PMDA
Medical Safety Information
Pharmaceuticals and Medical Devices Agency

Extra issue No. 3 March 2022

Reminder Series No. 3 (Precautions for Magnetic Resonance Imaging (MRI) Scans)

Although the precautions for MRI scans were published in 2011 as PMDA Medical Safety Information, similar cases continue to be reported. Precaution points to be considered for MRI scans are summarized below from the past PMDA Medical Safety Information issues.

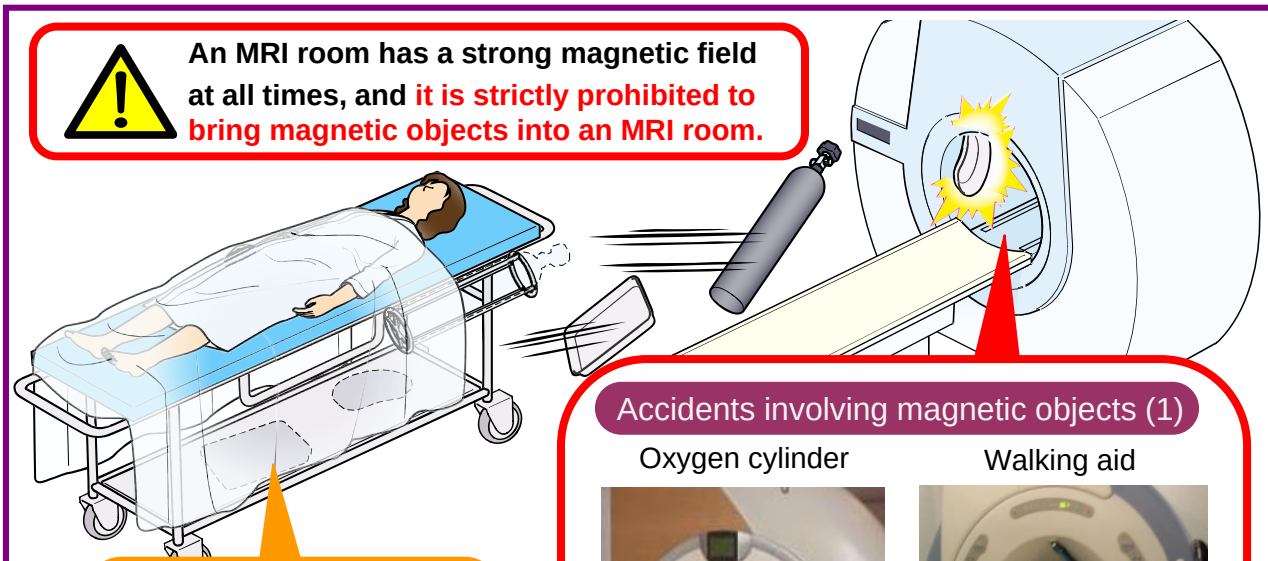
(Case 1) When a patient was transferred to an MRI room on an MRI stretcher for an MRI scan, an oxygen cylinder beside the stretcher was swiftly pulled towards the gantry, where it became stuck.

(Case 2) A nurse brought hemostatic surgical tape without realizing the blade of the tape dispenser includes metal. It directly hit a patient's head because it was magnetically pulled towards the MRI gantry.

1 Precautions against magnetic objects

- Make sure that there are no magnetic objects before entering an MRI room.

An MRI room has a strong magnetic field at all times, and it is strictly prohibited to bring magnetic objects into an MRI room.



Be careful about metal trays placed in blind spots, such as under drapes.

Accidents involving magnetic objects (1)

Oxygen cylinder

Walking aid

Photos by Japan Industries Association of Radiological Systems

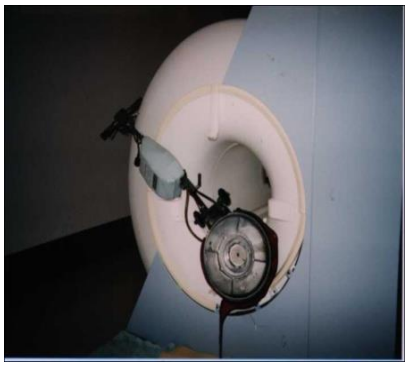
There have been reports of accidents where patients or healthcare professionals were injured by being hit by flying magnetic objects such as oxygen cylinders or stretchers.

