

Discovery of an accessory greater saphenous vein - a case study

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ABSTRACT

The greater saphenous vein (GSV) is a vital structure in the lower extremity with well-documented anatomical variations. This case report describes the unexpected discovery of an accessory GSV during a routine cadaveric dissection at the University of Rwanda's School of Medicine and Pharmacy. The accessory GSV ran parallel to the main GSV before rejoining it higher in the leg. This finding underscores the importance of recognizing anatomical variations like accessory GSVs, which can influence clinical procedures and outcomes. Increased awareness among clinicians and educators are crucial, and further research is needed to assess the prevalence and clinical implications of this rare anatomical variant.

Keywords: Greater saphenous vein, Accessory vein, Anatomical variation, Cadaveric dissection, Medical education

INTRODUCTION

The great saphenous vein (GSV) holds importance in medical practice as it runs through the lower extremity and serves as a crucial pathway, for various medical procedures [1]. Anatomical literature has extensively documented the variability of GSVs in terms of their course branching patterns and drainage routes [2]. However, among these known variations, one particular anomaly catches attention: the presence of an accessory great saphenous vein.

An accessory GSV is an unexpected occurrence. Unlike the established GSV that follows a predictable path, the accessory GSV often takes an alternative route, running parallel to its more prominent counterpart before merging or rejoining at a higher or lower point in the leg. Although these variations are uncommon, they hold implications for practice [3]. The presence

of an accessory GSV has played a crucial and multifaceted role in medical procedures, from venous access for IV therapy to coronary artery bypass surgery [4]. However, this additional vein introduces an element of unpredictability, challenging clinicians and anatomists to adapt their approach for optimal surgical outcomes. Through our accounts, we unveiled the unique course and connection of this aberrant vein with the main GSV, illuminating the complexities of this anatomical anomaly. Moreover, we highlight the urgent need for heightened awareness among medical professionals [5]. Armed with knowledge of these variations, we can make informed decisions for the betterment of patient care. The GSV, a crucial superficial vein in the lower extremity, is commonly utilized in clinical procedures and interventions. Although variations in its path and branches are well-documented, the occurrence of an accessory GSV is a rare and fascinating phenomenon. Our

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case report reveals the serendipitous identification of an accessory GSV during cadaveric dissection, providing insights into its potential significance in clinical settings [2,6].

CASE PRESENTATION

The discovery of the accessory greater saphenous vein (GSV) occurred during a routine cadaveric dissection session conducted at the Anatomy Lab of the School of Medicine and Pharmacy, University of Rwanda. This unexpected finding emerged within the context of comprehensive anatomical education and training, a fundamental component of medical curricula worldwide. The careful and systematic dissection of anatomical structures plays a pivotal role in shaping the medical professionals of tomorrow and fostering an in-depth understanding of human anatomy. The cadaver chosen for dissection was an adult male Rwandan with no observed deformity; the cadaver did not present any apparent history of medical interventions, trauma, or clinical conditions affecting the lower limb. This context is essential, as it suggests that the presence of the accessory GSV was most likely an inherent anatomical feature rather than a result of medical procedures or pathological changes.

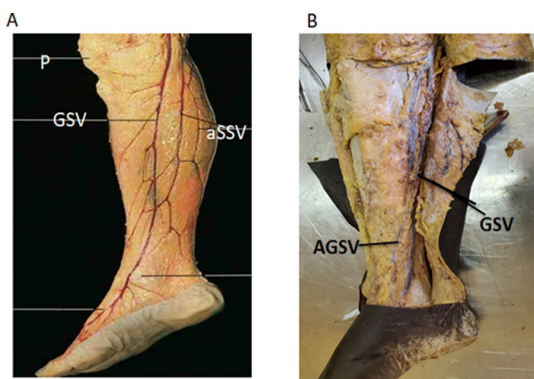


Figure 1: (a) Dissection of the medial side of the leg showing the origin of the Great saphenous vein; (b) Dissection of the medial side of the leg showing the origin of the main and accessory great saphenous veins.

P: Patella, GSV: Great saphenous vein, AGSV: Accessory Great saphenous vein, aSSV: Venous anastomoses of small saphenous vein with great saphenous vein

The dissection followed the guidelines provided in the 17th edition of Grant's Dissector Manual; the focus of the dissection was the lower limb,

including the leg, where the GSV is known to exhibit considerable anatomical variations.

High-resolution photographs were taken to document the anatomical findings. These visual records serve not only as educational tools but also as essential references for future research and academic purposes.

