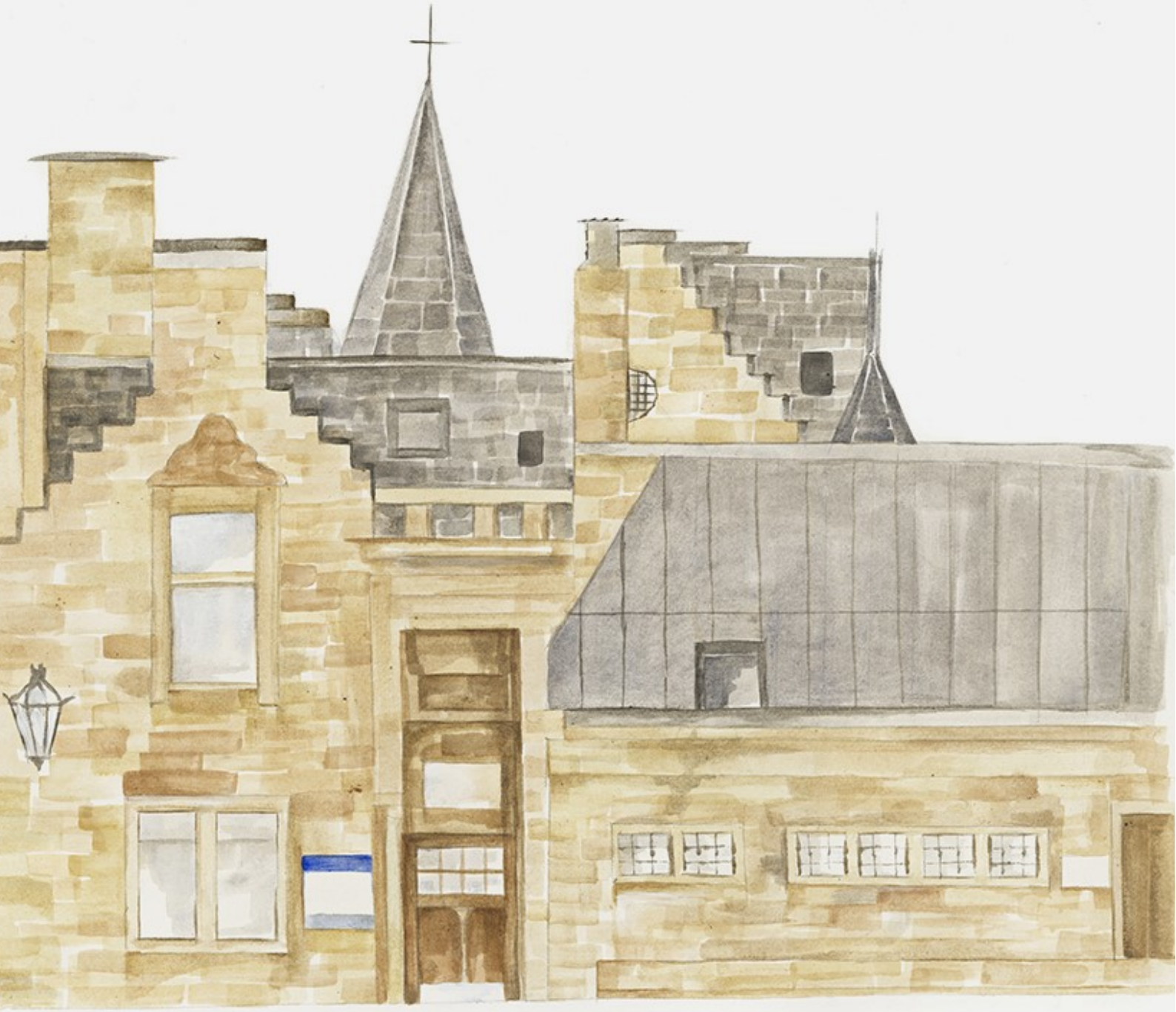
ANATOMICAL SOCIETY



Virtual Summer Meeting Programme

CUTTING EDGE ANATOMY

7th – 9th July 2021

to highlight the difference between the different regions then followed by Dunn's post hoc test with Bonferroni adjustment for each pair of regions. Kruskal-Wallis test showed that there was a significant difference between different regions in nerve count ($p<0.001$) where the posteroinferior region had significantly lower nerve count than the superior and anterosuperior regions ($p=0.021$ and $p=0.014$ respectively) and the posterior region had a significantly lower nerve count than the anterosuperior region ($p=0.040$). In terms of nerve density, there was a significant difference between different regions ($p=0.011$) with the posteroinferior region being significantly lower than the anterior and anterosuperior regions ($p=0.027$ and $p=0.043$ respectively). These data suggest that although the labrum is innervated throughout its circumference, the superior and anterior regions tend to have higher nerve count and density. Furthermore, the innervation of the labrum suggests that the labrum itself contributes to the pain associated in labral pathologies including labral tears.
The study was carried out at the Anatomy Department, University of Edinburgh, which is regulated by Human Tissue Act (Scotland) 2006.

P3. Neurovascular Mapping of The Acetabular Labrum in Grades of Hip Joint Osteoarthritis: A Human Cadaveric Study

Abdulaziz A Alomiery[1,2], Andrew C. Hall[3], Thomas H Gillingwater[1], Abduelmenem Alashkham[1]
[1]Anatomy, College of Medicine and Veterinary Medicine, Deanery of Biomedical Sciences, University of Edinburgh, Edinburgh, UK. [2]Prince Sultan College for Emergency Medical Services, Basic sciences department, King Saud University, Riyadh, Saudi Arabia. [3] Deanery of Biomedical Sciences, University of Edinburgh, UK.

