

Second Anatomy Annual Congress in Rwanda - October 15, 2023

SOCIETY OF CLINICAL ANATOMY OF RWANDA (S-CAR)

Theme: Anatomy for patients' safety and professional growth

It is with great honor that I welcome you to our 2nd anatomy annual congress. This year's theme is "Anatomy for Patients' Safety and Professional Growth." Understanding anatomy is crucial for patient safety and professional development as it forms the cornerstone of healthcare practice. For accurate diagnosis and treatment, a solid understanding of anatomy is necessary in all areas, including the physical examination of a patient, the interpretation of symptoms, the interpretation of radiological images, and the comprehension of pathological illnesses. Thus, it may be claimed that a good healthcare worker is one who can use anatomical knowledge to give his or her patients high-quality care.

Patient safety is a concern in healthcare practice not just in Rwanda but globally, as it directly impacts the quality of care, patient outcomes, and public trust in healthcare. Rwanda is a low- and middle-income country that has a developing healthcare infrastructure, and it is important that patient safety should become a priority. This is why the 2nd Anatomy Congress of S-CAR offers the ideal setting for professionals to collaborate and share experiences, learn from specialists, embrace ongoing advancements in anatomy education, and advance patient safety and professional development in Rwanda and Africa.

Our participation in this S-CAR congress is a testament to our commitment to the well-being of our patients and our passion for professional growth. We will all promise to uphold not only the anatomy profession in Rwanda but also to support patient safety and carry the torch for our professional advancement.

The 2nd Anatomy Annual Congress program offers an interesting package for both professionals and students, with 39 presentations subdivided into six sessions (medical education, learning assessment, anatomical study, anatomical variations, surgical anatomy, neuroanatomy, and neuroscience). This conference will help appreciate the beauty of the anatomy sciences and its importance in patient safety and professional growth in Rwanda.

On behalf of S-CAR, I would like to express my gratitude to the sponsors of this congress, namely: UR, Operation Smile, and MMI.

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A1 - Student perceptions and challenges faced by undergraduate medical students in studying anatomy: A case study at Kampala International University – Western Campus, Uganda

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ABSTRACT

INTRODUCTION: Proficiency in anatomy is of great importance for healthcare professionals and medical students alike, as it facilitates a comprehensive understanding of the structure and function of the human body. This study aimed to assess the perceptions and challenges faced by undergraduate medical students in studying anatomy at Kampala International University – Western Campus (KIU-WC) in Uganda.

METHODS: This quantitative cross-sectional descriptive study involved using a standardized questionnaire to collect data among 525 first and second-year medical students. The questionnaire encompassed sections on student perceptions and challenges.

RESULTS: The findings revealed that the majority of the respondents, 473/525(90%), held positive perceptions of anatomy, recognizing its importance in diagnosis, understanding the human body, medical terminology acquisition, and clinical preparation. While age (OR = 1.03, 95%CI: 0.54 -1.97 p=0.93) and gender (OR = 0.51, 95%CI: 0.32 -0.87 p=0.93) did not significantly impact student perceptions, positive perceptions were observed across different religious affiliations and nationalities, suggesting the universal recognition of anatomy's importance. The most common challenges were a limited time for revision before their mid-semester and end-of-semester examination with 383/525(73.0%) respondents, information overload 374/525(71.2%) and a lack of suitable equipment and poor internet connection for assessing online resources 352/525(67.1%).

CONCLUSION: The respondents with positive perceptions dominated with higher percentages among all ages, genders, nationalities, and religions; the most common challenges included a limited time for revisions revision before their mid-semester and end-of-semester examinations, information overload, a lack of suitable equipment and poor internet connection for assessing online resources.

A2 - Knowledge and attitude towards body donation among students in Huye campus, University of Rwanda

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ABSTRACT

INTRODUCTION: Body donation is the willingness of a person to donate his body or organ to a person or organization after death. Medical schools in Western countries depend solely on anatomical donations for medical education. However, the trend is different in Africa due to limited literature.

METHODS: This was a cross-sectional study involving 120 students at the University of Rwanda Huye campus. Data was collected using a Google format questionnaire. Knowledge and attitude were assigned scores which helped in the grading of responses.

RESULTS: 81.7% of the respondents had a very good knowledge score on body donation, and 93.3% had a very good knowledge score on organ donation. However, 80% of the respondents had a negative attitude score concerning body donation, and 84.2% had a positive attitude towards organ donation.

CONCLUSION: respondents were more willing to donate their organs for a life-saving purpose but were unwilling to donate their bodies for medical education.

A3 - Introduction to examination evaluation: a qualitative and psychometric review

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ABSTRACT

INTRODUCTION: An examination is a fundamental component of the educational system, and it serves as a critical tool in measuring the student's progress, determining grades, and providing feedback to both students and educators.

METHODS: A purposive sampling method was used to select the first continuous assessment test (CAT) from the Gross Anatomy 2 and Gross Anatomy 3 modules at the Department of Anatomy, University of Rwanda. The Zipgrade app was used to prepare the marking guide at the end of each assessment and also used for the electronic marking of the answer sheets. The Zipgrade app was used to analyze test items to inform the researchers which test item was most challenging or easiest for the students during the assessment. A qualitative and psychometric assessment of the test item was performed by comparing the test questions to the answer options provided. The discrimination factor was calculated using the Zipgrade app. To assess the reliability of the difficult or easy test items, the Kuder-Richardson (KR-20) formula was used.

