



Health Matters

Your patients our focus | Issue 4 - Autumn 2012

ACL injuries, an update and new ideas



Mr Simon Johnson

Area: Orthopaedics

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Last August I had the opportunity to attend an ACL (Anterior Cruciate Ligament) conference in Pittsburgh USA. It was run by Freddie Fu, a man of incredible energy and enthusiasm and arguably the most famous ACL surgeon in the world at present. This was a three day conference that was entirely dedicated to the ACL, a 3cm ligament in the knee. The meeting was attended by most of the big names of knee and ACL surgery from around the world. There have been some fascinating new developments in ACL surgery during the past five years and it is on these new ideas that this article is based.

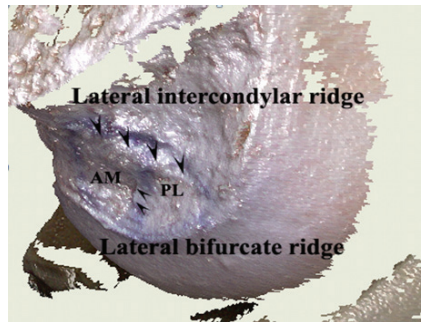


Figure 1.
View of the medial wall of the lateral femoral condyle

Anatomy

The ACL is a ligament of 2.5-4.5cm and originates on the medial surface of the lateral femoral condyle. It runs obliquely within the knee joint from lateral and posterior to medial and anterior. The ACL inserts into a broad area of central tibial plateau.

Continued on page 3

What's inside

ACL injuries, an update and new ideas
> 1, 3, 4 and 5

Chief Executive's Message > 2

Breast Reconstruction in the 'Tenties'
> 6, 7 and 8

New Treatment for Resistant
Hypertension > 9

GP Conference > 10, 14 and 15

Gastric Bypass Resolves Type 2 Diabetes
> 11

The Management of the Painful Hip Joint
in the Younger Adult > 12 and 13

Reflux is Not Only Acid > 16 and 17

Bowen Hospital Welcomes The Breast
Centre > 18

The Breast Centre – Lymphoedema > 19

Management of Facial Trauma
> 20, 21 and 22

Bowen Hospital's New Theatres > 23

Management of Rheumatoid Arthritis > 24

Weta helps with Training > 25

Reducing Patient Risk > 26



Resistant Hypertension

New treatment for
Resistant Hypertension
Page 9 >



Hip Joint Pain

Management of pain
in younger adults
Page 12 >



The Breast Centre

Bowen Hospital welcomes
The Breast Centre
Page 18 >



Chief Executive's Message

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Thank you for taking the time to read this edition of our magazine prepared especially for General Practitioners. Although this is the fourth edition, it is the first published as *'Health Matters'*.

The reason for the name change is because we found there were other magazines with similar names and because we wanted a name that emphasises the key objective that is important to all of us - health. Although the publication name has changed our focus will not. We will continue to bring you the high quality coverage that you deserve, providing the consultants at Wakefield Health hospitals (Wakefield and Bowen in Wellington and Royston in Hastings) the opportunity to keep you informed about their specialty interest and for

the Wakefield Health team to update you on topics that may benefit you and your patients.

The redevelopment of Bowen Hospital reached another exciting milestone on 24 January with the commissioning of three new operating theatres.

These are the first of five new theatres built at Bowen to replace the original three that have served the Wellington community so well for over

35 years. The new theatres follow the completion of the Bowen Centre last year which now accommodates Pacific Radiology (including the only PET scanner in Wellington), the Wellington Orthopaedic and Sports Surgeons practice, The Breast Centre, Plastic Surgeon David Glasson, the Bowen Endoscopy Centre and several other specialist consulting rooms (visit www.bowen.co.nz for full details). The redevelopment of Bowen continues with a day surgery facility and education centre now under construction.

