

Whipple of Whipple's Triad

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ABSTRACT

Allen Oldfather (A. O.) Whipple (1881–1963) is renowned for giving rise to two medical eponyms: Whipple's Triad, for the diagnostic criteria in hypoglycemia, and Whipple's procedure, for the cephalic duodenopancreatectomy. Notably, A. O. Whipple's life coincided with that of the unrelated George Hoyt Whipple, who is credited with the third eponymous Whipple in medicine – Whipple's disease, or intestinal lipodystrophy. Nearly a century after its first description, Whipple's Triad continues to be a valuable tool, comprising a set of symptoms and laboratory data that raise the clinical suspicion of hypoglycemia resulting from endogenous hyperinsulinism.

Keywords: Whipple, history, triad, insulinoma, hypoglycaemia.



Cite this article as:

González-Vidal T, Delgado E, Menéndez-Torre E. Whipple of Whipple's Triad. J Clin Pract Res 2023; 45(6): 655–7.

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Submitted: 17.09.2023

Revised: 18.10.2023

Accepted: 06.11.2023

Available Online: 06.12.2023

Erciyes University Faculty of Medicine Publications - Available online at www.jcprres.com

INTRODUCTION

Allen Oldfather (A. O.) Whipple (1881–1963) (Fig. 1)¹ is not the only Whipple to have been honored with a medical eponym, hence the title of this historical note. George Hoyt (G. H.) Whipple (1878–1976), who was awarded the Nobel Prize in 1934 for his research on pernicious anemia, lends his name to Whipple's disease, which he characterized as "intestinal lipodystrophy".^{2–4} The causative microorganism, *Tropheryma whipplei*, identified much later, carries the species name in tribute to him. Although not related, the lives of the two Whipples intersected when G. H. Whipple was treated for malaria at the Presbyterian Hospital in New York after returning from Panama. A. O. Whipple, then a young resident physician, was involved in his care. This encounter sparked a long-standing friendship between them.^{2,4} A. O. Whipple later went on to describe the cephalic duodenopancreatectomy for tumors (Whipple's procedure)^{5–7} and the diagnostic criteria for hypoglycemia (Whipple's Triad),⁸ which are well-recognized in the field of endocrinology.

Historical Background

The number "three", and thus the concept of a triad, has long held intrigue. In ancient cultures, "three" was often revered as the perfect number: three supporting points are needed to establish balance and are also the minimum required to define a plane or a circumference. Perhaps due to



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some analogous reasoning, medicine features numerous examples of conceptual or diagnostic triads. In contrast, there are few instances of pairs or quartets (just to mention the numbers immediately adjacent to three), with exceptions like Fallot's Tetrad. Many of these triads are eponymous, such as Virchow's Triad for thrombosis factors (stasis, endothelial injury, and hypercoagulability), Guyon's Triad for renal cell carcinoma (hematuria, flank pain, and abdominal mass), O'Donoghue's Triad in knee trauma (involving the rupture of the cruciate ligament, the internal lateral ligament, and the meniscus), Horner's syndrome for tumors in the upper sulcus (miosis, facial anhidrosis, and palpebral ptosis), Wernicke's syndrome which is characterized by a combination of ophthalmoplegia, confusion, and ataxia, and many others. Charcot's name is associated with two distinct triads: one for cholangitis, characterized by fever, jaundice, and hypochondrial pain, and another for multiple sclerosis, noted for scanning speech, tremor, and nystagmus. The diagnostic concept of Whipple's Triad, comprising a low plasma glucose concentration (as measured by a laboratory test), symptoms compatible with hypoglycemia, and resolution of these symptoms after the normalization of blood glucose by carbohydrate intake, was first articulated in his 1938 article on the surgical treatment of hyperinsulinism. Therein, he advocated against proceeding with pancreatic surgery in search of an insulinoma if these criteria were not satisfied.^{1,8} A. O. Whipple, before retiring, had operated on 39 patients presenting with this triad and discovered a pancreatic tumor in 35 of them.¹ Today, the mere presence of the triad is no longer considered sufficient grounds for exploratory pancreatic surgery for an insulinoma. Nevertheless, with some variations, Whipple's Triad is still featured in recent endocrinology texts as a valuable clinical tool for diagnosing endogenous hyperinsulinism in patients with hypoglycemia who are not receiving treatment with insulin, sulfonylureas, or glinides, given that hypoglycemic disorders are rare in such individuals.⁹

A. O. Whipple's legacy extends beyond his surgical prowess; he is also remembered as an exemplary humanistic physician. He was a distinguished musician, historian, chess player, painter, and polyglot – a skill partly honed during his childhood in Persia, where he was born.¹ Graduating in Medicine from Columbia University in 1908, he subsequently served as an intern at Presbyterian Hospital associated with the same university. He also held the positions of Head of Surgery and Professor at the hospital until his retirement in 1946. In addition to these roles, he presided over the New York Surgical Society and the American Surgical Association. After his retirement, he continued to be active in teaching and research at the University of Beirut (Lebanon) and served as director of the Memorial Hospital in New York.¹ To surgeons, A. O. Whipple is best known for developing surgical techniques involving the spleen, portal circu-



Figure 1. Allen Oldfather Whipple (1881–1963), courtesy of Archives & Special Collections, Health Sciences Library, Columbia University.

lation and, notably, the pancreas.^{1,5,6} Some historians suggest that the cephalic duodenopancreatectomy should have been named the Parsons-Whipple procedure in recognition of William Barclay Parsons, who collaborated with A. O. Whipple in developing the procedure in its two-stage form.³ A. O. Whipple later refined the technique, transforming it into the one-stage procedure that is today known as the Whipple procedure.⁷

CONCLUSION

There has been considerable discussion regarding the use of eponyms in medicine.^{3,10} They continue to be used due to their simplicity, and they also help to generate interest in the history of medicine and add a human element to its study.¹⁰ An example is Whipple's Triad, which is noteworthy for how its concept and utility remain valid almost a century later.¹¹ The triad functions as an algorithm; that is, according to the Oxford Dictionary, it is a set of rules to be followed in solving a specific problem. In an era of complex algorithms capable of processing vast volumes of data – what we recognize as artificial intelligence – it is reassuring to see how a simple, unchanged tool like Whipple's Triad remains useful.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – TGV, ED, EMT; Design – TGV, ED, EMT; Supervision – TGV, ED, EMT; Data Collection and/or Processing – TGV; Analysis and/or Interpretation – TGV; Literature Search – TGV, ED, EMT; Writing – TGV; Critical Reviews – ED, EMT.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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