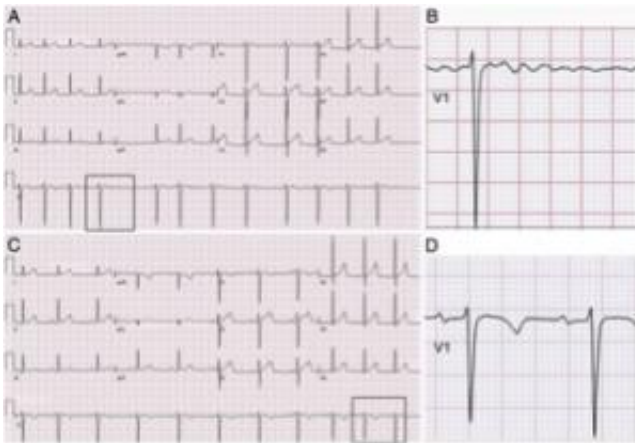


# Blow to chest may trigger potentially dangerous heart rhythm

December 15 2014, by Tina Shelton

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ECG reveals AF with irregular ventricular rhythm; B, enlarged insert from lead V1; C, follow-up ECG 3 days after presentation showing spontaneous resolution to normal sinus rhythm; D, enlarged insert from lead V1.

A hard hit to the chest can cause an irregular heartbeat that may lead to death even days after the impact, according to an upcoming article in the journal *Pediatrics*, based on a case involving a 16-year-old Hawai`i football player. The case, and its diagnosis by a University of Hawai`i (UH) medical professor, likely will change the way physicians diagnose the potentially fatal complication, and suggests chest protection gear should be standard in sports.

Pediatric Cardiologist Andras Bratincsak, MD, PhD, of the John A. Burns School of Medicine (JABSOM) and Kapi`olani Medical Center

for Women and Children (Hawai'i Pacific Health), is the first physician to discover that blunt trauma to the chest can cause an arrhythmia in the atrial, or upper chamber, of the heart. While doctors knew such trauma could cause arrhythmia in the ventricle, or lower heart chamber, and even sudden death, they had not realized before the potentially lethal affect on the upper or atrial chamber of the heart.

"It doesn't cause an immediate collapse on the field, but it can cause fatal consequences, including stroke, as long as four days afterward," said Dr. Bratincsak. "And that may be why we (in medicine) may not have recognized the link between a hit to the chest and atrial arrhythmia before."

In the Hawai'i case that led to the new discovery, the football player felt some [chest pain](#), complained of being "light-headed" and his heart rate was elevated. He left football practice and arrived about 25 minutes later at the emergency room of Kapi`olani Medical Center, a teaching hospital partner with the UH medical school. An EKG (electrocardiogram, which is a record or display of a person's heartbeat) was performed and evaluated by Dr. Bratincsak, who noted an [irregular heartbeat](#) of an average 70 to 80 beats per minute.

"The secondary complications, such as stroke, can be prevented if it's diagnosed quickly," said Dr. Bratincsak, and in the teen's case, it was. He was kept at the hospital for observation, and three days later, tests confirmed the arrhythmia resolved itself. One year later, a follow-up visit confirmed normal heart rhythm.

"This definitely should be recognized as a possible danger in contact sports," advises Dr. Bratincsak.

What action is recommended for athletes, parents, coaches and medical professionals?

"Number one, athletes should be wearing protective gear for their chests, not just their heads," Dr. Bratincsak says. "Number two, if someone is hit on the chest by another player's helmet or chest, or hit by a baseball or martial arts strike, the athlete should have an appropriate evaluation by the coach, trainer or health aide immediately, including checking the pulse."

The danger, he added, is too great to be ignored: "Any blunt chest trauma that doesn't relate in sudden ventricle arrhythmia can still result in atrial arrhythmia."

It is possible, Dr. Bratincsak says, that sudden deaths or other unexplained cardiac deaths in individuals could be explained by this. "If [arrhythmia](#) is found in an otherwise healthy individual, we should now at least consider that it might be because they had a chest trauma, and we didn't know about it, because we (in medicine) never asked about it."

A new rule in the emergency department from now on could just be, as Bratincsak puts it, "Where you see a-fib think about blunt chest trauma; when you have blunt [chest trauma](#), think about a-fib."

Dr. Bratincsak, who trained in JABSOM's Pediatrics Residency Program, wrote the paper with co-author Kyle Ota, a fourth-year JABSOM medical student who will receive his MD degree in May 2015. Their article, "Atrial Fibrillation Induced by Commotio Cordis Secondary to a Blunt Chest Trauma in a Teenage Boy," will be published in the January 1, 2015 issue of *Pediatrics*, the premiere journal of the American Academy of Pediatrics.

Provided by University of Hawaii at Manoa

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