



Volume 13 No 3 / Jun 2017

insidenews

Quarterly publication of The Royal Australian and New Zealand College of Radiologists

THE FUTURE OF INTERVENTIONAL RADIOLOGY



A Day in the Life of a Modern Interventional Radiology Unit

Interventional radiology (IR) has been a dynamic field since its inception over 50 years ago through the work of early pioneers in the field. In 1964, Charles Dotter described and performed the first angioplasty and in the years that followed, he and other innovators brought about a revolution in procedural medicine with the development of catheter directed therapies and other minimally invasive image guided techniques.

Today, modern IR and the healthcare system in which it operates is dramatically different to that of years past. While technical prowess has often been the foremost attribute of an interventional radiologist, more recently there has been a growing awareness that procedural ability is only a component of the skill set required by IRs to thrive in the modern healthcare environment.

Internationally, the transformation of interventional radiology into an integrated clinical specialty is well underway. Whether through outpatient clinics, dedicated wards or primary patient responsibility, IRs are increasingly becoming and importantly seeing themselves as first and foremost clinicians. We have come full circle and are being given lessons by our colleagues in medicine, surgery and radiation oncology, which we must learn.

From angioplasty and stenting to coiling and clot retrieval, embolisation, ablation and the broad suite of interventional oncology; the ways in which IRs can treat our patients has expanded dramatically and consistently and almost every branch of medicine has benefited. With so many new and compelling developments and a shifting self-perception within the profession, it is an exciting time to be an interventional radiologist!

It's 7:30am on Wednesday morning and the HCC meeting is about to start. The room is filled with gastroenterologists, a hepatic surgeon, oncologists, diagnostic and interventional radiologists, IR and HCC nursing staff and keen radiographers. It's a relatively new meeting borne out of the UGI meeting that was at risk of stretching to several hours by the prospect of an ever-increasing tide of chronic liver disease (viral and NASH) predisposing to HCC.

The first patient is a 65-year-old female with cirrhosis, Child-Pugh A and ECOG 1. She's been treated in the IR unit for several years initially having had a microwave ablation of a small lesion in her right lobe followed by a DEB-TACE

"Modern IR and the healthcare system in which it operates is dramatically different to that of years past."

embolisation to a subsequent lesion in segment 4a. Her one month follow up CT demonstrates a rim of enhancement at the site of recent embolisation and we discuss the possibilities of persistent disease versus post treatment inflammation. The discussion turns to her willingness for further interventional options as well as the possibility for sorafenib chemotherapy. Additional loco-regional therapy with a repeat embolisation could be warranted but the alpha fetoprotein has dropped to almost nothing and we are just not sure if that smooth rim of enhancement is definitely a tumour. The decision is made for close imaging follow up and subsequent discussion. The meeting moves on to the next patient and so it goes for the ten patients on the list,

many of them with treatment histories stretching back years. We have come a long way from an average life expectancy of seven months.

By 8:30am, it's time to get going on the first case of the day. He is a 54-year-old hypertensive vasculopath with calcified vessels and critical stenoses of his renal arteries. He was seen in the interventional clinic several weeks before for a pre-procedural assessment where he was fully worked up and paperwork completed so there are no hold ups getting him on the table. The nurses are a little anxious that his blood pressure is sitting above 200 systolic but after titrating it down with some IV hydralazine everyone is a little more settled and we can get going. The case starts with a cone beam CT on the table of the single plane, floor-mounted departmental workhorse. This is then fused to the CT angiogram to give a 3D map of the aorta and visceral vessels enabling renal artery access without a drop of contrast. Have to keep the nephrologist happy.

In the biplane suite next door, the IR fellow is scrubbing for a PTC on a yellow 70-year-old woman who's been waiting for several days for the procedure. The hold-up has been anaesthetics, not that it's their fault. The hospital only funds two general anaesthetic lists per week and they only start after they've finished the electroconvulsive therapy list in theatre. Who would have thought there is that much ECT going on? So we have had to fight for this add on list and there will need to be a bus crash for us to let the anaesthetists escape back to their emergency theatre lists.

We're not sure what's causing her biliary obstruction but cholangiocarcinoma is the most likely cause. She failed ERCP due to a previous Billroth II, it's unclear why they attempted at all, so the only other option for decompression and a tissue diagnosis is percutaneously

through the liver. The fellow has done this before so he's left to himself to gain access to the biliary tree with ultrasound guidance and fluoro if that fails.

Meanwhile the vascular team stick their heads in; they want to discuss a couple of cases. There are patients with carotid artery stenosis, both outpatients, who will require stenting. These are generally done as combined cases with vascular and IR and the results over the last few years have been solid. We all huddle around the Terarecon workstation as we measure the vessel size, length of the plaque and try to predict how the vessel will react to landing the stent along that curve of vessel. Satisfied the vessel won't kink and that the embolic protection device is going to sit nicely through the procedure, we lock the cases in for next week.

