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HISTORICAL VIGNETTE:

EARLY DESCRIPTIONS OF SUDDEN CARDIAC DEATH DUE TO COMMOTIO CORDIS OCCURRING IN BASEBALL

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Commotio cordis is defined as sudden cardiac arrest from a non-penetrating precordial blow triggering ventricular tachycardia/fibrillation unassociated with structural damage to the heart, ribs or sternum, and in the absence of underlying cardiovascular disease (1-4). Although initially known to forensic pathologists and reported by the Consumer Product Safety Commission (1), not until 15 years ago (3) did commotio cordis achieve a measure of visibility in the wider lay and physician community when a series of clinical and experimental reports began to appear in the literature (1). This phenomenon has now been reported in detail in recreational and competitive sports and also during normal daily activities (1).

However, the question of whether commotio cordis events in fact occurred before these relatively recent observations, but were simply unnoticed and unexplained, is unresolved (5). The alternative possibility, that these events represent a novel and new mechanism of sudden cardiac death occurring largely in young active and healthy people, has also been considered. Indeed, sparse mention of commotio cordis appears in the public record or medical literature prior to 1995 (1,2,5).

However, we have recently become aware of several descriptions consistent with commotio cordis which occurred in the early 1900s. These were identified fortuitously in annual archival records of baseball known as the Reach Guide, which included major league baseball statistics from the prior year as well as detailed information about college, minor league and amateur baseball occurrences (between 1900 and 1910) (6-12). Therefore, we have taken this opportunity to report 19 baseball-related cases (6 in organized competition; 13 recreational) that we regard as likely commotio cordis events (Table 1). These reports substantiate that commotio cordis has indeed been a risk for sudden death in young athletes as much as 100 years ago, albeit apparently largely ignored and unreported.

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Table

Table 1. Commotio Cordis Events, 1900 – 1910*

	Date	Event
1.	August 4, 1901	Aged 23 years, catcher of the Homewood Base Ball Club, muffed a foul tip in a game with the Lawrenceville Greys, and the ball struck him over the heart. He fell to the ground, and when assistance reached him he was dead.
2.	September 17, 1905	A member of the Oak Park Base Ball Club, was killed by a batted ball. The ball struck him just below the heart, and he died in three minutes.
3.	May 1, 1906	A 21-year-old was instantly killed by being struck over the heart by a pitched ball.
4.	July 6, 1906	A catcher was killed by a missed pitched ball, which struck him above the heart.
5.	July 30, 1906	A 16-year-old while catching in a battle between two amateur teams at Nasy Corners, Iowa, was struck over the heart by a foul tip. He threw the ball back to the pitcher and dropped dead.
6.	1907	At New Castle, PA, a 13-year-old was killed instantly by being struck by a foul tip while catching in a ball game. The ball struck him over the heart.
7.	June 17, 1907	A man, age 21, while watching an amateur game, was hit by a wildly pitched ball and died in a few hours.

	Date	Event
8.	July 25, 1907	Killed in a ball game at Soperton, Ga. He was catcher and a pitched ball hit him in the breast. He died almost instantly.
9.	August 21, 1907	At Allentown, PA, a 19-year-old student at Lehigh University, catching for the Catasauqua team, while at bat was struck over the heart by a terrific inshoot sent in by pitcher Case. He started to run, but fell unconscious 6 feet off first base. After a few gasps he expired.
10.	June 8, 1908	While playing a game of baseball at Seymour, Conn., a 16-year-old who was at the bat, was stuck over the heart by a pitched ball and instantly killed.
11.	July 18, 1908	At Akron Ohio, a man was killed in a practice game by a ball striking him just over the heart when he was at bat. The ball was thrown by the pitcher. Failing to dodge it, he walked two steps when he fell over dead.
12.	August 8, 1908	In a baseball game between the single and married men at Northeast, 10 miles from Erie, Pa, a prominent physician was instantly killed by being hit by a pitched ball.
13.	September 15, 1908	At Montreal, a batter was struck over the heart by a pitched ball in a baseball game and died almost instantly.

	Date	Event
14.	May 22, 1909	In a boy's game at Hazlewood, Pa, one of the players, age 11, was struck over the heart by a hard-hit line drive and died almost immediately.
15.	July 13, 1909	A catcher was killed by being hit over the heart with pitched ball in Harvard, Illinois.
16.	August 24, 1909	A man aged 27 years of Brooklyn, died from a blow he received in a baseball game at Stapleton Park, Staten Island, between the NY Colored Giants and the Stapleton Base Ball Club, better known as the Oakfield Club of Brooklyn. The fatal ball was delivered by a negro pitcher named Dawson, who has been ordered under arrest by the coroner.†
17.	May 16, 1910	A man of McKeesport, Pa, was struck over the heart by a batted ball and instantly killed.
18.	July 26, 1910	A man of Spencer, Iowa, was struck over the heart by a pitched ball during a ball game and died instantly.
19.	September 26, 1910	17 years old, died September 26, after being hit by a pitched ball in a game at Chicago, Illinois, being played at the foot of Cornelia Avenue He fell a few feet from first base, and died on the way to a hospital. The ball had struck him over the heart and death was caused by paralysis of the muscles of that organ due to the blow, the doctors said.

Symbols

* Descriptions are reproduced as the text appeared in Reach Guides (6-8)

† Consistent with the report in more recent commotio cordis events for which criminal conduct was alleged, predominantly in minorities (13).