2012 GP Conference

I take this opportunity to remind you to record in your diary 13-14 April for the 2012 Wakefield GP Conference being held in Wellington. This is the 15th year that Wakefield has sponsored this conference for General Practitioners and these conferences continue to

attract attendance from a large following of GPs throughout central New Zealand. The variety and quality of the guest speakers this year will ensure you gain maximum educational value from attending this conference, as well as the opportunity to network with other GPs and specialist consultants. (Visit www.wakefieldhealth.co.nz and follow the GP Conference link under Events for registration details).

Thank you again for the support you give us through referring your patients to our hospitals and the specialists who consult and operate in them. We hope you enjoy this publication and find it of value.

Kind regards

Andrew Blair
Chief Executive

Our Changing World

Wakefield Health GP Conference 2012

FRIDAY 13th & SATURDAY 14th APRIL 2012, TE PAPA, WELLINGTON
FOR FURTHER DETAILS SEE PAGES 10,14 & 15

Anterior Cruciate Ligament

continued from page 1

It is here that some of the recent research has been done¹. In his 2007 paper, Freddie Fu et al. showed that the anatomy of the femoral attachment of the ACL is a double bundle structure with anteromedial and posterolateral bundles. They are both situated on the lower (posterior) third of the medial wall of lateral femoral condyle. Both bundles are behind the lateral intercondylar ridge and separated by lateral bifurcate intercondylar ridge, figure 1. This basic cadaver study by Fu et al. has clearly demonstrated the true anatomy of the ACL origin and from these simple findings newer more anatomical techniques to do ACL reconstructions have evolved.

History of ACL reconstructions

William G. Clancy, one of the grandfathers of ACL surgery gave an excellent ACL history lesson². ACL reconstructions were initially done open. This usually involved a midline incision taking a mid third bone patella tendon bone autograft. A clear and open view of the femoral origin and tibia insertion was visible. The bone tunnels were then drilled under direct vision through the open incisions and were actually placed anatomically in the centre of the femur and tibia footprints as described by Fu et al. in 2007. This was pre 1985 at which point the orthopaedic companies started to develop 'single incision' drill guides. This was where things went a little wrong because these new 'transtibial' guides enabled a small incision ACL reconstruction usually arthroscopically assisted. The arthroscopic component enabled better evaluation of the rest of the knee but the new transtibial guides placed a non-anatomical ACL. The principle was to first drill a

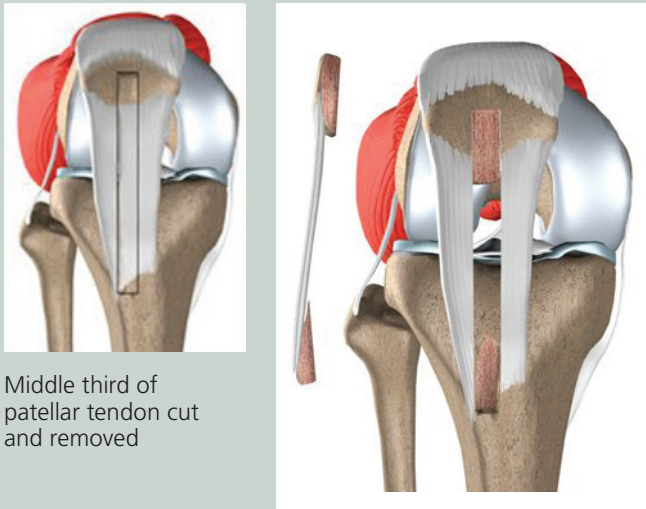
tibia tunnel and then place a guide up the tibia tunnel with the knee at 90 degrees flexion and then drill a femoral tunnel through the tibia tunnel. This placed the tibia tunnel far too posterior and the femur way too 'high'. This was the so-called 'high noon' position on the femur. These grafts were therefore not anatomic and the results were often not as good as they could have been. This problem seems obvious now but not back then. It must be pointed out that some of the prominent Australasian surgeons started drilling the femur through the medial portal to prevent this non-anatomic graft placement and this was a step back in the right direction. However, it wasn't until the simple 2007 study by Fu et al.² that the true anatomy of the ACL was looked at and clearly defined.