As this is going on, the pressure measurements across the renal artery stenoses are significant at >25 mm Hg and the stents go in without issue. The post angiogram doesn't show any renal perfusion defects so everyone is happy with a job well done. Access was with a 7F sheath via the right common iliac and given that we started him on clopidogrel in clinic, it isn't going to be fun pressing on the groin for the next half an hour... especially as the fellow is busy next door. We decide on a closure device which deploys well under ultrasound guidance. The patient will follow up with the nephrologist and we hope to see the blood pressure significantly lower than when he arrived this morning. In the meantime, we try to get him out of the hospital and away from a blood pressure cuff before the hydralazine wears off.

The IR registrar, rotating from diagnostics for three months, is back in the unit having finished the morning ward round with the resident; it always takes a couple of hours. Even though most of the patients are nursed in



the IR ward next to surgical short stay there are always a few outliers and patients with drains can be all over the hospital. The 75-year-old whose small RCC we cryo-ablated yesterday is so asymptomatic she doesn't believe we actually did anything and the reg was hard pressed to convince her otherwise. She was admitted under the IR service

"Some fancy wirework by the director is all it takes and the catheter pops satisfyingly into the duodenum."

overnight only because she lives in a small town several hours away and couldn't get home late in the afternoon. We're not surprised she's a bit confused by it all; cryotherapy is so well tolerated

patients often wake up with no more than a mild ache in their back, if at all. She'll head home with her daughter and we'll see her in clinic in three months time with a CT. The urologist is happy for us to follow her up and grateful she has another option to offer her patients particularly for stropky older folk who won't contemplate surgery.

There are no other issues on the round. The uterine fibroid embolisation patient has her PCA down and is going home. She was referred by an out of area O&G and was also admitted under IR without a problem except for the middle of the night phone call to the on call IR, like clockwork at 2:00am, in regard to the patient's cramps. All the drains placed over the past few days are either draining well or out, and at 10:30am the resident has ward chores to do and the reg is sent to consent the patients waiting in trolley bay and get stuck into some biopsies and a few more drains.

continued over...

Back in biplane the PTC is dragging on, not because of access issues but rather the tight stenosis blocking the CBD. The fellow is suggesting a sharp recanalisation option, which is perhaps a little premature even two hours in. Some fancy wirework by the director is all it takes and the catheter pops satisfyingly into the duodenum. The biliary forceps are advanced down the sheath and bite off several small pieces of tissue at the level of the occlusion. Usually deployed via an endoscope, they have found a home in our IR suite as a useful addition to the bag of tricks. There's blood casting in the ducts on the cholangiogram and while the pathology will almost certainly return a malignant result, the decision is made to let things settle down and bring the patient back in a few days' time for a check cholangiogram followed most likely by biliary stenting.

It's lunch time now and International Nurses Day. This of course means a departmental shut down and we take the opportunity to check out the new coffee shop recently opened in the hospital foyer. We run into the hospital General Manager and stop to chat. She's appropriately proclaimed 2017 as the year of interventional radiology and we are hoping this translates into a few more nurses and radiographers, even if not the combined angio/CT suite and interventional MRI we are all barracking for.

Lunch is interrupted by a call from the ED staff. They are helicoptering in a pedestrian vs car with almost certain pelvic fractures and a blood pressure through the floor. We advise to take them straight to IR where we'll need to do an emergent angiogram and likely embolisation of the iliac arteries. It's a little uncommon to get trauma cases at this time and despite how it throws out the list, everyone will be happy to do this kind of difficult case in the light of

day. It will need to be done in the hybrid suite, which sits in IR directly next to theatre in case orthopedics need to get involved at the same time.

Down the corridor, we are prepping for the prostate artery embolisation case on the chatty 63-year-old gentleman with BPH. He's a little anxious; he flew over from New Zealand for the procedure and anyway most men are about this kind of thing. We're hoping he's going to be as happy as the last guy, who two weeks later proudly proclaimed he was peeing like a racehorse and had never felt better. It's a PIRADS 2 and the MR shows the prostate pressing up into the bladder with a particularly large central zone. It'll be radial artery access so when it's all done he'll be up and walking about within the hour – they are always pretty keen to get to the bathroom. We'll follow up by phone.

The neuro IR's are kicking off their list in biplane now as well. There's an aneurysm to coil and a few follow up cerebral DSAs. It already feels like a full day and it's only 2:00pm...

Dr Jules Catt

Consultant Interventional Radiologist
Liverpool and Prince of Wales Hospitals,
Sydney

Dr Glen Schlaphoff

Director of Interventional Radiology
Liverpool Hospital, Sydney

Would you like to contribute to the feature articles of Inside News? Contact Sarah Hall on editor@ranzcr.com or +61 2 9268 9752.

