One is the Loneliest Number: a Review of the Ganglion Impar and its Relation to Pelvic Pain Syndromes

Andrew Walters¹, Mitchel Muhleman¹, Kathleen Bubb¹, Michael Snosek¹, Mohammadali M. Shoja², R. Shane Tubbs³, Marios Loukas¹,⁴

Affiliations:
¹ St. George’s University School of Medicine, St. George’s, Grenada, West Indies
² Division of Neurosurgery, University of Alabama at Birmingham, AL USA
³ Pediatric Neurosurgery, Children’s Hospital, Birmingham, AL USA
⁴ Department of Anatomy, Medical School Varmia and Mazuria, Olsztyn, Poland

Objective: To provide a better understanding of the anatomy of the ganglion impar, accounting for variation in size, shape, and location, and to establish the clinical importance and treatment modalities associated with the ganglion impar.

Design and Methods: A literature review was performed using the PudMed database and the SGU library resources. Search keywords included: ganglion impar, sympathetic nervous system, nerve block, chemical neurolysis, radiofrequency, and cryoablation. Figures included a cadaveric dissection performed in the SGU cadaver lab, as well as a medical illustration from our in-house illustrator.

Results: Location, size, and shape of the ganglion impar varied considerably amongst published cadaveric studies. The classic round ganglion at the level of the sacro-coccygeal junction was rarely found upon dissection and thus there is no consensus to its characteristics in the literature. The use of the impar in clinical practice has developed since its inception in 1990. It’s most prominent utilization is for the treatment of chronic pelvic pain, from a variety of etiologies. Chemical neurolysis, radiofrequency neuromodulation, and cryoablation have all been proposed as safe and effective techniques for chronic pain sufferers.

Conclusions: Continued study of the ganglion impar will help us to fully understand its role in the sensory and autonomic pathways of the sacrococcygeal region. In turn, this understanding will hopefully lead to the development of newer, more effective treatments for those suffering from chronic pain syndromes.