

# Medical Safety Information

Pharmaceuticals and Medical Devices Agency



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## Precautions in Handling of Electric Scalpels (Part 1)

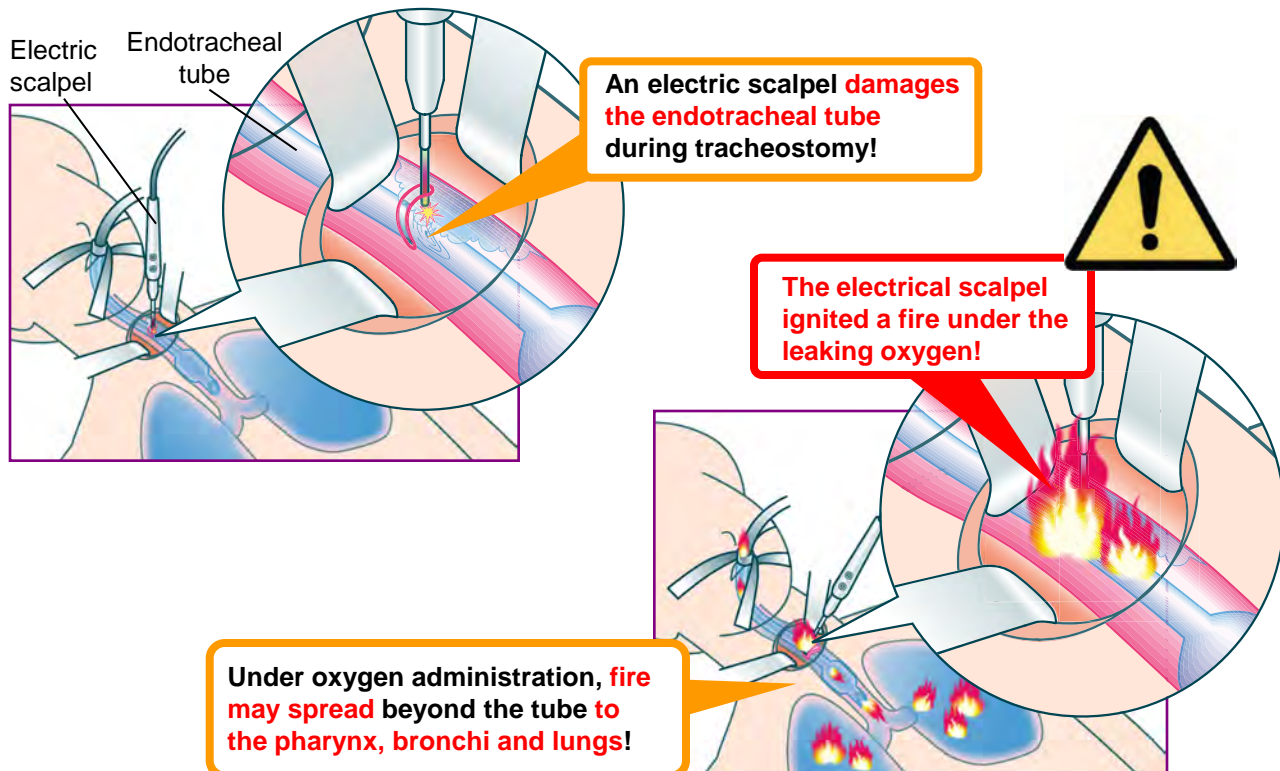
### POINT

Key points for safe use

**(Case 1)** During using an electric scalpel in tracheostomy in a patient with endotracheal tube for ventilation support, a fire started at the incision site causing severe burns on the patient's airway, pharynx, and face, among other areas.