The important message here is that it doesn't really matter whether an ACL reconstruction is performed open or arthroscopic but rather that the graft is placed in the correct position.

Graft selection

The choice of ACL graft is a topic bound to get any group of knee surgeons into a frenzied argument. However once again the more important point is not what graft is used but rather that it is placed in the correct spot. There are multiple graft options available. These include allograft and autograft and recently synthetic grafts have once again raised their heads. The results of allograft in the USA have been woefully inferior to autograft and more expensive. They do have some benefits in that there is no donor site morbidity and they cut down on operating time. Allograft is also good for multi-ligament knee reconstructions where autograft will be used up quite fast.

Figure 2.



Middle third of patellar tendon cut and removed



Prepared bone patella bone tendon autograft

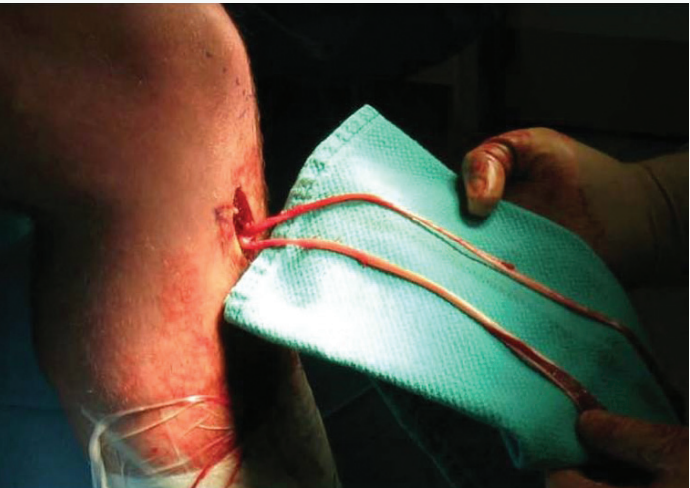


Figure 3. The hamstring tendons, which in this figure are still attached distally, are delivered out of a small 3cm incision.

Autograft includes the two classics of BTB (Bone Tendon Bone) and hamstrings. BTB, figure 2 is a central third patella tendon with a bone block on both ends.

The hamstring graft, figures 3 and 4, comes from the semitendinosus and gracilis tendons. The tendons are folded in two creating a fourstrand graft.

continued on page 4

Anterior Cruciate Ligament

continued from page 3



Figure 4. A & B: Hamstring grafts being prepared. C: Interference screw for graft fixation.

Both BTB and hamstrings are excellent grafts with predictable results. The pros of BTB are more rapid incorporation and possibly better for patients with ligamentous hyper laxity. The cons of BTB are risk of patella fracture, an increase in anterior knee pain, anterior knee skin paresthesia from graft harvest and also slower time to regain full range of motion. BTB is also associated with an increase in OA (Osteoarthritis) at long term follow up^{3,5}. Hamstring pros are that they are associated with less future patellofemoral OA than BTB. Hamstrings are less painful to harvest, they do not have anterior knee pain. Hamstring cons are slight loss of hamstring power, increased laxity compared to BTB in a hyper lax patient, slower incorporation requiring a compliant patient and possibly further hamstring tearing during the rehabilitation period. Also in the autograft armamentarium is quadriceps tendon. This is an old graft choice that has recently enjoyed renewed interest^{4,6}. It is harvested from the quads tendon and has little donor site morbidity. There are no associated paresthesias or range of motion deficits

after rehab with this graft. It is also thicker than BTB grafts (around 7mm versus 3mm in the anteroposterior dimension) and is well suited to double bundle techniques. For these reasons multiple high output sports centers in the USA have now started using quadriceps tendon autograft as their graft of choice for ACL reconstructions. I am sure we will see more of this in the near future. Synthetic grafts are also ever present and, as always, shrouded in controversy. There were more than 1000 ACL synthetic grafts performed in Australia in 2010. The ligaments are made of polyethylene terephthalate (PET). The perceived benefits of these grafts are no donor site morbidity, immediate stability with rapid rehabilitation being possible. These factors obviously appeal to sportsmen who are impatient (or pressured) to return to sports as soon as possible. These athletes cannot afford the long six to nine month rehabilitation period that follows an autograft ACL reconstruction. These ligament grafts have very specific indications and need to be used judiciously. The possible