Accidents involving magnetic objects (2)

Bed

Infusion stand

Cleaning tool



Photos by Japan Industries Association of Radiological Systems

See the checklist before entering an MRI room. (https://www.pmda.go.jp/files/000144268.pdf) published by the industry group along with this PMDA Medical Safety Information.

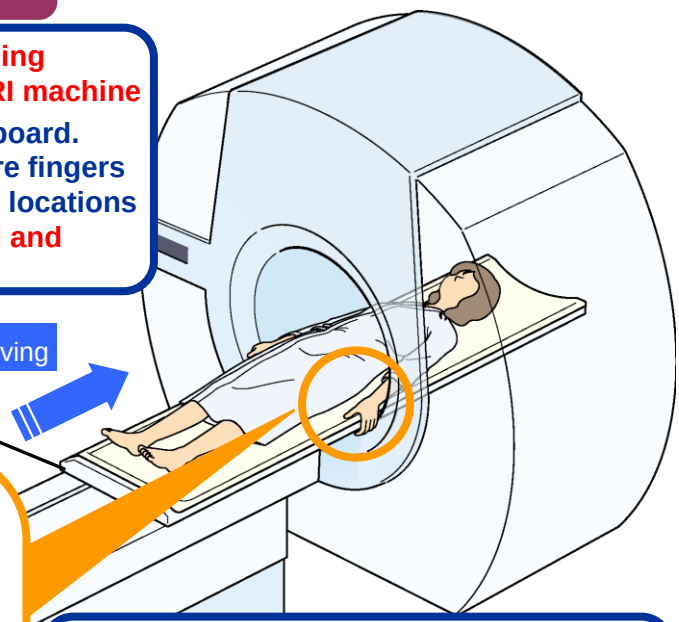
(Case 3) Patient's fingers were caught in the gap between a top board and the gantry entrance and resulted in injury while moving the top board. The accident occurred because the patient was moved into the gantry with his/her fingers grasping the top board.

2 Precautions against fingers being trapped

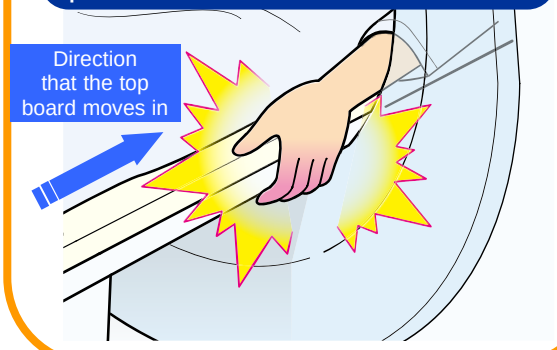
- Provide patients clear instructions not to grasp the top board during an MRI scan.

Cases of fingers being trapped

There is also a risk of fingers being trapped in the gap within the MRI machine if patients are grasping the top board. Please check the locations where fingers may become trapped, and these locations may vary depending on the kind and structure of the machine.



Fingers being trapped in the gap between the top board and patient table.

