

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.

Mark Worthington

Imaging Department, Royal Victoria Hospital, Grosvenor Road, BT12 6BA.

Correspondence to: Mark Worthington

Mark.Worthington@belfasttrust.hscni.net

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.

Aaron Nagar¹, Peter Yew¹, Grace Ong¹, Claire Black², Brendan Fogarty², Sharon Christie³, Sarah Hedderwick⁴, David Kealey⁵, David M Livermore⁶

1. Microbiology Department, Kelvin Building, Royal Victoria Hospital, Grosvenor Road, Belfast, Northern Ireland, BT12 6BA
2. Burns Unit, Royal Belfast Hospital for Sick Children, Belfast, Northern Ireland, BT12 6BA
3. Paediatric Infectious Diseases, Royal Belfast Hospital for Sick Children, Belfast, Northern Ireland, BT12 6BA
4. Department of Infectious Diseases, Royal Victoria Hospital, Grosvenor Road, Belfast, Northern Ireland, BT12 6BA
5. Regional Trauma and Orthopaedic Unit, Royal Victoria Hospital, Grosvenor Road, Belfast, Northern Ireland, BT12 6BA
6. Antibiotic Resistance Monitoring and Reference Laboratory, Health Protection Agency, Centre for Infections, 61 Colindale Avenue, London, England, NW95 EQ

Correspondence to: Aaron Nagar

E-mail: aaron.nagar@doctors.org.uk

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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

components of the curriculum are, little clinically applied consent teaching takes place². As a result when junior medical staff hit the ward they are often silently overwhelmed by the task of consenting patients when they have little experience in the proposed procedure. This may cause increased levels of stress for both the patient and junior doctor and may lead to the provision of uninformative or even incorrect answers to patient's questions^{3,4}.

The purpose of this study was to assess the effect of teaching sessions in improving the validity of consent for tonsillectomy and to develop more efficient and standardised ways to obtain consent.

A retrospective analysis of 70 sets of patient notes was carried out at three ENT centres in Northern Ireland. Consent forms were scrutinised for complications outlined by ENT UK⁵. Several other components of the consent form including the timing of consent and the grade of those taking consent was noted. A teaching session on consent was provided at each centre and a repeat analysis on a further 70 sets of notes performed.

Initial analysis showed 48%, 56% and 66% of consent forms to have been completed to the standards set out by ENT UK at the three centres respectively. Following the teaching session the three centres improved their consent taking standard by an average of 9%. There was considerable variation in the grade of doctor taking consent across the three centres with consent being taken almost exclusively by the SHO grade at one centre. Consent was obtained at the clinic 83% of the time with the remaining consent being taken on the ward prior to the procedure. Consent was not documented in any of the patient notes reviewed.

Consent practices across ENT centres in Northern Ireland are variable often reflecting the constitution of staff in the department. Consent teaching sessions led to improvements across all centres and it would be reasonable to include consent teaching for common procedures as part of an induction program for junior staff. We also recommend the use of prefabricated consent stickers to improve the standardization and efficiency of consenting across all grades, we reiterate both the need for doctors to document consent in both the notes and the consent form and for consent to be taken at the clinic to allow adequate time for patients to weigh up the risks and benefits prior to the procedure.

These recommendations serve not to "dumb down" or allow for outsourcing the process of consenting patients to other healthcare professionals but to create an environment where junior staff can safely be an integral part of the process despite time constraints and legal pitfalls.

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Dr Steven Breslin, Mr Philip R Bell, Mr James R Cullen

Department of Otorhinolaryngology, Altnagelvin Hospital, Glenshane Road, Londonderry. BT47 6SB

Correspondence to: Mr Philip R Bell

Email: bellpr@hotmail.co.uk

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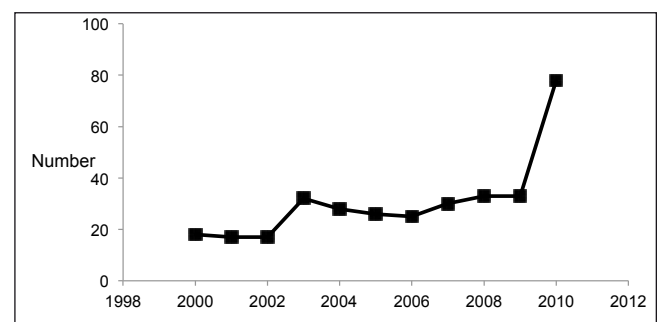
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THE EVER INCREASING DEMAND FOR METASTATIC SPINAL SURGERY.

Dear Sir,

Clearly, to allow appropriate resource planning, trends in clinical practice need to be recognised and acted upon.

In the field of spinal surgery, the management of metastatic spinal disease has significantly changed over the years. Surgical techniques have improved and patient survival is increasing. The Patchell paper¹ demonstrated an advantage in clinical outcomes for patients undergoing surgery followed by radiotherapy. NICE guidelines for malignant spinal cord compression (MSCC)² promoted spinal surgical input. Improved medical and oncological treatments are leading to increased survival times.



Graph 1. The number of patients with malignant spinal cord compression undergoing surgery

We recently reviewed the fracture outcome research database (FORD) for the last 10 years to assess if our impression of an increasing demand for surgery was real or perceived.

The results are startling.

Of the 3468 patients admitted to the RVH trauma unit in 2000, 351 were spinal admissions of various causes. By 2010, the

TABLE 1:

	Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number	Tumour	18	17	17	32	28	26	25	30	33	33	78
	Fracture	292	352	348	306	279	326	299	326	303	339	357

total number of admissions for general fractures had remained relatively static at 3483, but the number of spinal admissions had increased to 650. 18 patients underwent surgery in 2000 for MSCC, whereas an exponential rise in numbers lead to 78 patients being operated on in 2010 for MSCC (table 1, graph 1). Fractures of the spine undergoing surgery showed no significant increase.

The impact of this increase is twofold. These patients undergo complex surgery taking significant theatre time often displacing other work and the operations these patients undergo require expensive implants. However, the effect of this surgery for the patient is often significant. Whilst survival time may or may not increase, quality of life is significantly improved and the demand for this surgery will not go away in the short term.

This trend will in all probability continue and the impact on time and financial budgets will continue to increase. With advances in medical oncology, the demand will in all likelihood eventually plateau, but as yet we have not reached such a point.

From a managerial perspective, it needs to be clearly understood that this patient group quite rightly will continue to place an increasing financial and time burden on our service. Unlike other conditions, time is of the essence by definition and it will be hard if not impossible to restrict this budget demand.

L Henderson (CT2), S McDonald (FORD), NWA Eames (Consultant Spinal Surgeon)

The Fracture Unit, The Royal Victoria Hospital, Grosvenor Road, Belfast, BT12 6BA, Northern Ireland, UK.

Email: lhenderson23@doctors.org.uk

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