complications include early rupture and failure, synovitis and a failure to incorporate into the bone tunnels or the ACL ligament stump as their manufacturers' claim they do. Synthetic ligaments seem better suited to other ligament reconstructions about the knee and shoulder such as the PCL and coracoclavicular ligament. We have not heard the end of the synthetic ACL ligament controversy, of that I am certain. So which graft is best? Increasingly it seems that the best choice of graft is a multifactorial choice that should be made depending on the patient's individual demands. For example, a long jump athlete who has an ACL rupture on his jumping leg presents a dilemma to the surgeon. If hamstrings are used the athlete will not have the full speed that he had before but if BTB is used, he may have slight anterior knee pain and a risk of patella fracture. So both of these options will not be ideal for this high demand athlete. But, quads tendon may have a role here or possibly even, dare I say it, synthetic graft. The other factor to be considered during graft selection is surgeon preference. Some surgeons simply do

ACL injuries are usually caused by a valgus external rotation injury to the knee and are associated with an audible or palpable click or pop 30-50% of the time. Patients will often give a history of the 'knee coming apart'.

good hamstrings and others better BTBs and this is a very important consideration. **Injury mechanism and presentation** This can be loosely divided up into contact and non-contact injuries. They are usually caused by a valgus external rotation injury to the knee and are associated with an audible or palpable click or pop 30-50% of the time. Patients will often give a history of the 'knee coming apart'. The traumatic episode is usually accompanied by a haemarthrosis within a few hours of injury. There may be certain associated injuries including meniscal tears, osteochondral lesions and patellofemoral pathology not to mention multi ligament injuries. The classical ACL injured patient will not be able to continue play and will require help exiting the field. **Primary care** All patients with this history or a haemarthrosis of the knee require thorough examination of the knee and should have an x-ray to exclude possible fractures. Assuming nothing is picked up on clinical exam or x-ray, most patients will be discharged from ED with basic

advice on rest, ice, compression and elevation. Patients will usually go to a physiotherapist or GP for further care. At this stage we are only discussing ACL injuries but ACL injuries are often associated with co-morbid injuries such as meniscus tears, osteochondral lesions and multi-ligament injuries. Obviously patella dislocation needs to be looked for and excluded. Patients are usually only referred to an orthopaedic surgeon after recurrent instability has become an issue for the patient. Now whilst the ACL can acceptably be treated surgically in a delayed fashion at three to six months, it is the co-morbid pathologies that often require immediate intervention. The young athlete with an ACL rupture and bucket handle meniscus tear should ideally be treated with an early meniscal repair followed by delayed ACL reconstruction at six weeks to three months post injury when the knee has recovered from the initial trauma insult. Early ACL surgery may result in arthrofibrosis and is avoided. The point here is that ACL surgery can (and often should) be delayed, but meniscal repair surgery generally cannot be delayed due to the meniscus undergoing plastic deformation. This will generally result in a meniscectomy being performed at the 'delayed' surgery ridding the patient of a vital knee 'shock absorber' and causing early progression to OA. Whilst all this theory is well and good, it means that these patients with combined ACL and meniscal pathology need to be diagnosed early. The only reliable method to pick this up would be to MRI all knee haemarthrosis patients but this is not a viable option in today's economic climate. It is up to us as clinicians to have a high

index of suspicion. Perhaps all young athletes (shall we say less than 30 years) should be given early rapid referral to an acute knee clinic for clinical evaluation and MRI scanning. **ACL injuries in the adolescent or child** We are seeing more children presenting with this devastating injury. This is often associated with an avulsion of the ACL footprint from the tibia and can easily be repaired by surgical stabilisation. It seems that the paediatric ACL has the ability to repair itself similar to the adult medial collateral ligament. However, it still needs to be placed in the correct position and protected before this happens. There are some children and adolescents who have the typical adult presentation and in whom repair is not an option. These patients present a true dilemma to the physician. If treated surgically, there is the chance that the physis or growth plate will be damaged and then predispose the patient to asymmetrical premature physis closure and subsequent angular growth abnormalities. Conversely, if treated conservatively they have ACL deficient unstable

