

Brief Historical Note on Battle's Sign *Breve Nota Histórica do Sinal de Battle*

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ABSTRACT

William Henry Battle (1855-1936) was a remarkable physician, who is most remembered for his "sign" (post-auricular ecchymosis indicating a fracture of the base of the skull). However, there were many of his contributions to the medical knowledge. This paper aims to describe his brief history, emphasizing on the Battle's sign.

Keywords: Battle's sign; William Henry Battle; History note; Bibliography; Skull base fracture

RESUMEN

William Henry Battle (1855-1936) fue un ilustre médico, especialmente recordado por su "signo" (equimosis retroauricular que indica la fractura de la base del cráneo). Sin embargo, varias fueron sus contribuciones al conocimiento médico. Este trabajo pretende describir una breve nota histórica acerca de Battle, enfatizando el advenimiento de la señal de Battle.

Palavras-chave: Señal de batalla; William Henry Battle; Nota histórica; Bibliografía; Fractura de base de cráneo

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INTRODUCTION

William Henry Battle was born on February 23, 1855, in Lincoln of Lincolnshire, England¹. Son of the mayor John Richard Lincolnshire, he was one of nine children¹. When he was twenty-two year-old, Battle earned his medical degree

from St. Thomas's Medical School, in London, and became a Fellow of the Royal College of Surgeons three years later, in 1880. He was also a member of the British Medical Association, where he acted as an honorary secretary. Battle was not only a surgeon at St. Thomas's Hospital, but also affiliated to the Royal Free Hospital^{2,3}. From 1881 to 1885, he edited the St. Thomas's Surgical Reports. In 1888, the doctor became an assistant surgeon at East London Hospital for Children. For

the next two years he was a Hunterian Professor in Surgery and Pathology at the Royal College of Surgeons^{2,3}. Battle also taught in the Medical School for Women, holding the position of Demonstrator in Practical Surgery^{2,3}.

Battle was the first to report a laparotomy procedure aiming to relieve intestinal obstruction due to postoperative adhesions². He also described what would later become the “Battle’s incision” – a vertical incision of the abdominal wall with medial, temporary retraction of the rectus abdominis muscle for appendectomies, in 1895. Six years later he described the “Battle’s operation” – a surgery for femoral hernia repair.

In 1907, the surgeon wrote an article on traumatic rupture of the intestines to the Edinburgh Medical Journal and in 1910 he lectured on intra-abdominal injuries to the Medical Society of London³.



Figura 1. William Henry Battle (1855-1936).

In 1911, alongside Mr. Edred Corner, a surgeon at Great Ormond Street Hospital for Sick Children, Battle published “Clinical Lectures on the Acute Abdomen”. Together, the physicians also wrote “The Surgery of the Diseases of the

Appendix Vermiformis and Their Complications”. Regarding appendicitis, Battle strongly believed that the high incidence of such condition in the early 1900s resulted from the high use of steel-rolled flour in America^{4,5}.

With the advent of World War I, Battle was commissioned into the Royal Army Medical Corps and served first as major and then as lieutenant colonel, working on the 3rd and on the 5th London General Hospitals.

Battle also investigated the relation between head injury and optic neuritis, cranial nerve injury, and cutaneous stigmata². Following earlier observations made by the surgeon Sir Prescott Hewett (1812–1891), in 1890, he described the findings associated with skull base fractures, such as otorrhoea, subconjunctival hemorrhage and raccoon eyes (periorbital hematoma)².

Mr. Hewett had stated that a skull base fracture should be suspected when facing bleeding and skin discoloration over the mastoid, especially if this area had not suffered any direct trauma⁴. Battle decided to reproduce such findings, thoroughly describing the involved anatomy. In order to do so, he conducted post mortem examinations that consisted of injecting the occipital musculature and observing for fluid (water, Berlin blue, and glycerin) spread into adjacent tissues¹. The experiment revealed that blood moved from the suboccipital region to superficial tissues, a process that took three to fourteen days¹. Battle’s most noteworthy contribution to medicine, however, was associating the postauricular ecchymosis to the skull base injury⁵.

Battle’s sign

Battle’s first description of his sign was about a 41-year-old male who had injured his head after falling⁶. The patient was unconscious upon admission to the hospital and presented with both rhinorrhagia and otorrhagia. After four days, the physician observed an ecchymosis behind his left ear, accompanied by otorrhea⁶.

When describing his signal, Battle stated that the bleeding started in front of the mastoid process apex, afterwards

spreading over the mastoid itself. Later, a line of blood alongside the external ear would be formed. Given the clinical examination, he thought of the ecchymosis as a paramount mark of skull base fracture. Battle additionally expressed his concerns about the localization of the sign, claiming that it could be often overlooked once the ears and the hair tended to conceal it^{6,7}.

For over 20 years, Battle was on the editorial staff of the *Lancet*³. He died on the second day of February, 1936, at the age of 81 years³.

In his obituary, printed in the *British Medical Journal* on February 15, 1936, doctors praised Battle's achievements, highlighting that the physician was very devoted to his duty and that his teaching methods were simple and clear – what made him popular among the students^{3,7}. Until these days, it is safe to say that Battle's discoveries and ideas are still relevant not only for neurosurgeons, but for all the medical community.

Despite of Battle's varied contributions to medicine, he is nowadays primarily remembered for his description of ecchymosis over the mastoid, the so called "Battle's Sign", which remains a strong indicator of skull base fracture².

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