not favourable for skin problems such as these, partly because of the risk of bad scarring and also due to difficulty in avoiding activities leading to skin microtrauma. In the recent study, infections were the first dermatological cause requiring treatment at sea [8]. Furthermore, a retrospective study showed that the presence of pus, small abscess or furuncle, or suspected spider bite may suggest a methicillin-resistant *S. aureus* infection [9].

For the studied fisherman, it was the *S. aureus* PVL+ infection. Indeed, this type of infection is suspected if there are cutaneous pustules or furunculosis [10, 11]. For



Figure 1. Right hand attempt by *Staphylococcus aureus* (PVL+)



Figure 2. Left hand attempt by *Staphylococcus aureus* (PVL+)



Figure 3. Focus on the exfoliative skin lesion by *Staphylococcus aureus* (PVL+) on the fisherman's third finger

our patient, promiscuity was a risk factor [12]. Several complications of *S. aureus* PVL+ infection can occur, e.g.

sepsis, vein thrombosis or deep tissue lesions [13]. Given the frequency and potential severity of these infections, some propose to develop a vaccine [14]. The treatment of *S. aureus* PVL+ infection is difficult. After the treatment for eradication, a study showed that there were 33% of relapses at 1 month [15].

In fact, infectious skin diseases which can lead to serious damage to the cutaneous surface (and most of all the hands) are frequently incompatible with working on board, even if appropriate treatment is undertaken.

## CONCLUSIONS

Skin infection with Panton-Valentine leukocidin-positive *S. aureus methi-S* is difficult to treat on board due to difficulty in carrying out manual work when the hands are affected and also due to the slow improvement of dermatitis, even when appropriate treatment is undergone. For a definitive cure it is preferable to rest and to be treated onshore.

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