RESULTS: In the module of Gross Anatomy 3, question 28 was the most difficult item, and 3.1% of the students passed. Qualitative analysis of the question revealed that this question failed to meet the qualitative standard due to the inclusion of the option "None" on key "E." The Discriminatory factor was -0.085 for question 28, and the reliability was 1.0. Question 42 was the easiest, and 100% of the students passed. Qualitative analysis of the question revealed that it met the qualitative standard, and the reliability was 1.0. In the module of gross Anatomy 2, question 16 was the most difficult, with 0% pass. There was no discriminatory factor for this question. Qualitative analysis of the question revealed that it met the qualitative standard, and the reliability was 1.0. Question 24 was the easiest, with 98.3% of students passing; the discriminatory factor was 0.026. Qualitative analysis of the question revealed that it met qualitative standards, and reliability was 1.0.

CONCLUSION: The study identified some measurement errors in the test items, which are normal and expected in an examination.

A4 - Gender performance difference in anatomy modules

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ABSTRACT

INTRODUCTION: Gender refers to the social roles that men and women play and the power relations between them, which usually profoundly affect their daily lives. Educators are interested in studying the effect of gender on the academic performance of medical students. Several studies have indicated gender differences in the performance of undergraduate students.

METHODS: 5 academic year cohort marks from 2017-2018 up to 2021-2022 were used. IBM SPSS Statistics 23 was used to analyze the data. The marks of students of the 5 cohorts, the number of females and males, were calculated. Their performance difference was analyzed based on the modules, level of study, and Academic year.

RESULTS: The total number of students was 2433; 1534 (63.1%) were males, while 899 (36.9%) were females. During all the five intakes, 2398 (98.5%) passed at the first sitting while, 35 (1.43%) retook the exams. Out of the retakers, 19 were female, whereas 16 were male. In all five academic years, female mean score was 63.95% ±9.08, while the male mean was 64.48% ±10.45. In the module of Embryology, the female score mean was 55.45%±7.72, whereas the Male mean score was 55.87 ±7.11. In the module of Anatomy I, female mean score was 64.76%±8, whereas the male mean score was 68.94 std 12.24. In the module of Anatomy II, female mean score was 61.04% ±9.66 while male score mean was 62.59%±9.78. In the Anatomy III module, the Female mean score was 66.73%±7.71, while male mean score was 67.66% ±8.32. In the Histology module, female mean score was 69.23 ±12.13 whereas male mean score was 73.573 ±8.65.

CONCLUSION: The present study demonstrates that female students have a good performance rate, almost the same as their peer male students.

A5 - Effectiveness of Zipgrade app in marking and data analysis in the human anatomy department of the School of Medicine and Pharmacy at the University of Rwanda

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ABSTRACT

INTRODUCTION: ZipGrade is a free online app that helps grade student assessments in a multiple-choice format. It is an effective tool to analyze the student's performance within a short time.

METHODS: The study used the Anatomy III answer sheets of 71 students from Pharmacy Level 2. The ZipGrade App was used to prepare the answer sheet and the marking guide following the options provided in the examination paper. The next step deals with marking done by the use of the Zipgrade app with a mobile phone. Within 15 minutes, all 71 answer sheets were scanned on the Zipgrade app. However, only 69 of them were marked electronically. Two copies were not marked due to poor shading. Aside from marking the scripts, the Zipgrade mobile app captured and saved the student's data automatically. Finally, the performance score and items of the question were analyzed based on the number of students who passed or failed each question.

RESULTS: Zipgrade App provided results in the form of percentages, tables, and graphs. The minimum score was 38/80 (47.5%), while the maximum score was 71/80 (88.8%). The average score was 58.4/80 (73.1%). The median is 60 (75%), while the standard deviation was found to be 7.20 (9.0%). Six students scored 85-90%, ten students scored 80-85%, Nineteen scored 75-80%, and seventeen students obtained 70-75%. Seven students scored 65-70%, and three scored 60-65%. Five students scored between 50 and 60%, and two students failed the assessment by scoring 45-49%. Item analysis of questions showed that question 63 was the easiest, where 100% of students passed, and the most difficult was question 10, where only 10.1% of students passed the question.

CONCLUSION: Zipgrade is an important technology in marking, question analysis, mark analysis, record keeping, and reporting.

A6 - Branching patterns of brachial plexus in the laboratory of the Human Anatomy Department at the University of Rwanda: a cadaveric study

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ABSTRACT

INTRODUCTION: The brachial plexus is a major nerve network that gives both sensory, motor, and sympathetic innervation to the upper limb. It is highly variable in its formation and branching pattern. The knowledge of its anatomical variation is of clinical importance.

METHODS: Ten brachial plexus were dissected and examined to assess the branching pattern, variations, and morphometry. The images of the dissected plexuses were obtained, recorded, and interpreted using a digital camera.

RESULTS: The typical branching patterns of all trunks, divisions, cords, and terminal branches were observed in the majority of brachial plexus (90%). The morphometrical study of the brachial plexus demonstrates that the length of the C5 root was found to range from 4.1cm to 4.8cm. The median length of the C5 was found to be 4.5cm with a standard deviation of 0.21, while the mean was found to be 4.47cm. The shortest trunk was from the superior trunk, with 2.5cm in length, while the longest was from the middle trunks (3.1cm). The mean length for the ten superior trunks was found to be 2.61cm (SD=0.10). The posterior division from the superior trunk which contributed to the formation of the posterior cord, was found to be very short with only 1.1cm. The longest cord observed was the medial cord, which was 5.5cm long, and the shortest was from the posterior cord, which was 2.9cm long. One case of variation was observed and documented. In this case, the right musculocutaneous nerve leaves the lateral cord, penetrates within the long head of the biceps brachii, and then leaves it as two branches. One branch continues as the musculocutaneous nerve. The other branch continues to join the median nerve.

