

Letters

TEACHING RADIOLOGICAL ANATOMY

Editor

Utilising postgraduate trainees to deliver undergraduate teaching is a logical and well established practice. Undergraduate cadaveric anatomy, once the exclusive domain of the surgical demonstrator, has in many institutions dissected itself out of existence. The rationale, if subjected to the same dissection, was in essence too many facts and too costly when software simulation is too sexy to withstand. The consequences, whilst debated in many learned papers are sublimely demonstrated in a BBC documentary "Where's the femur?" (first broadcast Radio 4 Jan 2008), the title referring to a witnessed exchange between two junior doctors. Populism aside, renewed emphasis on basic science is returning to the undergraduate curriculum and fortunately Queens University Belfast has kept it's dissection module intact. Notwithstanding there is laudable enthusiasm for multimodality input and potential for symbiotic learning across the perceived 'MB' divide.

In response an Applied Anatomy class was introduced at the completion of each anatomical module for the academic year of 2011/2012 (first and second year students). Links between clinical radiologists and anatomy departments are well documented, as is the impression of symbiotic mutualism for student and post graduate trainee, which although rational, is difficult to prove. The format over a two hour class involved dividing the students into 7 to 8 groups and rotating them around a matching number of 'stations' at 8 minute intervals. The stations were taught by first year Radiology Registrars preparing for their own FRCR anatomy exam, each addressing different imaging modalities/anatomical regions. On reflection I felt it would be churlish to restrict teaching material to radiological imaging when the students could feast upon the relative technicolor of endoscopy or handle some of the Orthopods expensive hardware – live clinical anatomy. Registrars from Neurosurgery, Cardiology, Respiratory medicine, Orthopaedics and Vascular surgery were thus coerced to attend relevant sessions. Whilst not guaranteeing an additional transfer of anatomical knowledge, at least encountering an endovascular stent, footage of a bronchoscopy, a ventricular shunt or a hip prosthesis etc confirmed relevance of the subject beyond the next exam. Happily the Radiology Registrars all passed their exam and unofficial feedback from the students was favourable, so at worst we have observed commensalism, at best mutualism.

The venue of the anatomy speed dating sessions were in the Dissection Room, which I think is important. The cadavers bear witness to forms of enlightenment which can only be gained via their recent exploration. Ofcourse similar unique perspectives are gained by the contemporary medical imagery surrounding them and many centres are opting for 'simulation

only teaching'. I feel the latter is misguided; illuminating difficult concepts from different angles frequently diminishes confusion. Other exclusive benefits of the dissection room are an introduction to the essential clinical paradox of desensitisation and humanity. Anonymous 3D images do not have the physical impact factor or the realisation that this aorta or this hand were used by an individual when they decided to afford the student the present learning experience.

The aim of the current module was to present some relevant clinical 'coat hangers' for the students newly purchased anatomical clothes. At this stage they have an impressive wardrobe, although as all previous generations can testify this diminishes with the wear and tear of time. If in the future all that remains is some well worn underwear and an odd sock at least the Queen's student won't be completely naked.

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TWO CASES OF IMPORTATION OF NEW DELHI METALLO- β -LACTAMASE 1 INTO NORTHERN IRELAND

Editor,

Multi-drug-resistant Gram-negative pathogens are increasingly isolated at hospitals around the world. We report two cases of colonisation and infection with *Enterobacter cloacae* strains producing New Delhi Metallo- β -lactamase 1 (NDM-1), not previously reported in Northern Ireland.

Case 1: A 6 year-old-boy on holiday in India suffered electrical burns to 60% of his body. On day 10 he was airlifted back to the regional paediatric ICU. On day 20 both a swab of burns on his left leg and the tip of a femoral line removed that day, grew multi-resistant *E. cloacae*. Both *E. cloacae* isolates were retested at the Health Protection Agency (HPA) Antibiotic Resistance Monitoring and Reference Laboratory (ARMRL) which found carbapenem resistance in the leg isolate (Table 1). This isolate was positive by PCR for *bla*_{NDM-1} encoding NDM-1 β -lactamase. The femoral line isolate lacked NDM-1 enzyme, but had an extended-spectrum β -lactamase (ESBL). Pulsed-field gel electrophoresis showed that these *E. cloacae* were distinct strains. Thankfully, the patient did not require antimicrobial treatment for these *E. cloacae* strains, and was discharged on day 91.

