



Japan Council for Quality Health Care

Project to Collect Medical Near-Miss/
Adverse Event Information

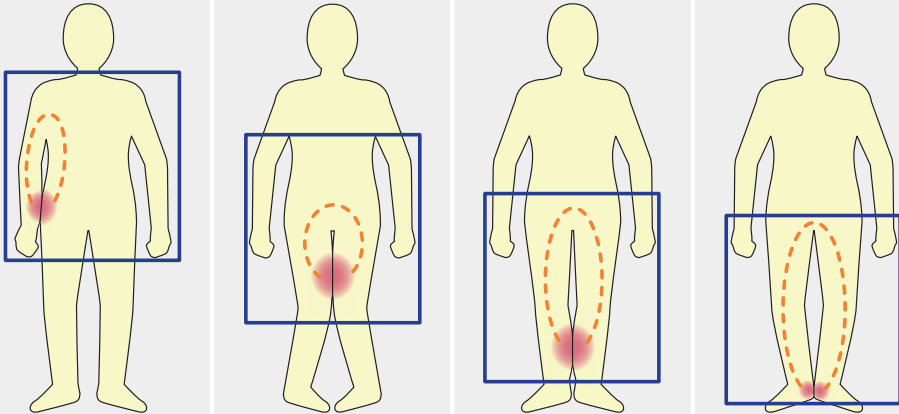
Medical Safety Information

No.56, July 2011

Burns caused by a high-frequency electric current loop during MRI examination.

Five cases of burns due to a high-frequency electric current loop occurring somewhere on the body, as a result of skin to skin contact of the patient during MRI examination, have been reported (information collection period: from January 1, 2007 to May 31, 2011; the information is partly included in “Individual Theme Review” in the 22nd Quarterly Report).

When skin to skin contact occurs during MRI examination, a loop of high-frequency electric current is formed, which may cause burns.

These occurred in the region of high-frequency magnetic field (solid line) and the high-frequency electric current loop (dotted line)				
	Burn regions	Right hip and right forearm	Medial thigh both sides	Medial calf both sides
Number of reports	1	1	1	2

◆ Burns caused by a high-frequency electric current loop are:

In the high-frequency magnetic field, a part of patient's body where skin-to-skin contact is formed, create high-frequency electric current loop inducing electromotive force and lead to inducing electric current. As a result, burns occur due to increased temperature.

Burns caused by a high-frequency electric current loop during MRI examination.

Case 1

During an MRI contrast examination on the pelvic region, the patient complained that “both lower legs are hot.” Heat due to MRI was suspected and the skin surface was checked, but there was no implant, foreign material, or tattoo on the skin. No skin reaction was observed, and examination continued. After examination was completed, the patient said “my legs became hot again during the examination,” and a 1×2cm erythema and blister on the medial calves was observed. The patient had a well-developed gastrocnemial muscle, so the burns were assumed to be caused by a looped high-frequency electric current, because the medial calves were in contact when the patient was lying on the examining table.

Case 2

A body coil was wrapped around both knees for an MRI examination on both knees. At this time, the leg of the patient was covered by a towel, and contact by an exposed heels was not noticed. After completion of the examination, the patient complained “it was hot,” and the burns of heels caused by a looped electric current was confirmed.

Preventive measures taken at the medical institutions in which the events occurred.

- During MRI examination, position the body so that the skin does not come into direct contact by using insulation material such as a towel.
- If the patient shows any symptoms during the examination, discontinue the examination, and confirm.

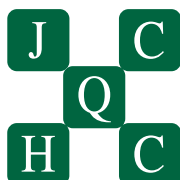
Complementary comment by the Comprehensive Evaluation Panel

- Notify all the staff this information within the medical institution.
- Explain to the patient that during an MRI examination, a hand or leg should not be in contact with another part of the body to avoid the risk of being burned.

* As part of the Project to Collect Medical Near-Miss/Adverse Event Information (a Ministry of Health, Labour and Welfare grant project), this medical safety information was prepared based on the cases collected in the Project as well as on opinions of “Comprehensive Evaluation Panel” to prevent occurrence and recurrence of medical adverse events. See quarterly reports and annual reports posted on the Japan Council for Quality Health Care website for details of the Project.
<http://www.med-safe.jp/>

* Accuracy of information was ensured at the time of preparation but can not be guaranteed in the future.

* This information is neither for limiting the discretion of healthcare providers nor for imposing certain obligations or responsibilities on them.



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