EDITORIAL

Surgical residents anatomical education

Anatomy is the foundation of surgery. The subject of anatomy is taught in the pre-clinical years, long before the time the resident/trainee commenced the surgical training. After the pre-clinical years, students are reminded of surgery particularly in surgery lectures, delivered by teachers on the clinical side. There has also been a change in teaching of Anatomy in recent years, with no dissection on cadavers[1], less time allotted and shortage of faculty members in Anatomy[1]. The ethos of the new undergraduate curriculum in medicine, pioneered in Maastricht and Montreal, is to develop individuals with a thirst for knowledge and self-directed learning. It is but natural that most of the anatomical knowledge is not retained and the surgical resident has to relearn the surgical anatomy.

To facilitate the surgical resident in their operative surgical procedures, it may be worthwhile to have a close liaison between the department of surgery and department of anatomy.

The department of Anatomy has a lot to offer for the surgical residents:

1. The cadaver- the cadaver revisit can be a useful tool for the residents to see the anatomical structure in their proper dimension. Though cadaveric dissection is no longer done in many places, yet dissected dead body are properly preserved in a well maintained mortuary and are a good source of learning anatomy.
2. Plastinated bodies and body parts. Plastination is a technique used in anatomy to preserve human bodies or body parts. The water and fat are replaced by certain plastics. Plastination is used at more than 40 medical and dental school throughout the world as an adjunct to anatomic dissection.[3]
3. Models – Every part of human body is now learnt with the help of excellent models. The models can be broken into their components and rebuilt. The surgical resident can get first hand knowledge of anatomical structures.
4. Skeleton and bones are easily available for proper bony land marks learning and joint structures.
5. Live Human Volunteer- live anatomy with the help of ultrasound equipments, showing real time images of liver, gall bladder, kidneys, pancreas, aorta, heart chambers on volunteer can be demonstrated. Many of the medical colleges in USA have initiated Ultrasound teaching at undergraduate level including in the subject of anatomy. The surgical resident will enhance the knowledge of anatomy and will be introduced to the diagnostic and therapeutic aspects of ultrasonography. Ultrasonography has spread widely in surgical fields, breast surgery, hepatobiliary surgery, vascular surgery, thyroid surgery, pelvic surgery and surgeons are increasingly using this technology in their practice. The trainee surgeon will get an upper hand by learning this technology and will help him in diagnosis and therapeutic procedures.

The surgical residents includes general surgical residents, orthopaedic post-graduates, gynaec and obstetrics residents, neuro-surgical residents, urological residents, maxillo-facial residents, vascular residents and every surgical filed where knowledge of surgical anatomy is required.

A program can be developed with input from general surgery and allied department. The program for instance can include:

- Surgical anatomy of groin
- Surgical anatomy of Neck
- Surgical anatomy of Maxillo Facial Region
- Surgical anatomy of anorectal region

- Surgical anatomy of pelvis
- Surgical anatomy of hip, shoulder, elbow, hip, knee joints
- Surgical Anatomy of Hepato biliary region.
- Surgical Anatomy of Prostate and urethra

The program may last for about 4 to 8 weeks, depending on the topic, once a week class lasting for about two hours or so, showing organs in cadaver, plastinated bodies, models, the attachment of ligaments and muscles to bones and the way the different surgical approaches to an organ is possible with their advanatages and disadvantages .

Gauray Sharma has shown that a procedural orientated cadaver course covering a wide range of essential general surgery procedures resulted in significant improvement in self reported operative confidence and competence as assessed by oral exams.[4] A comprehensive pelvic dissection course improved obstetrics and gynaecology resident proficiency in surgical anatomy.[5] Medical Schools and postgraduate colleges and Schools of Surgery must work together to design and deliver quality-assured courses in core and non-core anatomy, that cross the under-graduate/post-graduate interface. All medical students should learn a core syllabus of anatomy, agreed by a panel of clinicians and anatomists but delivered according to the pedagogic style favoured by individual Medical Schools. Medical Schools should also offer modules in non-core surgical and/or radiological anatomy, some of which may be designed and delivered in partnership with colleges of surgery and radiology: these modules would be particularly attractive to students contemplating a career in surgery or interventional radiology.[6] A workshop in the clinical anatomy of the female pelvic viscera has been part of the training program for the first year residents in gynecology and obstetrics at the University of Padova since the 1999–2000 academic year. The purpose of the workshop is to offer a direct experience of practical anatomy despite a shortage ofcadavers.[7] Short recall courses can improve junior residents' anatomy knowledge and results in better surgical outcomes.[8]

Prof Zakiuddin G. Oonwala
MBBS, FRCS(Edin.)FICS(Hon.)
Visiting Prof Clinical Anatomy, Department of Anatomy
Hamdard College of Medicine & Dentistry, Madinat-ul-Hikmah, Karachi. Pakistan
zakioonwala@hotmail.com

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