CONCLUSION: The present study showed one case of Brachial plexus variation and indicates that the morphometry of Brachial plexus is different from one cadaver to another.

A7 - Anatomical study of the sciatic nerve

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ABSTRACT

INTRODUCTION: The sciatic nerve (SN) is formed by the ventral rami of spinal nerves from L4-S3 and emerges from the pelvis through the greater sciatic notch at the inferior border of the piriformis muscle. At the popliteal fossa, it bifurcates into the common peroneal nerve (CPN) and tibial nerve (TN). The sciatic nerve may present some anatomical variations that may contribute to medical conditions and complications in different medical interventions.

METHODS: This was a descriptive topographic study involving ten lower limbs of cadavers that were formalin-fixed. The lower limbs of the cadavers were dissected to expose the origin, course, and termination of the sciatic nerve, and the variations observed were documented using a digital camera.

RESULTS: No variation in origin and course was observed; one Type B and one Type G pattern were observed. A new unreported pattern was seen where the sciatic nerve had many separated nerve fibers exiting under the piriformis muscle instead of making one trunk or two separate trunks in one limb. Four (4) sciatic nerves bifurcated above the popliteal fossae; one bifurcated in the pelvis, one bifurcated in the middle third of the thigh, two bifurcated at the upper third of the thigh at the inferior border of Quadratus femoris muscle.

CONCLUSION: The outcome of this study is a source of information for future researchers and will be a good tool in raising awareness about the existence of the sciatic nerve variations in Rwanda. This will guide the clinicians, surgeons, anaesthesiologists, physiotherapists, massage therapists, and other health professionals during decision-making and treatment.

A8 - Anatomical study of the medullospinal junction

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ABSTRACT

INTRODUCTION: The medullospinal junction, where the medulla oblongata meets the spinal cord, encompasses structures spanning above, though, and below the foramen magnum. It includes the upper spinal cord segment and nuclei responsible for the functions of the lower cranial nerves IX, X, XI, and XII. Complex anastomotic networks among these nerves and upper cervical nerves can lead to neurovascular compression syndromes, often involving intricate loops formed by the Posterior Inferior Cerebellar Artery (PICA). We aimed to identify the patterns of 4 lower cranial nerve roots, C1 spinal nerve roots, and vertebral artery (VA) and its main branch (PICA).

METHODS: Employing a descriptive research design, we conducted posterior neck dissections of 4 Cadavers at the laboratory of the Department of Human Anatomy, University of Rwanda. We followed the steps detailed in the Gants dissector manual, craniotomy of the occipital bone, and laminectomy from the atlas to C6 was done. This exposed lower cranial nerve roots, vertebral arteries, and the PICA. We meticulously documented and analyzed their patterns and configurations.

RESULTS: Two PICA origins were identified: intradural and extradural along the vertebral artery's course around the brainstem. One PICA formed a loop between hypoglossal nerve rootlets before reaching the hypoglossal canal. The second PICA traversed through the vagus nerve bundle and the accessory nerve's cranial root. Glossopharyngeal nerves, along with vagus, cranial, and spinal roots of the accessory nerve, emerged from the upper medulla and traversed the jugular foramen.

CONCLUSION: Comprehensive knowledge of the neuro-arterial anatomy at the medullospinal junction and its variations is essential for accurate topographic diagnoses and precise surgical planning. This understanding minimizes complications and enhances therapeutic outcomes in this critical anatomical region.

A9 - Studies on anatomical variations of brachiocephalic artery among the cadaveric population of Uganda and their implications on tracheostomy procedures

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ABSTRACT

INTRODUCTION: The study examined variations in morphology and morphometry of the Brachiocephalic artery (BCA) using a cadaveric population of Uganda and relating them with their implications on Tracheostomy procedures

METHODS: Fifty-eight (58) adult Ugandan cadavers, 57 males and 1 female, were dissected to expose the Brachiocephalic artery, and the morphological and morphometric variations were recorded.

RESULTS: Variation in the origin of BCA was found in 7 cadavers (12.4%) in which the artery arose from the common trunk with the left common carotid artery. In one female cadaver (1.7%), the BCA originated in the midline anterior to the trachea. The mean torso length of cadavers was 45.78 ± 2.93 cm, and the mean length of Brachiocephalic artery was found to be 4.14 ± 0.58 cm. The two morphometric dimensions are positively correlated ($r=0.33$) and found to be statistically significant ($p=0.01$, $p<0.05$).

CONCLUSION: The observed origin variant of BCA in the midline anterior to trachea can increase chances of accidental injury to the artery during Tracheostomy and should be taken into consideration during pre-operative planning for Tracheostomy. The positive correlation between torso length and the Brachiocephalic artery length offers a simple and non-invasive method of estimating the length of the Brachiocephalic artery for cannulation and catheterization of the BCA.

A10 - Positions and types of Pterion in adult human skulls: a preliminary study

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ABSTRACT

INTRODUCTION: A trauma to the skull in the area of the pterion can rupture the middle meningeal artery, leading to a life-threatening epidural hematoma. This study aims to assess the prevalence of different types of pterion and to determine its location using valuable bony landmarks.

