

# Death due to coronary artery anomaly with coexistence of Chiari network

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## SUMMARY

Coronary artery anomalies rarely detected in autopsy series and angiograms can be a component of complex malformations, besides, can be also associated with sudden cardiac death. Presented case was 22-year-old male, who had suddenly fainted during a football match played on artificial turf, he was transferred into the hospital, however had died during intensive care therapy. He had been evaluated by local prosecutor, and sent to our center for autopsy. At autopsy, internal macroscopic examination revealed absence of the right coronary artery. A total of two coronary artery ostia were observed. One of them originated from the left aortic sinus, and the other one stemmed from 8 mm above the sinotubular line. Besides, Chiari network formation was seen in the right atrium. This case with coronary artery anomaly associated with formation of Chiari network was discussed from the perspective of forensic medicine in the light of the literature information.

**Keywords:** coronary artery – Chiari network – sudden death – autopsy

## Náhlá smrt při anomálii věnčité tepny asociované s přítomností rete Chiari

### SOUHRN

Anomálie věnčitých tepen jsou vzácně odhaleny při pitvě srdce anebo při koronarografii; mohou být součástí komplexních malformací, popř. mohou vést k náhlé srdeční smrti. V našem příspěvku uvádíme případ 22letého muže, který náhle zkolaboval při fotbalovém zápase odehrávaném na umělém trávníku. Muž krátce po převozu do nemocnice, i přes intenzivní resuscitační péči, zemřel. Rozhodnutím státního zástupce byla nařízena pitva a tělo muže bylo odesláno k pitvě na naše pracoviště. Dle sdělení příbuzných nikdo z rodiny netrpěl onemocněním srdce. Při vnitřní prohlídce byla zjištěna nepřítomnost pravé věnčité tepny. V oblasti sinu aorty byla identifikována dvě koronární ústí. První ústí bylo patrné v levém koronárním sinu. Kmen věnčité tepny z něj vycházející se dělil na dvě větve; první větev kopírovala průběh sestupného ramene levé věnčité tepny, druhá sledovala průběh pravé věnčité tepny. Druhé koronární ústí bylo v levé části vzestupné aorty 8 mm nad sinotubulární čarou a mělo průměr 7 mm, věnčitá tepna z něj odstupovala pod úhlem 45 stupňů. V pravé síni byla navíc identifikována Chiariho síťka. Chiariho síťku poprvé popsal v roce 1897 Hans Chiari. V příspěvku je v soudnělékařském kontextu a ve světle současné literatury popsán případ náhlé srdeční smrti s absencí pravé věnčité tepny a přítomností Chiariho síťky v pravé síni.

**Klíčová slova:** koronární tepna – rete Chiari – náhlá smrt – pitva

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Coronary artery anomalies can be a component of complex congenital malformations or an isolated defect. Besides, they are closely associated with cases of sudden death, but they are rarely detected in autopsy series of coronary artery anomalies, and on angiograms (1,2). Anomalous origins of coronary arteries have been associated with sudden deaths in young athletes (2). In the literature, prevalence of Chiari network has been reported as 1.5-2%, and it is related to thromboembolic events, and cardiac arrhythmias (3,4). In the literature, its incidence in autopsy series has been reported as 10.52 percent (5). Generally Chiari network has not any clinical significance (3,4). Nowadays, with widespread use of echocardiographic examinations in hospitals, and rapid development of this imaging technique, this

congenital remnant can be diagnosed (3-6). Forensic medicine specialists should recognize these lesions in autopsies in order to explain the association between these lesions, and sudden deaths, and to develop new therapeutic approaches. Herein, we discussed from the perspective of forensic medicine and in the light of literature findings, a sudden death of an individual who had a coronary artery anomaly associated with formation of Chiari network, which had an asymptomatic progression till death of the patient.

### CASE REPORT

On 4 March 2013, a 22-year-old young man had suddenly fainted at 11.00 a.m., and fallen on the ground while running during a football match played on artificial turf, and after first aid provided by the emergency ambulance personnel, he had been transferred to a hospital, and died during his treatment in the intensive care unit. He had been evaluated as a suspect case of death, and transferred to our center for autopsy. As indicated by his family, any type of cardiac disease was not present in family members, and the deceased. It was also learnt that he had completed his military service, and had not any cardiac

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