William Henry Battle (1855–1936)

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William Henry Battle (1855–1936) practiced medicine in England over one century ago and is primarily remembered for his description of ecchymosis over the mastoid process following skull base fracture. Battle was born in Lincoln of Lincolnshire, England, on February 23, 1855. One of nine children, he was the son of John Richard Battle who was leader of a prominent Lincolnshire family and served as mayor [1]. Battle earned his medical degree (M.R.C.S. and LSA) from St. Thomas's Medical School, London, in 1877, and became F.R.C.S. in 1880. He was elected honorary secretary of the section of surgery of the British Medical Association. As a surgeon at St. Thomas's Hospital, he was affiliated with the Royal Free Hospital, and from 1881 to 1885, he edited the *St. Thomas's Hospital Surgical Reports*. In 1888, he was selected as assistant surgeon to East London Hospital for Children. From 1889 to 1890, he held the position of Hunterian Professor in Surgery and Pathology at the Royal College of Surgeons jointly with William Watson Cheyne, John Langton, and Walter Pye and also taught in the Medical School for Women where he held the position of Demonstrator in Practical Surgery (Fig. 1).

Battle, with the collaboration of Mr. Edred Corner (Surgeon at Great Ormond Street Hospital for Sick

Children), published *Clinical Lectures on the Acute Abdomen* in 1911. Again with Corner, Battle wrote and published *Surgery of the Diseases of the Appendix Vermiformis*. He was commissioned into the Royal Army Medical Corps and served as major and then lieutenant colonel, firstly with the 3rd and then later the 5th London General Hospitals (St. Thomas's).

Battle investigated head injury specifically, associated optic neuritis, cranial nerve injury, and associated cutaneous stigmata. It is with this research that he is most remembered for his “sign” (postauricular ecchymosis as an indication of fracture of the base of the skull) [2]. Other eponyms include Battle's incision, a surgical incision used in appendectomies that utilizes temporary medial retraction of the rectus abdominis muscle, and Battle's operation, a surgical operation for femoral hernia repair. Interestingly, Battle was the first to report a laparotomy to relieve intestinal obstruction caused by post-operative adhesions.

While lecturing to the Royal College of Surgeons in 1890, he described the findings associated with fractures of the skull base including otorrhorrhea, periorbital hematoma (raccoon eyes), and subconjunctival hemorrhage. Interestingly, and as pointed out by Battle himself, his investigations actually followed earlier observations made by surgeon Sir Prescott Hewett (1812–1891). Battle added to such descriptions by describing the detailed anatomy that was involved with such hemorrhage [3]. He found that such bruising became apparent between the 3rd and 14th day after head injury and described this finding in approximately 17 cases and multiple postmortem examinations. He conducted research on cadavers by injecting the occipital musculature and observing water dyed blue to spread into adjacent tissues. Such experimentation proved his theory that extravasated blood moves from the suboccipital region to the more superficial tissues [1]. Battle also

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Fig. 1 William Henry Battle

concluded that the posterior auricular artery appeared to be placed so that its pulsations would help propel hemorrhage into these tissue planes [3]. His first description of a patient with mastoid bruising was in a 41-year-old male who had fallen and received a scalp wound over the left parietal bone.

He was admitted into the hospital unconscious, bleeding freely from the ears and nose. One the fourth day, there was ecchymosis behind the left ear, from which flowed clear watery fluid...over this area there was much tenderness [4].

Battle said of his “sign” that

“I must ask you to consider this sign somewhat fully, for I consider it, under certain circumstances, to be a most important indication that the posterior fossa of the skull is the seat of the fracture”; “... it is very apt to be overlooked, as the ear conceals it, especially if the ear is large or the head of the patient has not been shaved.” “... it appears, the first place, in front of the apex of the mastoid process. That it often spreads upwards over the mastoid in a line, slightly curved, and with the convexity backwards, its direction being approximately that of the outline of the external ear,

from which it is distant half to three-quarters of an inch [3]”.

Sir Cuthbert Wallace [5] P.R.C.S stated in Battle’s obituary printed in the British Medical Journal February 15, 1936

Every surgeon has attributes by which he is remembered by those that he taught. In thinking of Battle, the one thing that stands out in my memory was his devotion to his duty, as shown by his regularity of attendance at St. Thomas’s on his hospital days. Nothing seemed to interfere with his hospital work and a student was sure to find him in his ward at the appointed time and was equally sure of having a profitable afternoon. His teaching was simple, clear, direct, and seemed to supply just what the student wanted. This resulted in his having a large following whenever he appeared. He had a wide knowledge of the literature of his subject and no doubt his constant writing for the journals crystallized useful data in his mind and enabled him to distinguish facts from theories much to the advantage of those he taught. As a surgeon, he may be described as sure and safe rather than brilliant. As an operator, he was neat, quiet, and without fuss. Many men still practicing must have grateful thoughts of Battle.

Battle served on the editorial staff of the *Lancet* for more than 20 years and on February 2, 1936, died at the age of 81 years. Battle’s name will continue to live on in the neurosciences for the skin sign of a skull fracture that bears his name.

Conflict of interest The authors declare no conflicts of interest.

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