METHODS: The distance of different landmarks from the pterion was measured in 90 dry adult human skulls of unknown sex, age, and nationality using a stainless-steel sliding Vernier caliper. The data were analyzed using SPSS version 20, and an independent t-test was performed. A p-value of <0.05 was considered statistically significant.

RESULTS: A higher occurrence of sphenoparietal type of pterion with the absence of frontotemporal type was noted. About 23% and 77% of the suture types are found to be unilateral and bilateral, respectively. There was a statistically significant difference between the right and left sides of the skull in distances from the center of the pterion to the frontozygomatic suture, the root of the zygomatic arch, inion, and in central thickness pterion.

CONCLUSION: This study showed that the most prevalent type of pterion is sphenoparietal, and revealed asymmetry in the distances from the center of the pterion to the frontozygomatic suture, root of zygomatic arch and inion, and its central thickness. These findings could provide valuable information about the type and location of the pterion, which could be relevant to anatomists, neurosurgeons, forensic medicine specialists, and anthropologists

A11 - Uncommon anatomical variation: discovery of an accessory greater saphenous vein during cadaveric dissection

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ABSTRACT

INTRODUCTION: The greater saphenous vein (GSV) is a significant superficial vein of the lower extremity, frequently utilized in various clinical procedures and interventions. While anatomical variations in the course and tributaries of the GSV are well-documented, the presence of an accessory GSV remains a rare and intriguing phenomenon. This case report presents the fortuitous discovery of an accessory GSV during cadaveric dissection, shedding light on its potential clinical implications.

METHODS: During a routine cadaveric dissection session for medical residents at the Anatomy Lab of the School of Medicine and Pharmacy, University of Rwanda, an unexpected anatomical variation was observed while dissecting the leg as part of the general lower limb dissection procedure following the Grant's dissector manual 17th edition.

RESULTS: An accessory GSV was found in an adult male cadaver, originating from the medial ankle region and closely paralleling the main GSV throughout its course. The accessory GSV followed a similar path but reconnected with the main GSV at a higher level within the leg, about 3cm inferior-medially to the knee. Notably, the cadaver exhibited no apparent history of medical interventions or trauma affecting the lower limb.

CONCLUSION: This case report highlights the serendipitous identification of an accessory GSV during cadaveric dissection at our laboratory. The implications of this rare anatomical variation prompt a call for increased awareness among clinicians and educators. Knowledge of accessory GSVs may contribute to improved procedural outcomes and informed decision-making. Further research is warranted to explore the prevalence and clinical significance of this unique anatomical variant within the larger Rwandan population.

A12 - Branching pattern of superior mesenteric artery, cadaveric study

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ABSTRACT

INTRODUCTION: The superior mesenteric artery (SMA) supplies the organ derivative from the midgut. This study intends to study the branching pattern of the SMA in dissected cadavers.

METHODS: This research is a cross-sectional study, and data were collected during the dissection of the infracolic compartment

RESULTS: SMA originated directly from the aorta, and 50% of the dissected cadavers originated at the level of lumbar vertebrae number 1, and the second 50% originated from the intervertebral disc (L1-L2). The SMA of 50% of the cadavers dissected originated from the medial side, and the other 50% originated from the anterior side of the aorta. The distance between the Celiac trunk and SMA was 1 cm in all cadavers. The distance between the SMA and IMA were 6 cm in 5 cadavers, 7 cm in 2 cadavers and 1 cm in 1 cadaver. The Arc of Rioloan was found in 1 cadaver. The SMA made no contribution to the formation of the left colic artery. The right colic artery originated independently from the SMA in three cadavers and shared the common trunk with the ileocolic artery in three cadavers. The ileocolic artery had three branches in half of cadavers, and 4 branches in the other half. The average number of the jejunal ileal branches was 17. The jejunal branches were seven in 2 cadavers, 5 branches in 4 cadavers, and one cadaver had each 3, 4, and 5 jejunal branches. The number of ileal branches was 10 in 4 cadavers; others had 11, 12, 9, and 13 each.

CONCLUSION: The knowledge of the different branching patterns during laparoscopic and oncologic surgeries enables proper dissection, lymph node clearance, and prevention of unnecessary vessel injury.

A13 - Clinical and pathological presentation of acute appendicitis at CHUK: a retrospective study from 2019-2020

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ABSTRACT

INTRODUCTION: Appendicitis is the inflammation of the finger-shaped pouch originating from the cecum called appendix. This study was done at CHUK to analyze patients' clinical presentation and laboratory findings with acute appendicitis and their final management.

METHODS: This study was a cross-sectional descriptive retrospective study using data from patients' files stored at CHUK's archive. We selected all patients above 16 years old who, during the period 1st January 2019 to 31st December 2020, have consulted the surgery Department at CHUK and have been diagnosed with acute appendicitis. We excluded patients with septic shock and immunosuppression. We performed a descriptive analysis using the following variables: gender, patient's residency, reason for transfer, clinical presentation, complications at arrival, Alvarado score, investigations and biopsy results, management, surgery performed, and post-operative complications.

