OBJECTIVES: The purpose of this study was to evaluate a substrate-modifying, primarily potential-guided catheter ablation approach as a bailout therapy in patients with complex myocardial infarction and electrical storms due to ventricular tachyarrhythmias (VTs).

BACKGROUND: Management of electrical storm is a domain of medical treatment. A definite trigger or delineated scar has been characterized as a requirement for substrate-orientated ablation of intractable unmappable ventricular tachyarrhythmias but can be absent, as shown in the presented cases.

METHODS: Five patients who presented with ischemic cardiomyopathy and severe reduced left ventricular ejection fraction also suffered from multiple types of unstable VTs that deteriorated into drug-refractory electrical storm. Patients had 96 to 580 VT episodes requiring therapy with an implantable cardioverter-defibrillator (ICD) and received 3 to 310 shock deliveries prior to ablation. Treatment with beta-blockers, amiodarone, class IB antiarrhythmic drugs, deep sedation, and overdrive pacing and/or cardioversion of incessant VTs failed to stabilize the electrical storm but enabled left ventricular electroanatomic voltage mapping. A simplified substrate modification was performed by ablation of delayed
fractionated potentials in areas identified by pace mapping, matching three to eight documented types of VTs per patient in complex scar areas. RESULTS: All patients could be stabilized after ablation. During 12 to 30 months of follow-up, three patients remained free of any VT episode requiring ICD treatment, and two patients had <1 VT episode per month. CONCLUSIONS: The cases presented demonstrate that rescue VT ablation of drug-refractory electrical storm is possible by a substrate-orientated ablation approach even in patients with complex chronic infarction and various VTs.