

Pacemaker lead fracture following chiropractic manipulation

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Background: Lead fracture is a known complication of pacemaker implantation with serious consequences. Chiropractic manipulation is a common practice, with known complications, and widely used by the general public.

Objective: To describe a case of pacemaker lead fracture after chiropractic manipulation, resulting in syncope with convulsion.

Method: Case report

Results: A 23-year-old female presented after syncope during chiropractic manipulation. She had a history of pulmonary atresia and VSD repaired in infancy and post-surgical heart block resulting in pacemaker dependence. She had an abdominal generator, with an epicardial atrial lead and a tunneled subclavian transvenous ventricular lead. The patient was standing facing the practitioner, who then performed thoracic spine adjustment involving circumferential pressure around the chest. She instantly dropped and began to have jerking movements before regaining consciousness a few moments later.

On presentation, she had a heart rate of 35 with complete heart block and ventricular escape. Imaging demonstrated a fracture of the ventricular lead near the costal margin, with interrogation of the device demonstrating failure of the lead on the day of syncope. The patient underwent new dual chamber pacemaker implantation, did well post-operatively and was discharged home.

Discussion: Limited pediatric studies have shown risk factors for lead fracture are congenital heart disease, device implantation before age 12, and epicardial leads. Major predictors of lead fracture include high LVEF, prior device implantation on the same side, history of prior fracture, and approach from a non-cephalic vein. Convulsant syncope is a known complication of lead fracture and failure to pace. Chiropractic manipulation has been associated with medical complications, including inappropriate ICD discharge due to EMI from transcutaneous electric stimulators.

Conclusion: To our knowledge, this is the first reported case of cardiac device lead fracture with chiropractic manipulation. Patients with cardiac implanted devices may be counseled on potential risks of manipulation.