



## A Rare Cause of a Pressure Ulcer: A Single Hair

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### Abstract:

Pressure ulcers are the loss of tissue and remain a common problem in critically ill patients. These patients are at high risk for developing pressure ulcers because of their hemodynamic instability, malnutrition, and strictly limited physical activity and mobility due to neurological damage or drugs such as sedatives and muscle relaxants. Pressure is the most important cause of pressure ulcers. Contact surfaces such as patient's bed or wheelchair, and some medical devices such as pulse oximetry probe and urethral catheter can result in pressure. The case is reported here of a very rare cause of a pressure ulcer, which was a single hair on the patient's face.

**Key words:** Pressure ulcer, Critically Illness, Malnutrition, Oximetry, Urinary Catheters.

### Introduction

Pressure ulcers are the loss of tissue caused by a long duration of pressure on tissues, and have high treatment costs, morbidity and mortality [1]. They are common in all hospitalized patients, especially in intensive care unit (ICU) [1,2]. Critically ill patients are at particularly high risk of developing pressure ulcers because their physical activity and mobility are strictly limited due to neurological damage, anaesthetics, sedative drugs and muscle relaxants [1-3]. In addition, hemodynamic instability, malnutrition, specific medication such as vasoactive drugs, special ICU therapy such as mechanical ventilation and insufficient nursing care are other reasons for pressure ulcer [2-4].

The most common locations of pressure ulcers are the sacrum, coccyx, heels and ischium [2,5]. Less frequently, they can be seen on the shoulders, knees, elbow, scapula, and occipital region [5]. Pressure is the most important reason for the development of a pressure ulcer. In addition, the contact surface of a patient's bed or wheelchair, and the use of some medical devices such as pulse oximetry probe and urethral catheter may also lead to pressure [6,7]. Hair braids have been described by some authors as a potential risk factor for occipital pressure-related skin damage [8], but to the best of our knowledge there is no previous case in literature where a lesion was dependent on a single hair.

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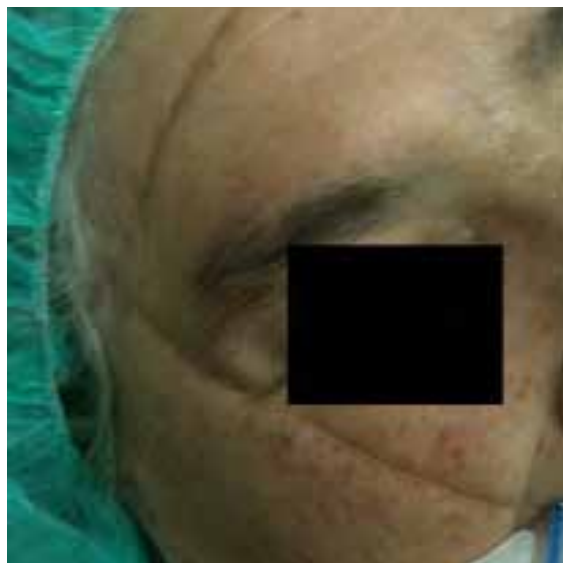
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### Case Report

A 67-year-old woman was admitted to ICU, and intubated due to diagnoses of pancreatic cancer, septic shock and acute respiratory distress syndrome (ARDS) at 11.00 pm. Her previous history included 15 years of diabetes mellitus (DM), hypertension and weight loss of almost 15 kg in the previous 3 months. APACHE II score was 28. Mechanical ventilation treatment was started (pressure control ventilation mode,  $\text{FiO}_2$ :1.0). Dopamine and noradrenaline infusions and fluid resuscitation were started because of low blood pressure. Cardiopulmonary resuscitation was effective at 20<sup>th</sup> minute of cardiac arrest that occurred 2 hours later. At about 8.00 am, during the routine visit, a lesion between the forehead and the edge of the mouth on the right side of her face was noticed by the duty shift medical team [Fig.1]. After a detailed examination, it was detected that a single white hair had been caught on the intubation tube during connection and had stretched the skin. Until a black band was put under it, the hair could not be easily seen because of the similar colour of the single hair and the skin [Fig.2].

The worst vital signs and laboratory parameters of the patient from admission until the realization of the lesion were as follows: blood pressure: 50/30 mmHg (with dopamine and noradrenaline), heart rate: 164 beats per minute (except in the asystolic period); temperature: 35.9°C;  $\text{PaO}_2/\text{FiO}_2$ :59; pH:7.11; base excess:-14 mmol/L; lactate level: 37 mg/dL; (reference: 4-20); hemoglobin: 8.0 g/dL; leukocytes: 19,700  $\text{mm}^3/\text{L}$ .

To resolve the problem, the hair was cut and the lesion had completely disappeared spontaneously about 6 hours later. This patient died of multiple



**Fig.1:** The lesion between the forehead and the edge of the mouth on the right side of her face, which was noticed by the medical team.



**Fig.2:** It can be seen that the colour of the single hair and skin were very similar.

organ failure on day 3 in ICU.

### Discussion

Pressure ulcer formation is an important nosocomial complication in ICU patients. Acute diseases which seriously impair the patient status, hemodynamic

instability and comorbid conditions such as DM increase the risk of pressure ulcers by causing tissue ischemia more easily [1,2]. Critically ill patients are generally in a catabolic status, which causes skeletal muscle weakness, decreased muscle mass and loss of soft tissue [9]. When the weight loss in the preceding 3 months due to the underlying cancer disease together with shock and ARDS, is considered in the case presented here, it is obvious that she was in catabolic status. Factors that accelerate the development of pressure ulcers, such as hypotension, hypoxia, high APACHE II score, catabolic status and the presence of a chronic disease (DM) might also have facilitated the development of a pressure ulcer due to a single hair in this case.

It has been reported that the ratio of medical staff per patient is a factor in the development of pressure ulcers. The decrease in the number of nurses on duty results in a decrease in the time of care for each patient, resulting in increase rate of pressure ulcers [10]. In our ICU, on the night shift one nurse takes care of 3 patients and it was most unlikely that anyone caring for patients on the night shift would have noticed any lesion on her face.

Pressure ulcers are an avoidable complication. Whenever they occur, life quality is impaired. In our ICU, the clinic nurses assess and record the potential parts of the body for a possible pressure ulcer. Although all hemodynamic, ventilation and laboratory parameters were found on her forms, no pressure ulcer record was found, and no scar or lesion on her face had been previously noted. This situation is expected in respect of the low number and exhausted condition of night shift nurses and physicians.

## Conclusion

All medical staff should be educated about the reasons for and the results of pressure ulcers.

It should also be kept in mind that not only bone notch areas make pressure on the skin but also the patient's own materials such as a single hair and all medical devices make pressure on the skin and may result in a pressure ulcer.

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