Inhaled Betadine Leads To Rare Surgical Complication

A routine step in preparing for cleft palate surgery in a child led to an unusual—but not unprecedented—case of lung inflammation (pneumonitis), according to a report in the The Journal of Craniofacial Surgery. The journal, edited by Mutaz B. Habal, MD, FRCSC, is published by Lippincott Williams & Wilkins, a part of Wolters Kluwer Health.

The complication resulted from accidental inhalation of povidone-iodine (PI), or Betadine—an antiseptic widely used before surgery. The rare complication led to new surgical "prep" steps to reduce the chances of inhaling PI during head and neck surgery, write Drs. Kyle J. Chepla and Arun K. Gosain of University Hospitals–Case Medical Center, Cleveland.

Betadine Inhlation Leads to Chemical Pneumonitis

Drs. Chepla and Gosain describe their experience with Betadine-induced pneumonitis in a seven-year-old girl undergoing surgery for a persistent cleft palate deformity. After a breathing tube was placed and anesthesia was induced, the patient underwent routine surgical prep—including scrubbing and rinsing the nose and mouth with Betadine.

Betadine is the familiar antiseptic, orange or yellow in color, used before many types of medical and surgical procedures. In the case report, Dr. Kepla writes that he has routinely used Betadine for prep before craniofacial surgery for more than 20 years with no complications.

But in this case, shortly after rinsing the inside of the nose, the surgeons noted Betadine in the patient's breathing tube. She rapidly developed difficulty breathing, with a drop in blood oxygen levels.

The procedure was stopped and the patient was rushed to the ICU for treatment. Although the child eventually recovered completely, she required seven days of mechanical ventilation.

This patient's condition was diagnosed as chemical pneumonitis—inflammation of the lungs caused by inhalation of some type of irritant. Pneumonitis most commonly results from inhalation (aspiration) of the stomach contents.

Because it is effective against a wide range of bacteria, viruses, and other pathogens, Betadine is one of the most commonly used disinfectants. It is useful in preparing for surgical procedures of the head and neck, because it does not irritate the mucosal lining. However, studies in animals have shown that Betadine can cause inflammatory damage to the lungs, if inhaled.

Prompted by their experience, Drs. Chepla and Gosain performed a comprehensive review of the medical literature to look for similar cases. The review identified three previous cases of chemical pneumonitis caused by Betadine after disinfection of the mouth. All patients recovered after a period of mechanical ventilation.

Although Betadine-induced pneumonitis appears very rare, Drs. Chepla and Gosain have modified their routines to reduce the risk of this complication. They write, "We conclude that PI is safe to use as a disinfectant before head and neck surgery, but surgeons need to be aware of the risk for PI aspiration and take the appropriate steps to prevent its passage into the tracheobronchial tree."

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