RESULTS: We identified 121 patients who met inclusion criteria: 43% patients in 2019 and 57% patients in 2020. 61% were male and 39% female. 45% of patients were from Kigali, and among them, 98% were Rwandan, and only 2% were foreign patients. The average age distributed by gender was 38 years (female) and 32 years (male). Most of the patients presented complaining of migratory right abdominal pain (83%), and on physical exam, 93% had tenderness in the right lower quadrant. The average of days with symptoms before admission was eight days. On laboratory investigations, 59 % (n=71) had leukocytosis; among them, 18 % (n=13) had left shift. It is important to note that 45% presented with a ruptured appendix, 95% were treated surgically, 23% of them had post-operative complications, and 46% were surgical site infections. Appendicular biopsy taken post appendectomy showed 96% to be inflammatory cause while 4% malignancy.

CONCLUSION: These findings show that the vast majority of the appendicitis cases were due to inflammation, with a typical clinical presentation. However, a considerable percentage came with complication (ruptured appendix), needing emergency surgical interventions.

A14 - Understanding lower limb amputation: a review of the strategies for healthcare improvement, prevention, and management

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ABSTRACT

INTRODUCTION: Lower limb amputation (LLA) is a global health issue affecting millions of people worldwide. Factors such as diabetes, peripheral vascular disease, infections, and improper medical practices also contribute to Lower limb amputation. The personal, family, and socio-economic costs associated with amputation are substantial, emphasizing the need for preventive measures, improved healthcare resources, and support for amputees.

METHODS: A systematic review of Lower limb amputation and its associated risk factors, focusing on hypertension, hypercholesterolemia, smoking, diabetic complications, Indigenous ethnicity, and foot infections.

RESULTS: Our findings revealed that the socio-economic impact of Lower limb amputation includes job loss and financial burdens. Also, access to rehabilitation services, stigma, and marginalization further complicate the lives of amputees. Furthermore, peripheral vascular disease is a significant risk factor, and chronic hyperglycemia in diabetes leads to diabetic foot syndrome and subsequent amputations. Lower limb amputation has a profound impact on quality of life and psychological well-being, particularly in rural areas where manual labor is prevalent. Strategies to address Lower limb amputation include prevention and management of diabetes-related complications, improved healthcare access, and awareness programs. Comprehensive assessment of risk factors and a multidisciplinary approach are essential. Public health initiatives, health education campaigns, early detection, and affordable healthcare are crucial in reducing amputation rates. Specific interventions for diabetic foot care, timely surgical intervention, and preserving limb length and function are important considerations.

CONCLUSION: A comprehensive and multidisciplinary approach is necessary to address the issue of lower limb amputation effectively.

A15 - The effects of flavonoids in curcumin on neurobehavioral deficits in insulin-resistant rats

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ABSTRACT

INTRODUCTION: Diabetes mellitus is a risk factor for dementia, particularly Alzheimer's disease (AD). In a Wistar rat model, we studied Alzheimer-like symptoms using a high-fat diet (HFD) and streptozotocin (STZ) to replicate insulin resistance and the resulting neurobehavioral abnormalities. Curcumin, a flavonoid in turmeric, was studied for its potential therapeutic effects. Aim: This study sought to look at rats' exploratory, discriminatory, and spatial cognitive indices.

METHODS: Thirty-six male Wistar rats were randomized into six groups and given the following treatments: olive oil only for control; curcumin only for the curcumin group; HFD and three doses STZ for the diabetic rats; HFD, three doses STZ, and concurrent treatment with curcumin for the protective group; pre-treatment with curcumin, then HFD and three doses STZ for a preventive group; and HFD, three doses STZ, and curcumin for a therapeutic group. Subsequently, line and center line crossing frequency assessed rats' exploratory activities; rearing frequency data assessed novel environment behavior. The novel object recognition test and Morris water maze test assessed discrimination and spatial memory. Data were analyzed using a one-way analysis of variance and Tukey's post hoc test. $P < 0.05$ was considered statistically significant.

RESULTS: Our findings revealed that insulin resistance prolonged the escape latency of untreated diabetic rats; contrariwise, curcumin significantly reduced escape latency, increased difference score in the novel object recognition paradigm, and increased explorative activities.

CONCLUSION: Oral curcumin improves exploratory activity, discriminating memory, and spatial memory in male Wistar rats with AD-like neurobehavioral impairments. Patients with neurobehavioral abnormalities and comorbid insulin resistance may benefit from the flavonoids in curcumin.

A16 - Exogenous melatonin ameliorates pontine histoarchitecture and associated oxidative damage in sodium fluoride-induced toxicity

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ABSTRACT

INTRODUCTION: Sodium fluoride (NaF) is a highly consumed food additive that is capable of disrupting the activities of several brain areas. It is unclear whether this compound affects the autonomic activities of the brain. Therefore, this study sought to investigate the ameliorative potentials of exogenous melatonin on sodium fluoride-induced pontine toxicity in adult Male Wistar rats, as melatonin has been implicated to have a high concentration in the cerebrospinal fluid of injured brains.

METHOD: Thirty-two rats were randomized into four groups (n=8 per group). Groups I, II, III, and IV received 0.2 ml of normal saline (NS), 500 ppm of sodium fluoride (NaF) via their drinking water, 10 mg/kg melatonin (MLT), and melatonin with sodium fluoride concurrently (MLT+NaF) respectively for fourteen days. At the end of these treatments, the rats were euthanized, and brainstem tissues were excised for histological, histochemical, and biochemical analyses.