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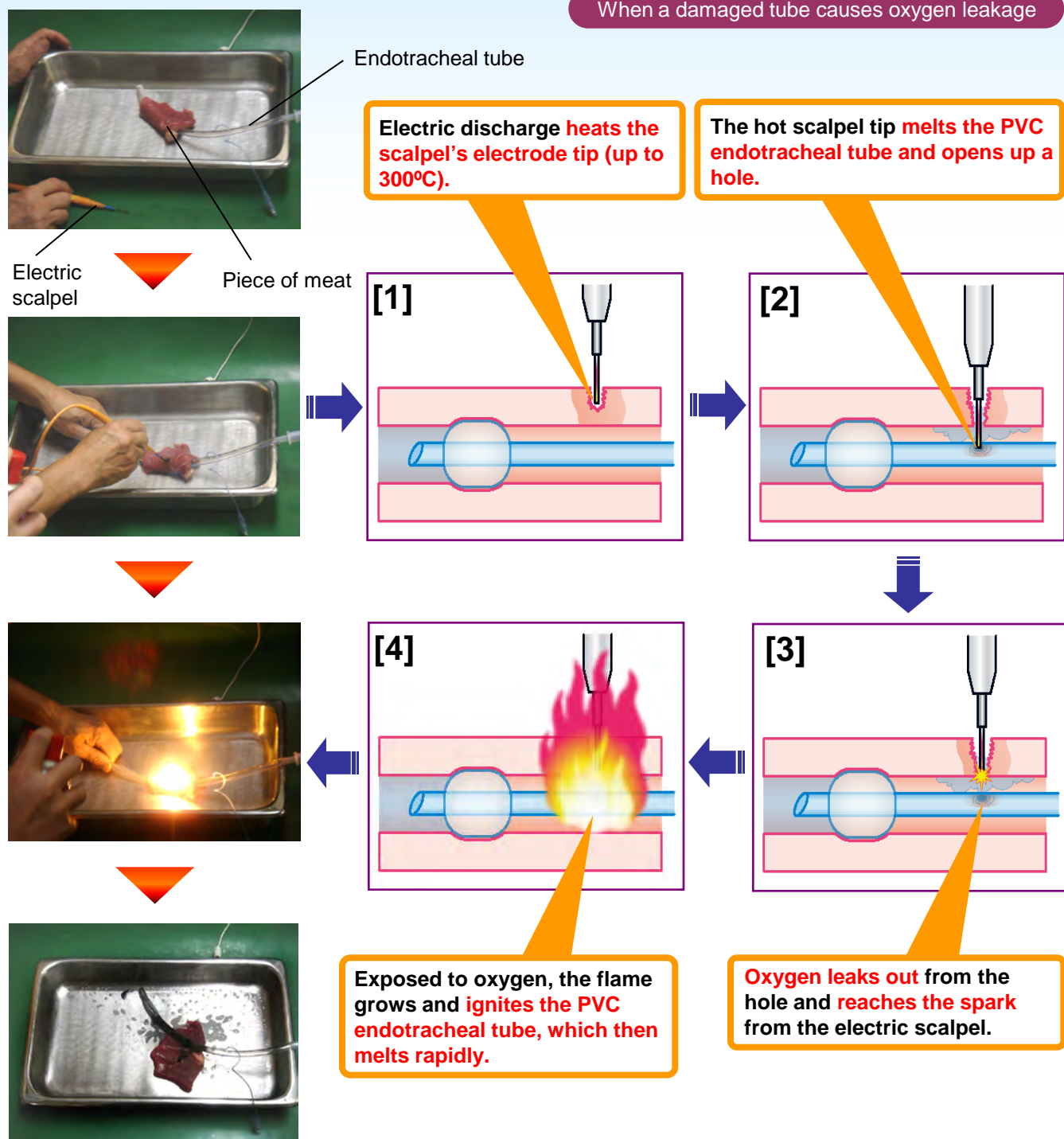
Precautions when using an electric scalpel in a patient with an endotracheal tube



Oxygen is a combustion enhancing gas. When exposed to oxygen, the spark generated at an electric scalpel's electrode tip rapidly grows. Once ignited, the flame may be difficult to extinguish until the oxygen supply is shut off.