The acetabular labrum plays an important role in hip joint biomechanics. However, its contribution during osteoarthritis (OA) remains to be fully elucidated. The aim of this study was to analyze the association between regional differences of hip joint grades of OA and regional and zonal distribution of blood vessels and sensory nerves in the acetabular labrum. Ninety-six labral sections from 12 cadaveric hips (6 males and 6 females, mean age 84.5) were included in this study. The acetabulum including the labrum, fibrous capsule and articular cartilage, were cut perpendicularly into 8 regions. Each region was decalcified, embedded in a wax block then sectioned at 10µm prior to staining and analysis. The Osteoarthritis Research Society International (OARSI) grading and staging system was employed in the histological analysis of OA using Safranin-O staining. Immunohistochemical staining of blood vessels and sensory nerve endings was performed using antibodies against vascular alpha-smooth muscle actin (αSMA) and low affinity nerve growth factor (p75) respectively. Neurovascular mapping was performed using *FIJI* software. Labral area was measured and zones identified by dividing each regional labrum into an inner zone, near the chondral attachment, and an outer zone, near the fibrous capsule. The distribution of blood vessels and sensory nerves increased significantly with increased cartilage grades ($P < 0.05$). There was a positive correlation between the number of blood vessels and free nerve endings ($P < 0.05$). The number of blood vessels and nerves were significantly higher in the outer labral zones in all 8 regions ($P < 0.05$). The data show that the acetabular labrum was well vascularized and innervated across all regions. Nevertheless, neurovascular mapping showed that the majority of α-SMA and p75 labelling was present within the outer labral zone. In contrast, the inner labral zone showed significantly less vascularity which may make it more prone to tears and incomplete healing. Cadaveric specimens used were obtained from Anatomy, University of Edinburgh, which is regulated by The Human Tissue (Scotland) Act 2006.

P4. Methods of embalming and restoration of the specimens, stored in the museum of the Human Anatomy Department of Kharkiv National Medical University

Oleg Vovk, Denys Shyian, Mikhailo Lyutenko, Olga Avilova
Kharkiv National Medical University, Kharkiv, Ukraine
@OlgaAvilova