Case 2: A 46 year-old man presented with a wound infection a month after external fixation of a fracture of the 4th and 5th metatarsals of the right foot following a road traffic accident in India. Bone samples taken during debridement in theatre on day 7 grew *Pseudomonas aeruginosa* and *E. cloacae*, both multi-resistant. At ARMRL the *P. aeruginosa* was positive by

PCR for the *bla*_{VIM} carbapenemase gene whilst the *E. cloacae* was positive for *bla*_{NDM-1}. On day 50, his antibiotics were changed from colistin and tigecycline to intravenous colistin, aztreonam and fosfomycin on the basis of susceptibility results from ARMRL (Table 1). On day 92, he was discharged following completion of 6 weeks of antibiotic therapy for osteomyelitis and made a full recovery.

NDM-1 is a metallo- β -lactamase (MBL). These have one or more divalent cations, generally zinc, at their active site.¹ Other MBLs include the IMP and VIM types. MBLs hydrolyse carbapenems and all other β -lactams except aztreonam, to which many producers are also resistant for other reasons. They are inhibited by chelators of divalent cations such as ethylenediaminetetraacetic acid (EDTA) but not by clavulanate or tazobactam.¹ MBLs are challenging to detect and molecular methods for identifying individual types of MBLs remain the province of reference laboratories.

TABLE 1:

Final antibiotic susceptibility patterns and additional tests of multi-resistant E. cloacae and P. aeruginosa strains

Antibiotic susceptibility testing	Case 1		Case 2	
	<i>E. cloacae</i>	<i>E. cloacae</i>	<i>P. aeruginosa</i>	<i>E. cloacae</i>
	Tip femoral line	Left leg swab	Bone Sample	Bone Sample
Ciprofloxacin	R	R	R	R
Piperacillin/tazobactam	R	R	R	R
Meropenem	S	R	R	R
Colistin	S	S	S	S
Tigecycline	S	I	R	I
Aztreonam	R	R	S	R
Fosfomycin	I	I	R	S
Imipenem-EDTA Test*	-	+	+	+
ESBL Test	+	-	-	-
<i>bla</i> _{NDM-1} gene	-	+	-	+
<i>bla</i> _{VIM} gene	-	-	+	-

R Resistant

S Susceptible

I Intermediate, all as graded against European Committee on Antimicrobial Susceptibility Testing and British Society for Antimicrobial Chemotherapy breakpoints

* Screening test for metallo- β -lactamase

+ Positive

- Negative

Referrals to the HPA indicate that the numbers of carbapenemase-producing isolates in the United Kingdom are rising sharply, with NDM-1 often associated with prior medical exposure in India or Pakistan.² Most organisms with NDM-1 are resistant to almost all antibiotics except colistin and, less consistently, to tigecycline and fosfomycin, making it important to prevent transmission to other patients.³

These cases indicate import of NDM-1 into Northern Ireland and underscore the need for vigilance to the risk of multi-drug-resistant organisms being introduced via transfers of patients who have received medical care abroad. Infection control measures need to be implemented promptly to limit

spread of these organisms as there are few, if any therapeutic options available.

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Financial Disclosure: Dr David Livermore has received conference support from and given lectures for numerous pharmaceutical companies, including Merck and AstraZeneca, who make carbapenems. He also holds shares in AstraZeneca, Merck, Pfizer, Dechra and GlaxoSmithKline. The other authors have no conflicts of interest.

ACKNOWLEDGEMENTS

We would like to thank Dr Neil Woodford at ARMRL, clinical and laboratory staff in the Belfast Trust, Northern Ireland.

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CONSENT: TEACHING HOW TO GIVE AND TAKE.

Editor,

Michael Douglas once said "When you don't know what you're doing, it's fatal".

The process of consenting patients is a fundamental part of day to day medical life, so much so that the GMC provide comprehensive guidance on the subject¹. Teaching begins at undergraduate level however training is variable throughout medical schools in the United Kingdom and regardless of how in-depth or comprehensive the ethics, law and communication