



## Case Study

### SKIN BURNING AFTER RADIOFREQUENCY ABLATION FOR HEPATOCELLULAR CARCINOMA

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#### ABSTRACT

An 81-year-old man with chronic hepatitis C and hepatocellular carcinoma (HCC) underwent radiofrequency ablation (RFA). After three weeks, third degree skin burns occurred at a bilateral anterior thigh grounding electrode pad site. To prevent skin burning due to electrode pad there is a need for cooling and steroid application if there is redness.

#### INTRODUCTION

Radio frequency ablation (RFA) is widely used as a minimally invasive treatment for hepatocellular carcinoma (Rossi *et al.*, 1995 and Livraghi, 2001). However, various complications have been reported. To avoid these complications, it is important to plan a strategy based on the well-established occurrence mechanism. We experienced a case with skin burning due to electrode pad after RFA. We discuss the strategy for preventing skin burning.

#### Case Report

An 81-year-old man with chronic hepatitis C and hepatocellular carcinoma (HCC) was hospitalized for radiofrequency ablation (RFA). He had a history of four radiofrequency (RFA) procedures for each recurrent HCC. However, he did not have complications according to RFA until now. As in the past, RFA was performed percutaneously for fifth recurrent HCC under real-time ultrasound guidance with a 5cm Star Burst XL electrode (Angio Dynamics; Queensbury, NY) during sedation. The next day after RFA, redness was revealed at a bilateral anterior thigh grounding electrode pad site.

After one week, redness progressed to a blister. Furthermore, it was diagnosed as third degree skin burns after three weeks, as shown in Figure 1. Procedures such as debridement and skin grafting were not necessary fortunately by repeating the cooling and steroid coating.



Fig. 1. Clinical Photograph

Three weeks after RFA, third degree skin burnings developed on the patient's anterior thigh grounding electrode pad.

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## DISCUSSION

Although skin burning is one of the RFA complications (Curley, 2004; Curley *et al.*, 2007 and Koda *et al.*, 2012), there are divided into two skin burnings. One skin burning is by a grounding electrode pad. The other skin burning is by an exposed point from which the insulating coating damage around the ablation needle had peeled away. The incidence of skin burning due to electrode pad was relatively low. However, this complication is often discovered late, because RFA is often performed with local anesthesia and sedation. In addition to this situation, skin burning tends to be severe since the RFA energy time is prolonged. These skin burnings are considered to be RFA-specific complications. We shall take the measures to understand the strategy for preventing skin burning. To prevent skin burning due to electrode pad 1) shaving a return electrode application site, if necessary, washed and dried, 2) are arranged in good both thighs of blood flow, parallel to the long sides of the body so as to be positioned, 3) skin scars, inflammatory part, adipose tissue, bone ridges, metal prosthesis, the ECG electrodes and cables, tends to collect site of the liquid is avoided, 4) firmly that it is in close contact with the skin it is essential to ensure a necessary response early on to the skin when the return electrode burns was suspected. Specifically, there is a need for cooling and steroid application if there is redness.

## Conclusion

RFA is a low-risk treatment for HCC. However, we should check electrode pad condition for preventing skin burning.

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