There are about 3000 educational and scientific preparations in the dry and wet forms in the funds of the educational museum of the Human Anatomy Department of Kharkiv National Medical University. Most of the wet preparations are stored in hermetically sealed jars with a 10% formalin solution. When the jar is depressurized, formalin evaporates quickly enough and the specimen placed inside undergoes mummification. The restoration of the 1.5-year-old child's head embalmed in the early 1920s* by academician Vorobiev was carried out. This specimen was in an extreme degree of mummification and deposition of dust particles, as well as an adipocere, due to the depressurization of the containers in which they were stored. Number of the following procedures were consistently carried out: 1. Preparation; 2. Conducting the preparation through a number of modified fluids in order to restore the natural tissues' volume of the head and eyeballs; 3. Cosmetic restoration of the facial tissues and auricles using 3D modeling; 4. Placement of the specimen in a hermetically sealed container. After 9 stages of chemical treatment, the specimen returned to its original volume, the soft tissues of the head and especially the face acquired a natural color and elasticity, parchment dark spots and traces of the formed adipocere during mummification practically disappeared. For complete restoration of the integrity and clarity of the preparation, we applied a cosmetic natural liquid latex tinted to the general color of the preparation on the missing skin areas. After latex coagulation, the places of its application became practically indistinguishable from the main skin surface of the restored preparation of the child's head. To restore the missing left auricle, we applied its 3D modeling by scanning the right auricle with a professional 3D scanner Artec3D, followed by mirror modeling and creating a mold on the 3D printer FlashForge Guider. The left auricle was made of natural latex using a 3D printed mold. Using universal adhesive, based on cyanoacrylate, it was assembled in place of the missing one. This method can serve as a fundamental approach for the preservation of such preparations among the anatomical museums of the world. Despite the digitalization of education due to the pandemic, real specimens are of great value and must be preserved for centuries for future generations of students and medical workers.
The embalming of all specimens of the Kharkiv National Medical University were done according to the ethical rules and the approved decree (1918) of the conditions and procedure for using the buried bodies of the deceased and their remains for educational purposes.

P5. Moving to the future: Incorporating Ultrasound as a teaching tool of anatomy to medical imaging students.

Joseph Aziz, Joanna Thorgood, Lian Wu
Unitec Institute of Technology, School of Health Care and Social practice, Department of Medical Imaging, Auckland, New Zealand
@jo_aziz

Background: Undergraduate medical imaging education has recently moved towards making anatomy course content directly applicable to future clinical practice. Teaching anatomy to medical imaging students can prove challenging. Being a “dry subject” the link between theory and practice is not always appreciated by students. Furthermore, the use of cadaveric dissection as a teaching tool is rare. Ultrasound provides real-time two-dimensional visualisation of regional gross anatomical structures, making it potentially beneficial as a teaching tool for anatomy. This study aimed to determine the effectiveness of using ultrasound to support the teaching of anatomy to medical imaging students, from a student perspective. Method: This study included 31 students from the year two Medical Imaging programme at Unitec Institute of Technology. The students were invited to participate in three ultrasound demonstration sessions during their anatomy block course. Ultrasound scanning covered the abdominal regions, shoulder, and ankle. At the end of the course, students were asked to complete a questionnaire focusing on the benefits and effectiveness of the introduction of ultrasound as a teaching tool of anatomy. Results: 93.5% of the students felt strongly that ultrasound is an important learning tool and complements a more traditional teaching method. The students also strongly agreed that ultrasound reinforced and consolidated their knowledge of anatomical

We would like to express our thanks to all who helped make this conference a great success.

The Anatomical Society Summer Meeting 2021 was made possible with the generous contributions of the Anatomical Society Local Organising Team:

Anthony Payne, Caroline Allen, Catherine MacRobbie, David I Hughes, David Russell, Des Gilmore, Eilidh Ferguson, Emma Bailey, Fabio Quondamatteo, Jennifer O'Neill, Jenny Clancy, Michelle Welsh, Natalie Courtney, Ourania Varsou, Paul Rea and Simon Guild

The organisers are particularly grateful to our Student Volunteers:

Amy Ellis, Bashaer Alqarafi, Brogan Polland, Caitlin Cairney, Erin Boland, Emma Jackson, Fatima Alani, Georgena Buesnel, Julia Isakova, Niamh Laing-Doctor, Robbie Dougan, Siobhan McGeechan and Thakshila Silva

We would also like to extend our very special thanks to:

Jeremy Mortimer (Early Career Officer, Anatomical Society)

Mike McGregor (Digital Content Officer at MVLS)

Abigail Tucker (Meetings Officer, Anatomical Society)

Hannah Webb (Administrative meetings officer for the Anatomical Society)

Jonathan Mitchell (Information & Media Officer, School of Life Sciences)

Artwork by Catherine MacRobbie

We hope you enjoy attending the Anatomical Society Virtual Summer Meeting 2021. Our heartfelt thanks to our speakers and exhibitors for their time and expertise, and to our sponsors for their support.

If you would like to learn more about the Anatomical Society, visit our website at **www.anatsoc.org.uk**

Programme designed by Julia Isakova and Siobhan McGeechan