

Anatomical Research Misconceptions and opportunities

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IN GENERAL, THE POPULARITY OF THE anatomical sciences has lessened over recent years, as testified by the decreased amount of funding allocated to anatomical research.¹ This may have negative repercussions in terms of recruiting Omani students who aspire to be anatomists. A common fallacy in the scientific academic sphere is that anatomy is outdated and irrelevant. New discoveries in this discipline are thought to be limited as exhaustive investigative and descriptive research has been published over many centuries and a huge body of literature is available on all aspects of anatomy.² Nevertheless, although researchers differ in their investigative works and techniques, anatomical variations—defined as peculiarities, irregularities or abnormalities in structural morphology or a marked deviation from the average or norm—continue to offer new discoveries and opportunities for extended work in various fields.³ By dissecting cadavers and analysing X-rays, angiograms and imaging scans, anatomical research can be inexpensive and requires only sharp observational skills.^{2,3}

There are four clinically significant types of anatomical anomalies: malformations, disruptions, deformations and dysplasias.⁴ Anomalies are increasingly reported in the medical literature, as exemplified by a series of case reports and interesting medical images featured in the August 2016, November 2016 and February 2017 issues of SQUMJ.^{5–9} This in turn suggests that there are still many discoveries to make in the field of anatomy. While such anomalies are rare, their recognition has important implications for diagnosis and treatment. Although case reports are sometimes dismissed as being the least valuable form of research publication, a rare case might represent an interesting phenomenon.¹⁰ Moreover, it is critical that potential morphological and structural variations be taken into consideration in everyday surgical practice as a lack of awareness could lead to fatal consequences.

Murugan et al. reported an anomalous sternothyroid muscle characterised by a lateral belly which passed between the internal jugular vein and internal carotid artery and between the glossopharyngeal and hypoglossal nerves to the site of insertion.⁵ In this case, ossified tissue had also bridged over the right sigmoid sulcus, thus compressing the sigmoid sinus.⁵ This anomalous belly could potentially lead to the development of Collet-Sicard syndrome secondary to internal jugular vein thrombosis, unilateral palsy of the involved nerves or idiopathic epileptic seizures due to impaired cerebral venous drainage into the internal jugular vein.¹¹ Another report of an anomalous anatomical variation described an additional accessory duct of the right submandibular gland; the anomalous duct drained into the floor of the mouth, while the main duct followed the normal anatomical pathway and drained at the top of the papilla.⁶ Recognising the presence of an anomalous duct is important in diagnosing and treating diseases of the salivary gland and to avoid iatrogenic injuries to these ducts during surgery.¹²

Bhat et al. reported a case whereby the flexor carpi radialis muscle originated from a lateral slip of bicipital aponeurosis and the median cubital vein was located deep to the two slips of the aponeurosis.⁷ This vein is commonly accessed for medical procedures ranging from simple venepuncture for routine blood collection to the formation of arteriovenous fistulae and the insertion of cardiac catheters; as such, a median cubital vein located deep to the aponeurosis can pose difficulties for practitioners who wish to access this vein.¹³ Raza et al. reported a case in which the musculocutaneous nerve was found to be absent during a routine dissection session.⁸ The median nerve innervated all of the flexor muscles of the forearm, except for the coracobrachialis muscle, and branched into the lateral cutaneous nerve of the left forearm. The coracobrachialis muscle was innervated