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AN INTERACTIVE MULTIMEDIA APPROACH TO UROLOGICAL ANATOMY

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We recently reported that descriptions of prostate anatomy in current anatomy textbooks are outdated [1]. Thus we felt compelled to examine the recently launched European Association of Urology (EAU) supported interactive multimedia DVD 'Anatomy for Urology'. The word multimedia simply means 'using more than one medium of expression or communication'. In computing, it is 'an extension of hypertext allowing the provision of audio and video material' [2]. Most of us combine definitions for educational materials, expecting the resource to provide at least a combination of diagrams, with audio and video at the very least, which is what this DVD provides.

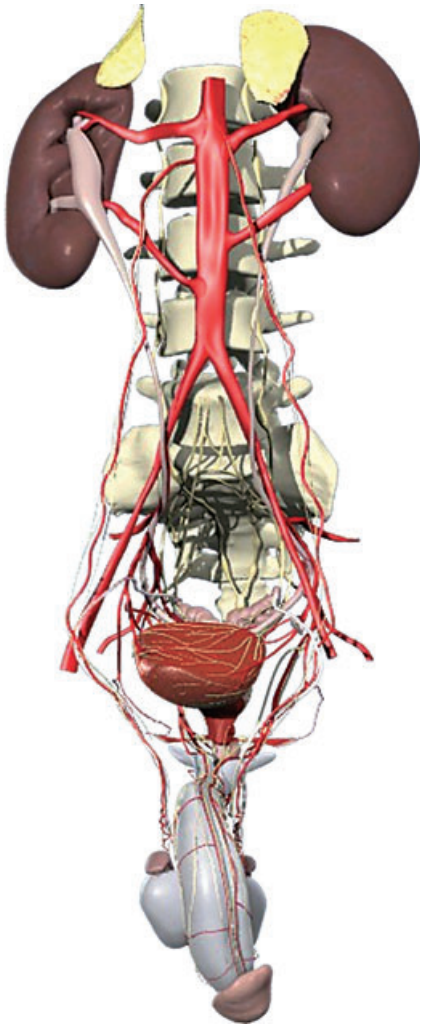
In terms of surgical education, the most basic format is the old-fashioned textbook, that currently often has an online or optical disk (CD or DVD) component, making it accessible from any computer. At the other extreme are interactive multimedia surgical workshops immersing participants in realistic scenarios [3] or even virtual reality [4,5], with the ultimate teaching being close mentoring [6]. The latter concepts are not new, with attempts made at multimedia education for anatomy in the 1970s [7]. Electronic resources available to the urologist for learning anatomy are many and varied [8]. The question remains if the multimedia and electronic resources are 'stand-alone' educational tools at a given level (e.g. purely for medical students, purely for surgeons or even with enough detail for all comers) or if they are part of a stepwise process whereby students of anatomy need to have completed them at a certain level (none, basic, advanced) to benefit; also, that they are current, precise and fulfil their objectives.

The format of the contemporary educational tool 'Anatomy for Urology' is based on three principles for education that are projected to the user: (i) Anatomy, as three-dimensional models with explanatory text; (ii) video/movies, for surgical applications such as prostatectomy; and (iii) animations, for the physiology of the pelvic floor muscle contraction.

The anatomy resource builds on the concept of removing layers of anatomy that was pioneered in the anatomy multimedia series *Anatomedia* by Eizenberg *et al.* [9]. The anatomy focuses on the urinary system, male and then female pelvis, abdomen, bone regions and nervous system. In parts the gross anatomy is excellent and the diagrams wonderful (Fig. 1). However, it lacks a vascular system or lymphatic system mode. Although these systems are covered reasonably well in other sections, they are difficult to find and could certainly be better incorporated into the next edition.

The video/movies focus on incontinence (sphincters and slings in women and men), laparoscopy (almost exclusively nephrectomy) and prostatectomy (laparoscopic with a cystoprostatectomy as well). They are really highlights and last for 6–8 min in almost all cases. The marriage of anatomy with surgical anatomy is a good concept, but we would suggest that readers focus on diagrams and articles with illustrations, such as those by Spitzer in the *BJUI* journal section 'Surgery Illustrated'. Furthermore, the contemporary nature of anatomical change is such that journals are often better placed to disseminate the knowledge quickly, as occurred with the development of the understanding of the neurovascular bundles surrounding the prostate, derived from Walsh [10], Kourambas *et al.* [11] and Costello *et al.* [12]. This anatomy has again been recently summarized in outstanding diagrams by Schwalenberg *et al.* [13] that are up to the level a surgeon requires. This remains the

FIG. 1. An example of a three-dimensional depiction of the genitourinary tract. The diagram can be rotated 360° and paused at any point to give perspective, and layers removed to further understand anatomical relationships. Copyright Primal Pictures.



challenge of many anatomical resources: aiming it at the correct level, including with this DVD.

The animation only covers pelvic floor contractions. In the future such a resource could cover erectile function, renal physiology, etc., and be a valuable addition to the platform.

Given the recent findings that current anatomy textbooks are outdated on their coverage of prostate anatomy [1] it is not surprising that this contemporary educational tool is not quite up-to-date. We know this because of our recent assessment of prostate anatomy as a benchmark for urological anatomy in current textbooks [1]. Using the same three benchmarks for this DVD: (i) prostate zonal anatomy is covered well; (ii) the description of the prostate capsule fails, as it is described as 'tough and fibrous'; whilst (iii) the cavernosal nerve anatomy is adequate, but only just, because of the diagram and not the description, which is far from adequate.

Strengths are the ability to use excellent three-dimensional anatomy and removal of layers to appreciate relationships. The added surgical videos give the clinical context. Overall, it is a good resource but in some sections it lacks the anatomical depth that a urologist requires, as already alluded to, such that it does not replace a good contemporary text, e.g. the newly revised Gray's Anatomy [14] or other multimedia resources (that also use computer modelling and layering) such as *Anatomedia* [9]. The usability is acceptable as it has a reasonably friendly interface. However, you do have to have the DVD with you at all times, rather than have it stored on your hard drive or online. The features of 'export' and 'save' images for presentations are extremely useful and will be important for teaching and patient education.

There are some minor inconsistencies, e.g. the dorsal vein of the clitoris is listed in the index, but not that of the penis/prostate. Like all new devices, it has 'teething' issues and there is a danger to become mesmerised by beautiful images, whilst letting some details that should be present go unnoticed, making the learning process less efficient than it should be. With new editions the smaller points will be resolved and hopefully the larger picture of focusing and expanding on contemporary surgical anatomy will be undertaken.

In summary, the recently launched EAU-backed interactive multimedia DVD 'Anatomy for Urology' is an excellent resource for urologists at all levels of training. In its current form it is an excellent supplement to anatomy textbooks and journal articles, but is not a stand-alone device. It also requires some previous basic anatomical knowledge, as would be expected, as it is endorsed by the EAU. In the future it is hoped that multimedia anatomy resources will be all encompassing, at least for a certain level of training, meaning that textbooks are no longer relevant. Ultimately multimedia resources are the future of learning but should be constructed to service those at any level through superior design, consideration of educational requirements and refinement through feedback.

CONFLICT OF INTEREST

None declared.

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