

Facial Tattoo and Wrong Site Surgery: Which Side Are We Operating On? Short Title: Tattoos and Wrong Site Surgery

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Abstract

Wrong-site surgery has catastrophic consequences for the patient, caregiver, institution, and profession. We present a case in which a healthcare provider initially mistook a tattoo of initials as the actual surgical site marking due to its similarity to the process of initialing the surgical site. Initialing the surgical site may not be an equivocal method of surgical site marking. Healthcare providers' vigilance over factors that may appear benign is essential for patient safety

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INTRODUCTION

Tattoos have become increasingly popular. In the United States, more than 45 million people have tattoos¹. Despite their popularity as well as ornamental and psychological attributes, tattoos carry significant health hazards. These health hazards include infectious risks (hepatitis, HIV), immune reactions, and cutaneous manifestations. Few medical practitioners, however, would envision that a simple facial tattoo opposite an intended surgical site could potentially leave an adolescent male completely blind.

We present a case in which a healthcare provider initially mistook a tattoo of initials as the actual surgical site marking due to its similarity to site-marking with initials over the surgical site. The process of marking one's initials at the surgical site per the recommendations of The Joint Commission's (JC) Universal Protocol may not, alone, be a fool-proof method of surgical site marking.

CASE DESCRIPTION

An 18 year old male with a left blind, painful, and phthisical eye was scheduled for left enucleation with placement of an orbital implant and left suture tarsorrhaphy under general anesthesia. The patient reported a history of tobacco, alcohol, and substance abuse. The patient had sustained a gunshot wound to the left orbit with a penetrating injury to

the left globe, resulting in blindness five months prior to this scheduled surgery. Physical examination was essentially normal except for his ophthalmologic findings, yet revealed a dark blue tattoo by the right eye bearing the initials "ILL". The left eye was appropriately marked by the surgical service (Figure 1).

Figure 1

Figure 1: Patient with tattoo "ILL" by nonoperative, right eye and surgical services' initials by operative, left eye.



The surgicenter preoperative nurse overseeing the care of the patient initially took the tattoo of initials as the surgical site marking. As per the University of Illinois Medical Center's protocol for signing out a patient from the surgicenter to the operating room, the surgicenter nurse confirmed the

laterality of the tattoos of initials by the right eye as the surgical site marking with the operative eye indicated on the surgical consent form. The surgicenter nurse found a discrepancy and both anesthesia and surgical services were notified. The correct surgical site was clarified by the surgeon. The tattoo site was then covered with opaque tape to avoid further confusion in the operating room when verification of patient, surgical procedure, and surgical site (“time out”) would occur prior to the surgery.

DISCUSSION

Wrong-site surgery (defined by the JC as surgery on the wrong person, the wrong organ or limb, or the wrong vertebral level²) can have catastrophic consequences for the patient, caregiver, institution, and profession. The Institute of Medicine found that at least 44,000 and possibly as many 98,000 Americans die each year from medical errors and the annual costs approach \$9 billion in the United States alone³. A wrong-site surgery was reported to insurance companies or a lawsuit was filed at a single large hospital about once every 5 to 10 years². Surgeons who work on symmetrical structures may have a 1 in 4 chance to be involved in a wrong-site error during their careers⁴. The resulting loss of trust from a wrong-site surgery in a caregiver, profession, and institution is immeasurable.

In 2004, the JC along with other professional organizations, including the American Academy of Ophthalmology implemented the Universal Protocol in an effort to prevent wrong-site surgery. The Universal Protocol consisted of three principal components: 1) Using a preprocedure verification process to confirm the details of the procedure. 2) Marking the operative or procedure site with a marker that will be permanent enough to be visible after the skin has been prepped. 3) Taking a time-out with all team members immediately before starting the procedure¹. Wrong-site surgeries are considered sentinel events (unexpected incidents related to a system or process deficiency which leads to death or major enduring loss of function for a patient⁵). The JC sentinel

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event statistics (December 31, 2008) showed that wrong-site surgery was the most common sentinel event, accounting for 13.2% of these events². A retrospective series concerning surgical confusion in ophthalmology included 62 cases from the New York State Department of Health’s New York Patient Occurrence Reporting and Tracking System

(NYPORTS) which represent all of the surgical confusions reported from 900,000 eye surgeries between 2001 and 2005⁶. These surgical confusions included wrong-eye operations, wrong lens implants, wrong-eye blocks, wrong patient or procedures, and wrong corneal transplants⁶. These statistics suggest an incidence of 69 surgical confusions per 1 million eye operations⁶. The surgical confusions in ophthalmology as well as the incidence of 1300 to 2700 wrong-side/wrong-site, wrong-procedure, and wrong-patient cases per year out of 75 million surgical procedures performed annually in the United States⁷ each are more than 5-10 times greater than that accepted by the manufacturing industry’s quality-defect standard Six Sigma³.

However, despite the development of the JC’s Universal Protocol these current measures have not corrected nor decreased the incidence of wrong-site surgery. Wrong-site surgeries have continued to increase steadily since 1995⁴. Error prevention for wrong-site surgery involves compliance with the Universal Protocol, involvement of the patient to confirm the procedure site and procedure, reporting of all errors with a root cause analysis and the resulting findings of the root cause analysis as well as unequivocal surgical site marking. In terms of the marking of the surgical site to prevent wrong-site surgery, the JC’s Universal Protocol states that the procedure mark is marked near the procedure site or the incision site, includes preferably the surgeons’ initials, and is made using a marker that is sufficiently permanent to remain visible after completing the skin prep and sterile draping^a. However, the letters “NO” to indicate the nonoperative site or an individual’s initials can, as shown in our case, lead to confusion with a tattoo which can be located anywhere on the body. As in our case, the use of a marking pen to make initials on the surgical site led to an unacceptable inconsistency in the type of mark, meaning of mark, size of mark, and accuracy of the mark. To avoid these inconsistencies, future considerations for our institution as well as other institutions involves an opaque covering of tattoos over similar structures.

This is the first case report of a facial tattoo contributing to a very near miss of unnecessary harm. In this situation, a healthcare provider mistook a tattoo of initials as the actual surgical site marking due to its similarity to a process of marking one’s initials at the surgical site. If the patient proceeded to the operating

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room without clarification of the surgical site, the surgeon could have operated on the wrong eye and rendered the patient completely blind. Our multidisciplinary, multistep process at the University of Illinois Medical Center, healthcare provider vigilance, and implementation of the Universal Protocol helped prevent a deleterious outcome in this patient.

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