The “Chauffeur Fracture”: Historical Origins of an Often-Forgotten Eponym

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Mattia Andreotti¹, Francesco Tonon¹, Gaetano Caruso²,
Leo Massari², and Michele A. Riva³

Abstract

This article describes the origin of the term “chauffeur fracture” used to indicate an oblique fracture of the radial styloid process with extension into the wrist joint. This kind of fracture was originally described by the British surgeon Jonathan Hutchinson in 1866. The invention of the automobile increased the incidence of this fracture among chauffeurs and cabdrivers. Indeed, at the beginning of the 20th century, motor vehicles were started by means of a crank-handle connected to the engine, which needed to be turned vigorously clockwise by hand. If the motor started unexpectedly, the crank-handle could jerk back violently and thereby cause a wrist injury due to sudden hyperextension. We retrospectively reviewed the literature and historical articles to better define the historical origins of an often-forgotten eponym. In 1904, the French surgeon Just Lucas-Championnière first evidenced the occupational origin of this fracture, so introducing the term “chauffeur fracture” to identify this injury.

Keywords: chauffeur fracture, eponyms, history of traumatology, distal radius fractures, occupational injuries

Introduction

The dawn of the 20th century marked the end of the Second Industrial Revolution. That historical period was characterized by unprecedented technological advances, and great inventions were about to completely overturn every aspect of society. The medical and scientific fields were no exception, and saw a flourishing of discoveries that would markedly improve our ability to prevent, diagnose, and treat diseases. In particular, in 1895, Wilhelm C. Röntgen (1845-1923) discovered radiographs, thereby revolutionizing orthopedic diagnostics. An invention that would radically alter people’s lives, and the field of trauma medicine, was soon to follow: the automobile.

In this era of great innovation, even clinical diagnoses that had previously seemed certain became the subject of interesting debate and reclassification. In traumatology, those responsible for shifting the boundaries of trauma medicine included the Irish physician Abraham Colles (1773-1843), who, in 1814, accurately described distal radius fractures long before the advent of radiography.² However, Colles is only one of a long list of medical luminaries whose names became associated with fractures of the forearm and elbow.^{11,15} All the eponyms are reported in Table 1.^{5,9,12-14}

known as “chauffeurs’s fracture,” since it was more widespread in cabdrivers and chauffeurs. It was described by the often-forgotten French orthopedic surgeon Just-Marie-Marcellin Lucas-Championnière (1843-1913) at the beginning of the 20th century.¹⁰ This was not the only fracture to be described by Lucas-Championnière, who made major contributions to the development of modern traumatology in France. While still a medical student, he studied under Joseph Lister (1827-1912) in Glasgow; he was therefore able to introduce antisepsis into surgery in his native country, publishing an important treatise on this subject.^{6,10} In the orthopedics field, however, he is better remembered as an innovator in the treatment of simple fractures of long bones. He introduced therapeutic mobilization (“I made use of massage—that is to say, of a method of mobilizing

¹Department of Morphology, Experimental Medicine and Surgery, Azienda Ospedaliero-Universitaria di Ferrara – Arcispedale Sant’Anna, University of Ferrara, Italy

²Department of Biomedical and Specialty Surgical Sciences, Azienda Ospedaliero-Universitaria di Ferrara – Arcispedale Sant’Anna, University of Ferrara, Italy

³University of Milano Bicocca, Monza, Italy

Corresponding Author:

Francesco Tonon, Department of Morphology, Experimental Medicine and Surgery, Azienda Ospedaliero-Universitaria S. Anna, University of Ferrara, via Aldo Moro 8, Ferrara 44124, Italy.
Email: tnnfn@unife.it

Discussion

Intra-articular fractures of the radial styloid were not named after its discoverer, and were instead commonly

Table 1. Eponyms of Fractures of the Forearm and Elbow.

Eponym	Orthopedic surgeon	Type of fracture
Barton fracture	John Rhea Barton (1794-1871)	Distal radius fracture involving the articular surface with dislocation of the radiocarpal joint
Colles fracture	Abraham Colles (1773-1843)	Distal radius fracture with dorsal angulation and displacement
Essex-Lopresti fracture	Peter Essex-Lopresti (1916-1951)	Comminuted radial head fracture with an interosseous membrane disruption and subluxation of the distal radioulnar joint
Galeazzi fracture	Riccardo Galeazzi (1866-1952)	Radius shaft fracture with a distal radioulnar joint dislocation
Monteggia fracture	Giovanni Battista Monteggia (1762-1815)	Proximal ulna fracture with dislocation of radial head
Moore fracture	Edward Mott Moore (1814-1902)	Distal radius fracture with ulnar dislocation and entrapment of the styloid process under the annular ligament
Smith fracture	Robert William Smith (1807-1873)	Distal radius fracture with volar displacement

the muscles, joints, and even the bony fragments”),⁷ and also realized that a new type of lesion was emerging, one that differed slightly from the typical fracture described by Colles years earlier. In 1904, Lucas-Championnière observed this fracture in a series of patients who had all suffered a distortive injury to their wrists while starting their automobile. In those days, motor vehicles were started by means of a crank-handle connected to the engine, which needed to be turned vigorously clockwise by hand.^{1,8} If the motor started unexpectedly, the crank-handle could jerk back violently and thereby cause a wrist injury due to sudden hyperextension:

