



PATIENT SAFETY RESOURCES

FIRE IN THE OR

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DESCRIPTION

A 74-year-old male undergoing a temporal artery biopsy suffered second-degree burns on his face when oxygen came into contact with the electrocautery device being used for the procedure.

KEY LESSONS

- The risk of an operating room (OR) fire should be assessed in the holding area, as well as early in the time out checklist
- Implement standardized annual OR fire education for all team members

CLINICAL SEQUENCE

A 74-year-old male with a history of right-sided neck pain and temporal headaches was admitted to the hospital for a temporal artery biopsy to rule out temporal arteritis. In the OR, the circulating nurse put the electrocautery device on a standard setting. The anesthesiologist placed a face mask on the patient, covering his nose and mouth, to deliver oxygen (a strap could not be used as the area needed to be accessed for the biopsy).

The vascular surgeon applied a local anesthetic and then, assisted by an intern, draped the patient's face and prepped him with a chlorhexidine gluconate solution. Due to the drapes, the anesthesiologist was unable to fully visualize the vascular surgeon or the patient's face.

The patient's skin was incised with a scalpel, then the dissection of subcutaneous tissue with electrocautery started. The surgeon observed a yellow spark from the tissue, along with the smell of smoke, and the patient began thrashing around. The scrub nurse pulled back the drapes and observed flames in the mask. The mask was removed, the oxygen was turned off, and the fire was put out by dousing it with saline. A fire alarm was pulled per protocol.

An ENT consult was obtained. The patient had singed nose hair and a burned lip. His wounds were cleansed, and he was given pain medication. The patient was intubated and transferred to another hospital's burn unit for further treatment of neck and facial edema.

Subsequently, the patient was discharged home with services for wound care.

ALLEGATION

The patient sued the vascular surgeon for negligence while using a cautery device that resulted in his burns.

DISPOSITION

This case was settled in the high range (>\$500,000).

ANALYSIS

The risk of OR fires, which can have devastating consequences, is underappreciated.

Any procedure that uses cautery should be considered a high risk for fire, particularly if it is used above the xyphoid process. In this case, the procedure involved the three components of the fire triad: the use of cautery on the head (an ignition source), a loose oxygen mask on the face (an oxidizer), and the use of a flammable cleansing agent (fuel), which were within inches of one another. The Joint Commission now requires organizations to periodically evaluate potential fire hazards that could be encountered during operative or invasive procedures and to establish written fire prevention and response procedures, including safety precautions related to the use of flammable germicides or antiseptics. An annual standardized OR fire education program of all OR trainees and staff combining didactic and interactive components would provide a strong foundation for preventing fires in the OR. The Association of Operating Room Nurses has produced a Fire Safety Tool Kit for educational purposes.

The need for a fire risk assessment should begin before the patient enters the OR.

At the time of this event, a fire risk assessment was not done. As a result of this incident, a fire risk assessment is being performed at the time out for all procedures at this organization. Although this is a step in the right direction, the optimal time to do a fire risk assessment is before the patient enters the OR, as this will provide time for the anesthesiologists to adjust their plans accordingly. In addition, the final time out before the procedure begins should also include a fire risk assessment, ideally at the top of the checklist.

A task force convened by the [Academic Medical Center Patient Safety Organization](#) published [Patient Safety Guidance for Perioperative Fire Safety](#), which provides additional guidance in OR fire risk reduction.