RESULTS: There were shreds of evidence of DNA fragmentation, vacuolation, dispersion of the Nissl bodies, and axonal disruption in the cells of the basilar pons of the sodium fluoride-treated animals. Furthermore, this was coupled with high concentrations of malondialdehyde and low-level concentrations of glutathione reductase. Melatonin, however, was observed to limit neuronal injury in the cells of the basilar pons in the experimental animals by reducing the extent of cells undergoing process pyknosis, chromatolysis, and demyelination. Also, melatonin reduced the concentration of malondialdehyde and increased glutathione reductase activities in the pons.

CONCLUSION: This study revealed that sodium fluoride injured the pontine histoarchitecture and induced oxidative damage, which was ameliorated by exogenous melatonin treatments.

A17 - Cannabidiol improves memory and hippocampal neuronal morphology in animal models of epilepsy

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ABSTRACT

INTRODUCTION: This research examined the impact of cannabidiol on memory and neuronal morphology in the hippocampus of epileptic Wistar rats.

METHODS: A total of 120 adult male Wistar rats (150-180 g) were randomly divided into three groups. Each group was further subdivided into five subgroups (n=8) consisting of A- E. Subgroup A served as the control and received corresponding volumes of a vehicle substance throughout the relevant phases of epileptogenesis. Epilepsy was induced in subgroups B, C, D, and E through intraperitoneal administration of lithium chloride (127 mg/kg, i.p) 24 hours before pilocarpine (30 mg/kg, i.p) administration. Seizures were allowed to persist for 60 minutes before termination with diazepam (10 mg/kg, i.m). Subgroups C and D received daily oral doses of 5 mg/kg and 10 mg/kg of cannabidiol, respectively, during the corresponding phases of epileptogenesis, while subgroup E received 10 mg/kg of sodium valproate. Behavioral assessments were conducted on days 3, 15, and 41 post-induction of epileptogenesis. Following behavioral studies, the rats were euthanized, and their hippocampi were subjected to histological and immunohistochemical analysis.

RESULTS: Microscopic examination of the CA1 region across all phases of epilepsy revealed pyramidal neuron loss and dispersed granule cells, along with increased GFAP expression in subgroups B. There was a significant rise in the number of degenerating neurons in the hippocampal CA1 region in subgroups B (($24.0 \pm 0.04 \mu\text{m}^2$), ($32.0 \pm 0.06 \mu\text{m}^2$), ($39 \pm 0.25 \mu\text{m}^2$)) compared to subgroups A (($5.0 \pm 0.02 \mu\text{m}^2$), ($5.0 \pm 0.02 \mu\text{m}^2$), ($5.0 \pm 0.02 \mu\text{m}^2$)) across all three phases of epileptogenesis. In the chronic phase, the time spent by animals identifying the baited arms was significantly higher ($F = 5.84$, $p = 0.023$) in subgroups B (80.0 ± 0.13 sec) and (30.0 ± 0.14 sec) compared to subgroups A (60.0 ± 0.12 sec) and (20.0 ± 0.45 sec).

CONCLUSION: This study demonstrates that cannabidiol ameliorates chemically induced epilepsy, as evidenced by improved memory and hippocampal neuronal morphology in adult Wistar rats.

A18 - Histological and immunohistochemical study of the neuroprotective potentials of trans-cinnamaldehyde in the Wistar rat model of insulin resistance

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ABSTRACT

INTRODUCTION: The incidence of insulin resistance is on the increase globally. Earlier reports linked impaired insulin signaling and glucose intolerance to cognitive decline, suggesting that improving insulin signaling could enhance neuronal survival. Trans-cinnamaldehyde (TCA) is an active component of cinnamon and has many pharmacological importance. However, the effects of TCA on insulin resistance-induced neurodegenerative changes are unclear. This study, therefore, aimed at evaluating the effects of trans-cinnamaldehyde on hippocampal histoarchitecture in insulin-resistant rats.

METHODS: Twenty adult Wistar rats were fed with a high-fat diet for 8 weeks and then injected with a low dose of STZ (30 mg/kg body weight intraperitoneally). 60mg/kg of TCA was orally administered once daily for 4 weeks. Histological and immunohistochemical techniques were used to investigate the ameliorative potentials of TCA on the hippocampus of Wistar Rats.

RESULTS: TCA administration to insulin-resistant rats histologically and immunohistochemically reduced pyknosis, astrogliosis, and neurodegenerative changes in the hippocampus when compared with untreated insulin-resistant rats.

CONCLUSION: The prospect of TCA as a novel therapy in insulin-resistant subjects with neurodegenerative diseases could be further explored.

A19 - Accessory tributary of the left renal vein: a case report

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ABSTRACT

INTRODUCTION: The renal veins pass anterior to the renal artery and open into the inferior vena cava. The left renal vein passes horizontally between the abdominal aorta and the superior mesenteric artery to reach the IVC and typically receives two tributaries, namely, the left suprarenal vein and the left gonadal vein. These veins are usually described as the traditional superior and inferior tributaries, respectively.

CASE PRESENTATION: The case presented an unusual tributary of a left renal vein that drains to the left lateral abdominal wall. This unusual vein is an accessory tributary of the left renal vein arising from the left lateral abdominal wall and draining into one of the branches of the left renal vein.

CONCLUSION: Renal vein variations often remain unnoticed as they are clinically silent. Vascular surgeons and urologists should have a thorough knowledge of renal vascular variations in order to avoid iatrogenic injury during medical procedures involving kidney

A20 - Sciatic nerve loop engulfing perforator arteries: case report

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ABSTRACT

INTRODUCTION: The sciatic nerve is the thickest in the human body; however, it is susceptible to a wide range of anatomical variations with potential clinical implications. Some variations are very rare and unreported in the existing literature

CASE PRESENTATION: We present a case of a middle-aged male cadaver with a sciatic nerve giving a loop where 3 perforator arteries from the profunda femoris artery pass. The loop bundles were reforming the main nerve distally.