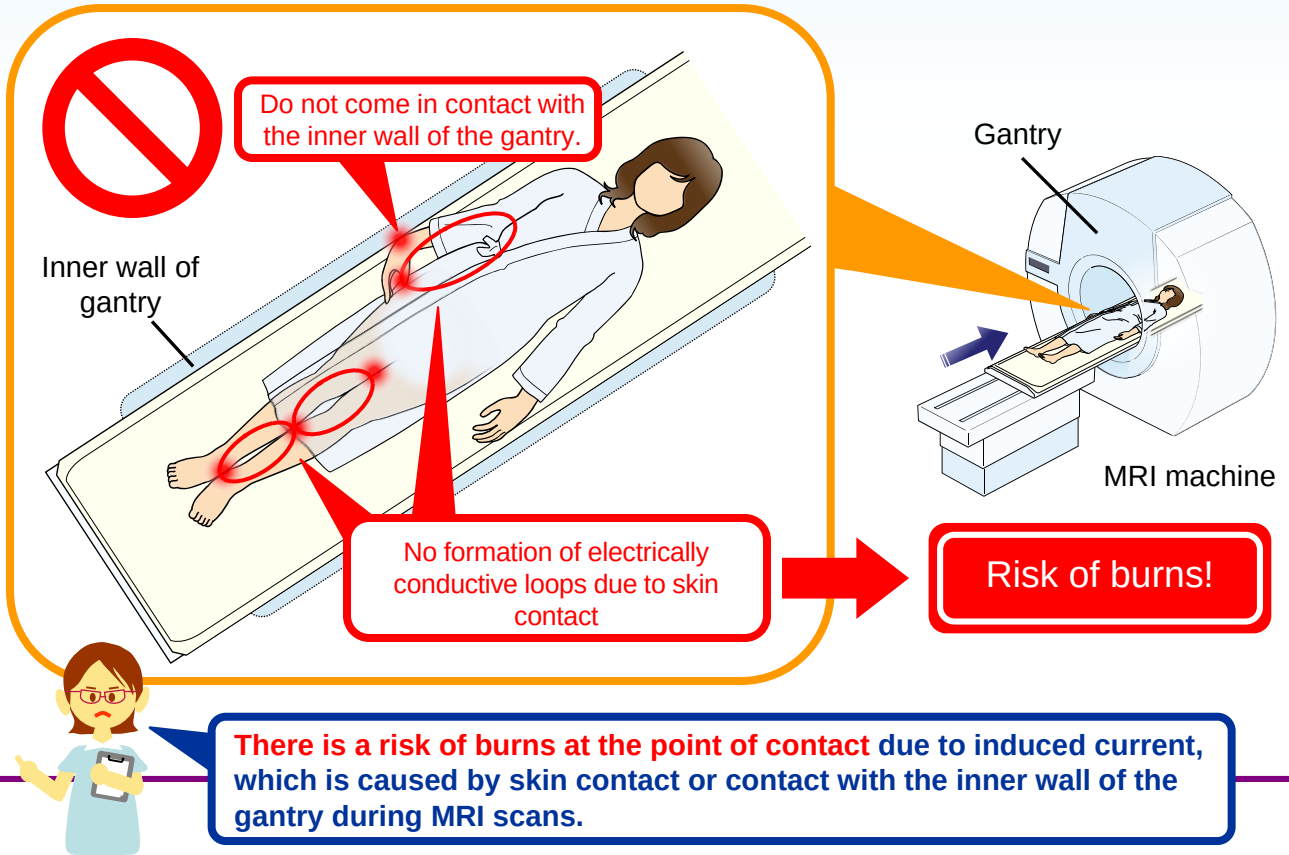


Careful attention should also be paid when using computed tomography (CT) machines which have a similar structure. Please use fixed bands for patients who have difficulty in maintaining an appropriate position.

(Case 4) A patient received a burn (Degree I-II) on the inside of the thigh after having an MRI scan. Contact of the insides of the thighs during the MRI scan may contribute to forming electrically conductive loops.

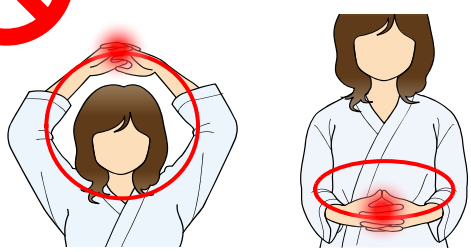
3 Precautions for burns (Part 1)

- Make sure that there is no skin contact in the patients' arms and legs at positioning.
- Provide patients with clear instructions not to move (change their body position) while being scanned in the MRI machine.



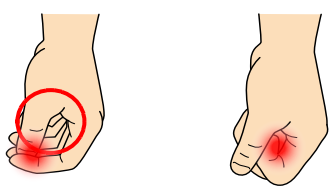
There is a risk of burns at the point of contact due to induced current, which is caused by skin contact or contact with the inner wall of the gantry during MRI scans.

