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The prevalence of anatomical variations in the intra orbital portion of the ophthalmic artery and its branches: A cadaver study

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Introduction: The human orbit contains various important structures that may show variations. Meyer pioneered the study of the ophthalmic artery in 1887, with a main focus on its branches and their variations. Very limited investigation has been carried out in this field and available literature has little information on this. Currently no published data exists on the South African population with regard to intra orbital variations within the ophthalmic artery and its branches. Original research was conducted to address the problem of the lack of data. Dissections of the eyes were done to investigate and document the possible variations of the intra orbital part of the ophthalmic artery and its branches. The aim of the study was to determine the prevalence of anatomical variations in the intra orbital part of the ophthalmic artery and its branches in a cadaver sample. The results of the study will be of value to surgical interventionists treating patients with vascular diseases within the orbital region and also to the ophthalmology students studying the orbital vascular anatomy.

Method: This is a descriptive observational study. The total sample size was 118 eyes made up of both eyes of 59 bodies in the dissection hall. The overall sample was made up of 46 eyes from the University of the Free State (UFS) and 72 eyes from the University of Cape Town (UCT). The ophthalmic artery and its branches were finely dissected with the aid of the lighted magnifier and colored with the red stamp pad ink. Sixteen types of variations were observed and recorded.

Result: The ophthalmic artery crossed below the optic nerve in 7.63% of the left eye for cadavers at both institutions. No ophthalmic artery crossed below the optic nerve in the right eye in the UCT group whereas 17.39% in the UFS group crossed below the optic nerve. Through statistical analysis, the frequencies of the variations were determined. In certain individuals there was more than one type of variation, which is in agreement with the published literature. Most variations in branching pattern occurred bilaterally and in most cases, the variation in the left eye differed from the variation in the right eye. The males showed a higher frequency of variations.

Conclusion: Several variations were observed and recorded. These findings can contribute to medical interventions in treating patients with orbital vascular diseases, radiology, as well as anatomy students studying the blood supply to the eye and surrounding structures.

Biography

Kentse Mpolokeng has completed her Bachelor's degree in Human Biology from University of the Free State, South Africa. She has also completed her Master's degree of Medical Sciences in Anatomy and Cell Morphology from the University of the Free State. She is currently pursuing her PhD at University of Cape Town, South Africa.

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