

Batson venous plexus

see also [Vertebral venous plexus](#).

The plexus is named after anatomist Oscar Vivian Batson, who first described it in 1940.

Before the 18th century, the [vertebral venous plexus](#) (VVP) received a scant mention, had no clinical relevance, and was largely ignored by anatomists, most likely because of its location and nondistensible nature. Gilbert Breschet in 1819 provided the first detailed anatomic description of the VVP, describing it as a large plexiform valveless network of vertebral veins consisting of 3 interconnecting divisions and spanning the entire spinal column with connections to the cranial dural sinuses distributed in a longitudinal pattern, running parallel to and communicating with the venae cavae, and having multiple interconnections. More than a century passed before any work of significance on the VVP was noted. In 1940, Oscar V. Batson (Batson venous plexus) reported the true functionality of the VVP by proving the continuity of the prostatic venous plexus with the VVP and proposed this route as the most plausible explanation for the distribution of prostate metastatic disease. With his seminal work, Batson reclassified the human venous system to consist of the caval, pulmonary, portal, and vertebral divisions. Further advances in imaging technology confirmed Batson's results. Today, the VVP is considered part of the cerebrospinal venous system, which is regarded as a unique, large-capacitance, valveless plexiform venous network in which flow is bidirectional that plays an important role in the regulation of intracranial pressure with changes in posture and in venous outflow from the brain, whereas in disease states, it provides a potential route for the spread of tumor, infection, or emboli ¹⁾.

The Batson venous plexus (Batson veins) is a network of valveless [veins](#) in the human body that connect the deep pelvic veins and thoracic veins (draining the inferior end of the urinary bladder, breast and prostate) to the internal vertebral venous plexuses.

Because of their location and lack of valves, they are believed to provide a route for the spread of cancer metastases.

These metastases commonly arise from cancer of the pelvic organs such as the rectum and prostate and may spread to the vertebral column or brain.

Batson's plexus is part of the Cerebrospinal venous system.

Batson's venous plexus may also allow the spread of infection in a similar manner. Urinary tract infections like pyelonephritis have been shown to spread to cause osteomyelitis of the vertebrae via this route. The osteomyelitis in such a case will resolve concurrently with the same antibiotic that treats the urinary tract infection because both infections are from the same organism.

The venous drainage of the [vertebral](#) and [paravertebral](#) regions is important for a better understanding of hematogenous disease spread. Moreover, the spine surgeon must be well acquainted with this anatomy in order to minimize Intra and postoperative complications. Carpenter

et al. published a comprehensive review of the vertebral venous plexus ([Batson venous plexus](#)) with a concentration upon the clinical and surgical correlations of this venous network ²⁾.

References

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Nathoo N, Caris EC, Wiener JA, Mendel E. History of the vertebral venous plexus and the significant contributions of Breschet and Batson. *Neurosurgery*. 2011 Nov;69(5):1007-14; discussion 1014. doi: 10.1227/NEU.0b013e3182274865. PMID: 21654535.

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