Inappropriate position (1)



Arms folded

Inappropriate position (2)

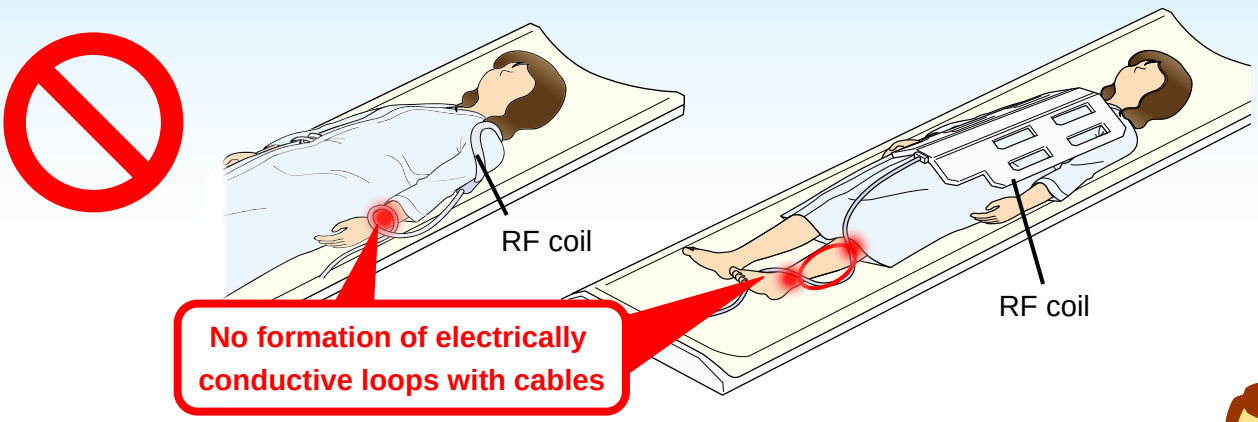


Hand clenched

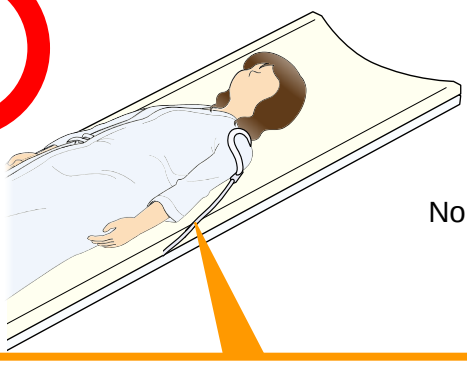
Appropriate position

4 Precautions for burns (Part 2)

- Do not put cables/cords of radio frequency (RF) coils and electrocardiogram monitors, etc. in contact with the patients' skin.

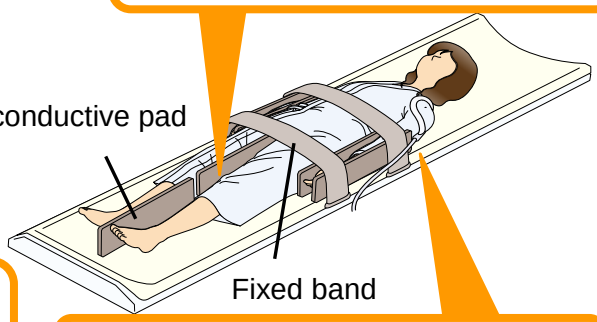


There is a risk of burns or failure of equipment if cables of RF coils, etc. form loops.



Skin should not be in contact with cables.
Loops should not be formed with cables.

Place non-conductive pads or dry towels, etc. at sites with a risk of contact.



Place cables so that they pass outside of non-conductive pads.

Check the following PMDA Medical Safety Information related to this "PMDA Medical Safety Information reminder series."

- PMDA Medical Safety Information No.25 "Precautions for Magnetic Resonance Imaging (MRI) Scans (Part 1)"
- PMDA Medical Safety Information No.26 "Precautions for Magnetic Resonance Imaging (MRI) Scans (Part 2)"

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 from the perspective of promoting 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 Law on Securing Quality, Efficacy and Safety of Pharmaceuticals and Medical Devices.
* 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.
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Access to the most up-to-date safety information is provided via the PMDA Medi-navi service.

Published by the Pharmaceuticals and Medical Devices Agency

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