The unexpected discovery of an accessory greater saphenous vein (GSV) unfolded within the controlled and methodical setting of a routine cadaveric dissection session at the Anatomy Lab of the School of Medicine and Pharmacy, University of Rwanda. The dissection, a fundamental component of medical education, aimed to provide medical residents with a profound understanding of human anatomy, preparing them for future clinical practice.

As the dissection progressed and the layers of tissue were meticulously dissected away, the unexpected anomaly of an accessory GSV came to light. The anatomical structure was identified as an additional saphenous vein running alongside the main GSV.

The accessory GSV, an additional saphenous vein, displayed a unique course within the anatomical landscape of the lower limb. Originating from the medial ankle region, it closely paralleled the main GSV throughout its journey. The two veins ran in tandem, sharing a similar path, and then, unexpectedly, the accessory GSV reconnected with the primary GSV at a higher level within the leg. This junction occurred approximately 3 centimeters inferior-medial to the knee. This distinctive anatomical variation, while rare, was not associated with any apparent history of medical procedures, trauma, or clinical conditions affecting the lower limb.

The discovery of this accessory GSV was not only a testament to the value of cadaveric dissection in medical education but also a reminder of the complexity and diversity of human anatomy. In the educational setting, this case provided a unique learning opportunity for the medical residents, instilling in them a sense of curiosity and reinforcing the importance of meticulous anatomical exploration.

Moreover, the clinical significance of this unexpected finding merits consideration. While the primary GSV is well-documented and frequently employed in various medical procedures, the presence of an accessory GSV introduces a

level of unpredictability. Clinicians must be aware of such anatomical variations, as they can have implications for venous access, grafting procedures, and other clinical interventions in the lower limb. As a result, this case report serves as a compelling reminder of the critical interplay between anatomical knowledge, clinical practice, and medical education.

DISCUSSION

The unexpected discovery of an accessory greater saphenous vein (GSV) during routine cadaveric dissection presents a unique opportunity for anatomical education and underscores the significance of understanding anatomical variations in medical practice [7]. This discussion section delves into the clinical implications, educational relevance, and future research considerations stemming from this remarkable case. The presence of an accessory GSV introduces a variable that clinicians should be mindful of during venous access procedures, grafting surgeries, and other interventions in the lower limb [1,8]. Knowledge of this anatomical variation is crucial to ensure the success of medical procedures and minimize the risk of complications. It highlights the need for thorough pre-operative assessments and the consideration of potential anatomical variations in patients [2,3].

Moreover, the case prompts a broader discussion about the role of anatomical variations in clinical practice. Anatomical knowledge is the foundation of medical expertise, and this discovery emphasizes the ever-present potential for unique anatomical variations that can significantly impact clinical decision-making. Clinicians must embrace a perspective that anticipates such variations, thereby enhancing patient care and procedural outcomes [3,4].

This case underscores the essential role of cadaveric dissection in medical education. Cadavers provide a hands-on, immersive learning experience that is irreplaceable in shaping the anatomical knowledge and surgical skills of future medical professionals. The unexpected discovery of the accessory GSV serves as a reminder of the invaluable learning opportunities that cadavers offer. It instills in medical students a sense of curiosity and reinforces the importance of meticulous anatomical exploration [3]. Furthermore, it is a testament to the ever-evolving nature of medical education. As medical

science progresses, our understanding of human anatomy deepens, and new anatomical variations come to light. Educators must adapt their teaching methods to accommodate these advancements, ensuring that medical students are well-prepared to face the challenges of contemporary clinical practice.

The uniqueness of this anatomical variation raises questions about its prevalence within the Rwandan population and in broader demographic groups. Further research is warranted to explore the frequency of accessory GSVs, both in cadaveric studies and in living individuals. Understanding the prevalence of this variation is essential for providing comprehensive medical education and ensuring that clinicians are adequately prepared to address it in clinical practice [2,5,6].

Additionally, research into the clinical outcomes associated with accessory GSVs is necessary. Anecdotal evidence suggests potential implications for venous insufficiency, varicose veins, and other vascular conditions. Investigating the clinical relevance of accessory GSVs will contribute to a more holistic understanding of their impact on patients' health [6,7].

CONCLUSION

The unexpected discovery of an accessory GSV serves as a compelling case that unites clinical practice, anatomical education, and the need for ongoing research. This case report not only enriches our understanding of human anatomy but also emphasizes the ever-present potential for anatomical variations that challenge medical professionals to adapt and excel in their field. It underscores the dynamic nature of medical science and the imperative of lifelong learning in the medical profession.

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