A violent twisting backward of the hand at the wrist, without the impacting force which is present in the ordinary Colles's fracture . . . In the fracture from the 'back kick' of the starting handle, there is no impaction or splintering. The hand is violently dislocated backward, and the ligaments at the wrist simply tear off the articular surface close to the lower end of the bone, commonly just above the base of the styloid process. The line of fracture is clean and transverse, there is no impaction or splintering, and the deformity, if present, is easily reduced.⁸

Radiographs confirmed that the joint fracture line affected only the radial styloid, which set it apart from the fracture described by Colles. Lucas-Championnière, therefore, had discovered a new kind of injury—avulsion fracture of the radial styloid process—that “generally differs from the common types of fracture only in its etiology. It may be caused by a sudden forced hyperextension of the wrist or from an actual blow of the starting-handle.”³ Fred B. Lund (1865-1944), surgeon and historian from the Boston City Hospital stated, “Lucas Championnière speaks of the fracture as a ‘professional fracture’ in the case of chauffeurs.”⁸

Furthermore, the French surgeon noted that this type of fracture, caused by a blow to the palm, also required more conservative treatment than Colles fractures; it did not require difficult and painful reduction maneuvers, as the

fractured fragments of bone could be coaxed back into place by simple manipulation. He also claimed that excellent healing outcomes of this type of fracture were achievable without resorting to immobilization; instead, early mobilization and massaging the affected area would suffice.¹

Actually, this type of fracture had previously been described by the British surgeon Jonathan Hutchinson (1828-1913), in his article, “Original Lectures: Notes on Some of the More Rare Form of Fractures and Dislocation” (1866).⁴ In detail, Hutchinson wrote, “We have another [patient] showing a recent fracture extending obliquely into the wrist joint, and detaching the styloid process of the radius with its adjacent parts.”⁴ Nevertheless, Lucas-Championnière was the first to identify this injury as an occupational injury of chauffeurs: “une fracture professionnelle, auxquelles les chauffeurs s'habitueront dans une certaine mesure comme les jockeys et les cyclistes se sont habitués à la fracture de clavicule.”²

Years later, in 1923, Philip Stephens (1876-1956), who was chief surgeon of the Union Pacific Railroad and medical director of the Southern California Bell Telephone Co, published his article, “So-Called Chauffeur's Fractures.”¹⁶ He confirmed that this type of lesion, thanks to both its clinical characteristics and its particular etiopathogenesis, was identified by the professional category in which it most commonly occurred, as noted for the first time 21 years earlier by Lucas-Championnière. In detail, Stephens wrote,

Backfiring, or the explosive force which tends to suddenly change the direction of the automobile crank or handle, when being carried around in a circle, may happen at approximately four points in the circle in which the handle is being carried. This being the case, the hand grasping it maybe in a neutral position, it may be flexed on the wrist, or dorsoflexed.¹⁶

The importance of this witness is highlighted by the fact that the article came from a report read by Stephens before the Section on Industrial Medicine and Surgery of the Medical Society of California in 1922. In this way, the scientific

community recognized the occupational origin of the injury.

In the following years, technological evolution laid the foundations for radical changes in the automobile industry, and the crank-handle was phased out in favor of less dangerous forms of ignition. Consequently, the cases of radial styloid fracture caused by starting automobiles declined, and with them the term by which they were known. In fact, this was replaced by the eponym Hutchinson fracture, in honor of the British surgeon who had first described its anatomical features. It is no rare occurrence for eponyms to be changed over the years, or for the name of their original discoverer to be passed over for that of a more famous luminary.¹⁷ However, the forgotten eponym of chauffeur's fracture bears witness to the particular etiology of a type of fracture brought to light by the French surgeon Just Lucas-Championnière, who was the first not only to understand the clinical and etiopathogenetic characteristics of the injury but also to associate it with an occupation of that period.

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Ethical Approval

For this type of study, formal consent is not required. This article does not contain any studies with human participants or animals performed by any of the authors.

Statement of Human and Animal Rights

This article does not contain any studies with human or animal subjects.

Statement of Informed Consent

Informed consent was obtained when necessary.

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