## Mechanism of ignition (1)

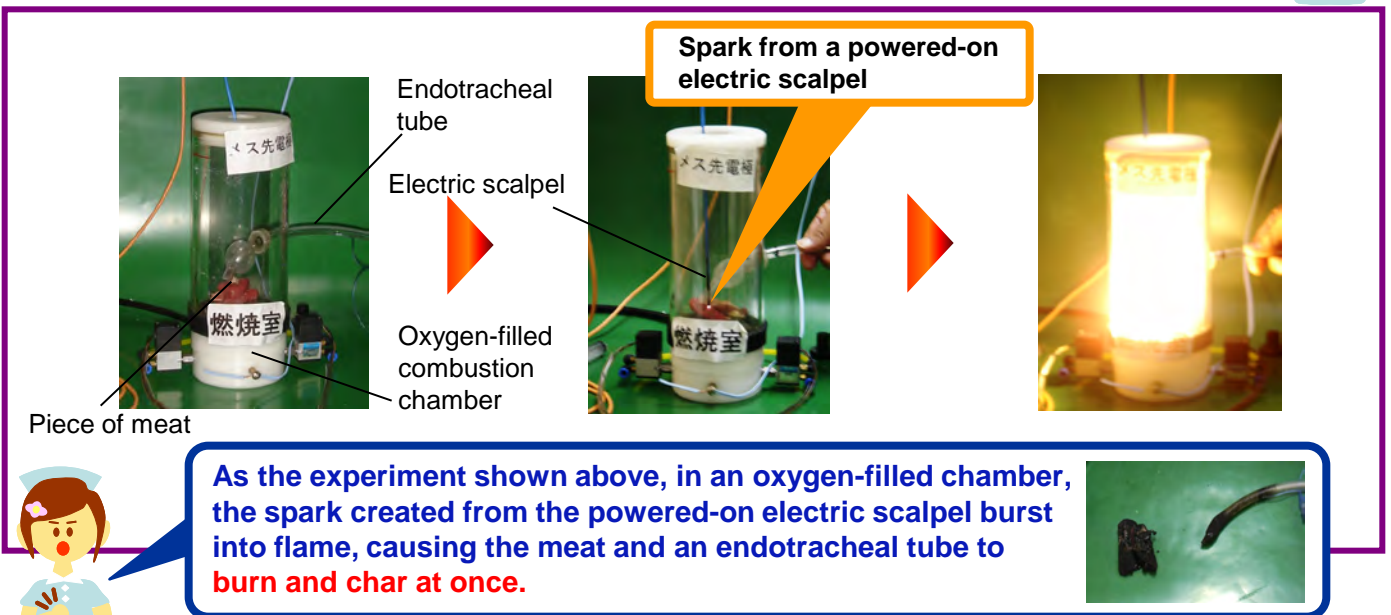
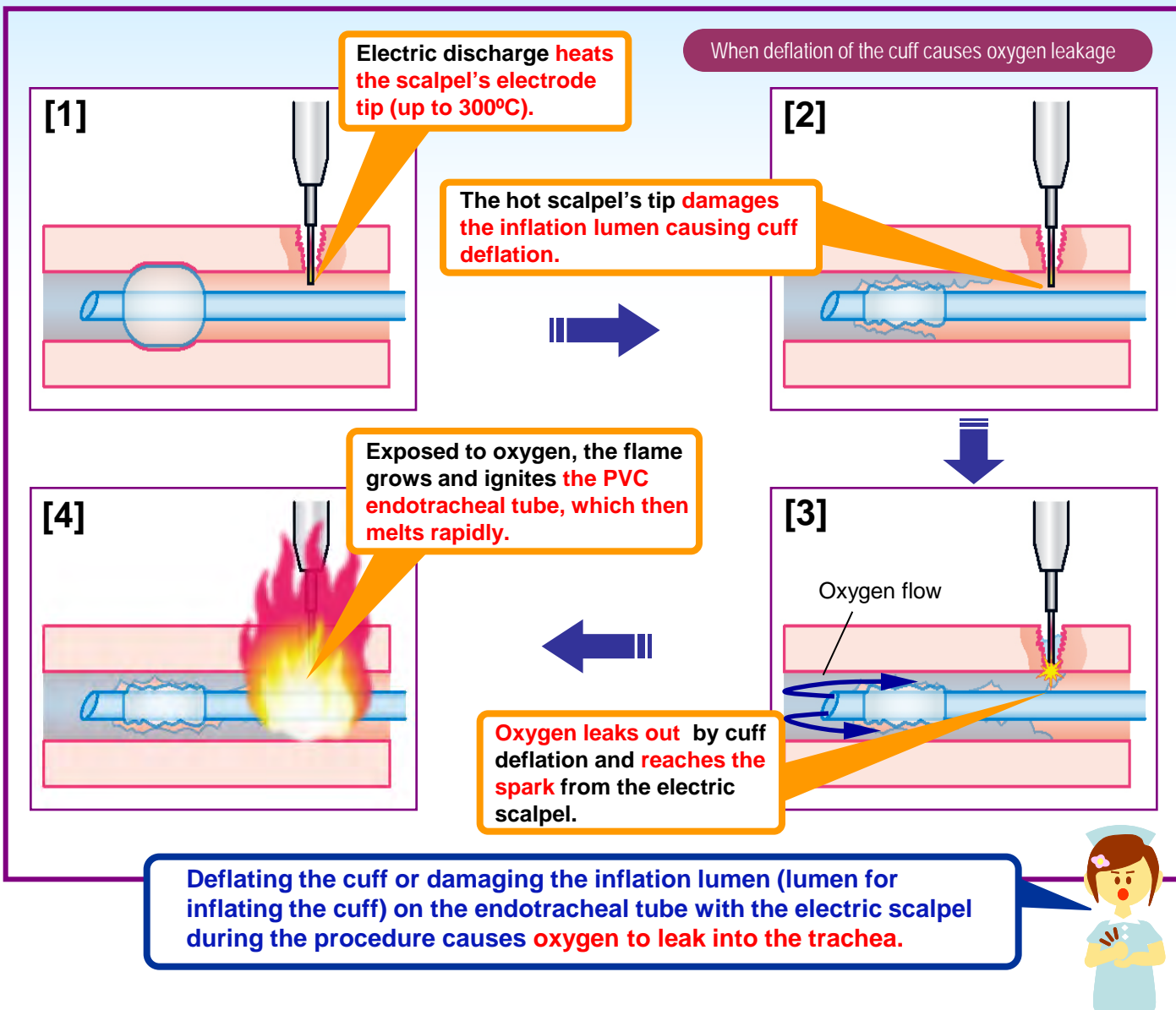