CONCLUSION: The sciatic nerve loop engulfing muscular perforator arteries is a rare anatomical variation worth knowing for clinical, academic, and research interests.

A21 - Bi-pennate gluteus maximus muscle: a case report

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ABSTRACT

INTRODUCTION: The gluteal region is an important anatomical and clinical area that contains muscles and vital neurovascular bundles. The gluteus maximus is the largest and most powerful muscle in the human body. It is the muscle that is responsible for the movement of the hip and thigh and provides stability to the pelvis. While there can be some anatomical variations in the gluteus maximus, they are usually minor and do not significantly affect its function. However, its proximity to the sciatic nerve necessitates attention. Hence, a thorough understanding of the anatomy of the gluteal region is crucial.

CASE PRESENTATION: In the gluteal region of an adult male cadaver that we were dissecting for the postgraduate surgical trainees' regular cadaver dissection course, we discovered a variation of the gluteus maximus muscle that was duplicated with a superficial and large portion and a deep small muscle component. The small portion of the gluteus maximus is attached to the hip bone by two (2) tendinous slips connected by a tendinous arch under which the sciatic nerve runs. With this type of anatomical disposition, the sciatic nerve may become entrapped if a small portion of the gluteus muscle hypertrophies, resulting in sciatica.

CONCLUSION: Since the gluteus maximus can entrap the sciatic nerve, understanding the anatomy of the gluteal region is crucial for both anatomical and clinical reasons. Clinicians should be aware of this anatomy for successful surgeries of the gluteal region, intramuscular injections, and dealing with complaints of sciatica. Additional investigation and dissections of the gluteal region are urged to better comprehend human anatomy and its variability.

A22 - A case report on axillary artery variation

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ABSTRACT

INTRODUCTION: A few cases of anatomical variations in the axillary artery are documented, though they are not uncommon. They necessitate thorough exploration when they do occur.

CASE PRESENTATION: During the routine gross dissection classes, we noticed a variation in the branching pattern of the axillary artery. The variation was bilateral and observed in the axilla of a 60-year-old male cadaver. The branching patterns of its proximal two parts were normal. An arterial trunk was given off from the third part of the axillary artery, which coursed backwards and downwards, passing between two median nerve roots. This anomalous arterial trunk gave all branches of the third part of the axillary artery - subscapular artery, anterior circumflex humeral artery, and posterior circumflex humeral artery before it continued as the profunda brachii artery.

CONCLUSION: Such variations can have a significant impact on axillary region medical procedures such as catheterization, vascular surgery, and trauma management.

A23 - Ansa brachii from a median-musculocutaneous trunk: an anatomical variation case report

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ABSTRACT

INTRODUCTION: Anatomical variations in humans are widespread but highly complex. A thorough understanding of anatomy is essential for successful surgical and anesthetic procedures. Sadly, brachial plexus anatomical variations are prevalent and account for more than 50% of anatomical variations in cadaveric analyses of the human nervous system. Clinical outcomes may be unsatisfactory if specific brachial plexus anatomical variations are overlooked. In 22% of axillary blocks, the musculocutaneous nerve location was found to be irregular. It is joined to the median nerve or closely located to the axillary artery more frequently. If connected to the median nerve, it can extend distally for a certain distance before disconnecting from it.

CASE PRESENTATION: During the upper limbs dissection course, a part of our routine cadaveric dissection courses, we identified a complex left brachial plexus anatomical variation. We observed that from the lateral cord of the brachial plexus, two parallel nervous brands emerge as the musculocutaneous nerve and median nerve. The two nerves fused into the median-musculocutaneous common trunk. Distally, the median-musculocutaneous trunk forms the ansa brachii that gives the nerve to the biceps brachii muscle, the nerve to the brachialis muscle, and the lateral cutaneous nerve of the forearm. Four branches from the lateral cord, the musculocutaneous nerve, and the median-musculocutaneous trunk sequentially innervated the coracobrachialis muscle.

CONCLUSION: Successful upper extremity surgery and anesthesia need an understanding of the human brachial plexus anatomy and its variations. To avoid unnecessary hazards, while planning surgery on the arm, it is wiser to use wide local anesthesia no tourniquet (WALANT) under ultrasound guidance. In Rwanda, reported brachial plexus anatomy and its anatomical variations in literature are also a reality. Additional research and dissections are encouraged to better understand human anatomy and its variations.

A24 - A case report of a large cadaveric simple hepatic cyst

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ABSTRACT

INTRODUCTION: Simple hepatic cysts are infrequent and often asymptomatic liver cysts filled with clear or yellow fluid, typically diagnosed in adulthood. The primary diagnostic tools for distinguishing simple hepatic cysts from other liver cyst forms, such as cysticercosis, are ultrasound and serological tests.

CASE PRESENTATION: Here, we present an exceptional case of a giant simple hepatic cyst discovered during routine cadaveric dissection in our anatomy laboratory. The cyst contained thick, yellow, mucus-like fluid and occupied the entire right lobe of the liver, extending partially into the left lobe. While simple hepatic cysts are usually diagnosed clinically using ultrasound and serology, their identification through cadaveric findings is rare.