(The Technology Division, Surgical Scalpels Committee, JAMDI assisted in this experiment)

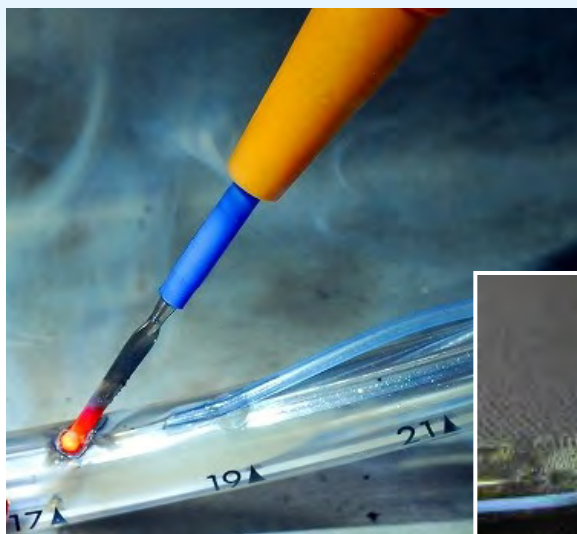
**In principle, use a surgical scalpel in tracheostomy under oxygen administration! Even if the use of an electric scalpel is required, its use should be avoided in tracheal fenestration. In addition, perform hemostasis with careful monitoring of any endotracheal tube damage and balloon deflation-induced oxygen leak.**



## Mechanism of ignition (2)



## Photo evidence: endotracheal tube damage caused by an electric scalpel



During hemostasis and coagulation of tissues, the scalpel tip heats up and causes the endotracheal tube to melt easily!



(The Technology Division, Surgical Scalpels Committee, JAMDI assisted in this experiment)

\* Videos of these experiments are also available.

JAMDI <http://www.jamdi.org/anzen/index.html>

### About this information

- \* PMDA Medical Safety Information is issued by the Pharmaceuticals and Medical Devices Agency for the purpose of providing healthcare providers with clearer information to promote the safe use of pharmaceuticals and medical devices. The information presented here has been compiled, with the assistance of expert advice, from cases collected as Medical Accident Information Reports by the Japan Council for Quality Health Care, and collected as Adverse Drug Reaction and Malfunction Reports in accordance with the Pharmaceutical Affairs Law.
- \* We have tried to ensure the accuracy of this information at the time of its compilation but do not guarantee its accuracy in the future.
- \* This information is not intended to impose constraints on the discretion of healthcare professionals or to impose obligations and responsibility on them, but is provided as a support to promote the safe use of pharmaceuticals and medical devices by healthcare professionals.