CONCLUSION: This unusual case piqued our interest and prompted this report, showing that anatomic variety is wider than currently known.

A25 - Persistent primitive sciatic artery. case report and review of literature

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ABSTRACT

INTRODUCTION: The persistent sciatic artery is an anatomical variation as the artery running in the posterior thigh compartment should have regressed at the embryological level. Its persistence should be looked into the window of potential complications such as aneurysms and limb ischemia. A number of cases have been previously documented in international journals but none locally.

CASE PRESENTATION: We present findings of a monthly resident dissection course whereby an adult male cadaver was dissected on the gluteal and posterior thigh, and we found a persistent sciatic artery arising on the lateral circumflex femoral artery, and distally it was joining the normal popliteal artery.

CONCLUSION: The persistent sciatic artery is a variation worth knowing for surgeons and anesthesiologists approaching the posterior thigh as potential conditions may arise on it. We should foster awareness of such variations through research.

A26 – Anatomical variation of anterior accessory great saphenous vein: a case report

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ABSTRACT

INTRODUCTION: The anterior accessory great saphenous vein (AAGSV) can be defined as any vein that accompanies the great saphenous vein (GSV), lies superficial to GSV on the anterior surface of the thigh, and is not surrounded by the saphenous fascial sheath. We presented a case of a cadaveric dissection at the anatomy department of the University of Rwanda.

CASE PRESENTATION: The case was a 37-year-old male cadaver presenting bilateral anterior accessory great saphenous veins (AAGSV), originating from the marginal veins anterior to the GSV, and terminated by joining the GSV at the sapheno-femoral junction.

CONCLUSION: The AAGSV has an 'eye sign' similar to the GSV on ultrasound, and may be mistaken for the GSV by the ultrasonographer or surgeon. This makes it important that such anatomical vascular patterns be documented in order to create awareness, which is useful to surgeons and vascular radiologists in Rwanda.

A27 - Kidney malrotation with aberrant arterial supply: a case report

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ABSTRACT

INTRODUCTION: The kidney is a vital organ in the human body that plays a key role in homeostasis and is a major organ of focus in medical research due to the increasing cases of renal diseases. Each Kidney is supplied by one renal artery arising from the abdominal aorta below the level of a superior mesenteric artery at the upper lumbar level (L1-L3). The renal artery joins the kidney at the hilum together with the ureter and renal vein at the medial side of the kidney.

CASE PRESENTATION: The case was a 39-year-old adult male cadaver who had right kidney malrotation with the ureter connected to it at the anterior side. In addition to malrotation, the kidney had three arteries supplying it: the main right renal artery branching from the abdominal aorta and enters the kidney through the medial side, while the two aberrant arteries arise from the bifurcation point of the aorta into common iliac arteries, then both enter the kidney at the inferior pole. The dissection procedures were adopted from the Grant dissector handbook.

CONCLUSION: The knowledge of these anatomical variations is necessary for different urological procedures such as assessment of Reno-vascular hypertension, renal transplantation, repair of abdominal aorta aneurysm, and angiographic interventions

A28 – Unilateral incomplete duplication of the left ureter: a case report

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ABSTRACT

INTRODUCTION: The ureters are fibromuscular tubes measuring 25 to 30cm and transport urine from the renal pelvis to the posterior surface of the urinary bladder. It forms one of the main components of the urinary system and is essential for excretion. Incidence of duplicated ureter occurs in approximately 1 in 20 people, representing one of the most common urinary tract anomalies. However, according to prior research, there is a higher incidence of ureter duplication in females compared to males.

CASE PRESENTATION: This case is of a unilateral duplicated ureter seen during routine dissection of the abdomen of a 39-year-old adult male cadaver found in a cadaveric dissection course for medical residents at the Department of Human Anatomy laboratory, of the University of Rwanda. Dissection was done following the steps outlined in the grant dissector handbook. Two ureters were observed emerging from the left kidney; the aberrant ureter leaves the kidney at the superior pole and drains the Superior major calyx, while the main ureter drains the rest of the kidney at the hilum. Both ureters join at the pelvis to form a common trunk that opens through a single ureteral orifice in the urinary bladder.

CONCLUSION: The case report presented the ureter in a “V” shape where the union occurred at the vesicoureteral junction. It was an incomplete unilateral duplication, which is usually asymptomatic but may predispose the subject to ureteric stones, urinary stasis, frequent urinary tract infections, yo-yo reflux, and iatrogenic injuries during surgery.

A29 - Grisel's syndrome: case reports and literature review

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ABSTRACT

INTRODUCTION: Grisel's syndrome is the atraumatic atlantoaxial rotatory subluxation occurring following a head and neck infection procedure. Often, it presents with painful torticollis and upper respiratory symptoms, but in the minority of cases, potential neurological features may present. Conservative treatment often wins the race.

CASE PRESENTATION: We presented two girl children who were presented to our outpatient department on two different occasions with painful torticollis and decreased neck range of motion, which were preceded by upper respiratory tract symptoms. The diagnosis of Grisel's syndrome was done following the cervical CT scan, which revealed the atlantoaxial rotatory subluxation. Both children were treated with a soft cervical collar and analgesics. They had a complete resolution of symptoms.

CONCLUSION: Grisel's syndrome occurrence is a reality in our settings, and clinicians should think about it in case of a pediatric painful torticollis. Further research should be undertaken to identify precisely the type of infections responsible.

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