knees that predispose them to meniscal and chondral damage that will result in early OA. There are no real solutions to early OA but angular growth abnormalities can be corrected relatively easily. The current recommendations are to go ahead with the ACL reconstruction in these patients but obviously every patient's individual factors need to be taken into account before this big decision is made. In Pittsburgh there is some very interesting and elegant work being done on this problem⁷. They have pioneered a new technique that involves anatomic placement of the graft but avoids violation of the growth plate effectively eliminating the chance of growth plate arrest, figure 5. **Conclusion** ACL injuries have always been and no doubt will continue to be a fascinating area of orthopaedic surgery. Recently there have been some improvements in surgical techniques that have translated into better results and outcomes. These improvements have been made possible by some wonderfully elegant and simple anatomy basic research papers. Paediatric

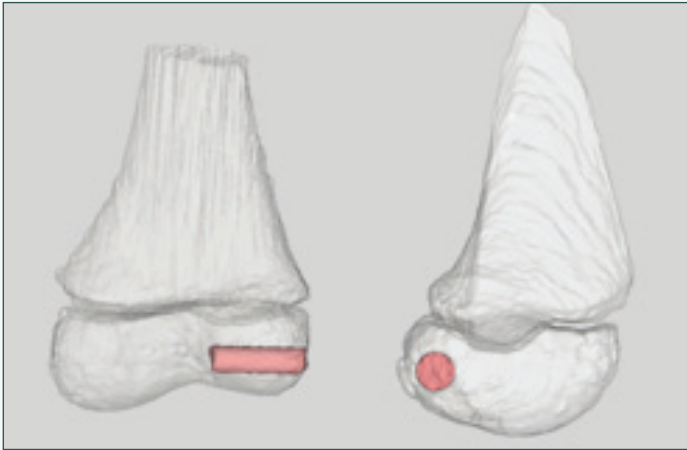


Figure 5. Femoral tunnel for ACL graft fixation in a patient with an open physis.

ACL injuries whilst increasing in number, have also seen an improvement in surgical treatment options. However, it is only with close and early collaboration with the general practitioner, the physiotherapist and the orthopaedic surgeon that optimal treatment will be possible. **References** 1. The Lateral Intercondylar Ridge - A Key to Anatomic Anterior Cruciate Ligament ReconstructionFreddie H. Fu, MD, DSc, DPs(Hon), Susan S. Jordan, MDJ. Bone Joint Surg. Am., Oct 2007; 89 (10); 2103-2104 2. United States experience-William G Clancy Jr., MD, PhD. Pittsburgh 2011 3. Fifteen-year outcome of endoscopic anterior cruciate ligament reconstruction with patellar tendon autograft for "isolated" anterior cruciate ligament tear. Hui C, Salmon LJ, Kok A, Maeno S, Linklater J, Pinczewski LA. Am J Sports Med. 2011 Jan;39(1):89-98 4. Quad tendon in continuity with patellar tendon: Clin Orthop 143: 97-106, 1979.Marshall, Blauth, Staubli 5. Bone-patellar tendon-bone autograft versus hamstring autograft anterior cruciate ligament reconstruction in the young athlete: a retrospective matched analysis with 2-10 year follow up. Knee Surg Sports Traumatol Arthrosc. 2011 Nov 3; Tranovich MJ, Kropf EJ, Fu FH, Harner CD 6. Anterior cruciate ligament reconstruction using quadriceps tendon autograft: intermediate-term outcome. Arthroscopy. 2009 Dec;25(12):1408-14. Geib TM, Shelton WR, Phelps RA, Clark L 7. Anatomic Landmarks Utilized for Physeal-Sparing, Anatomic Anterior Cruciate Ligament Reconstruction: An MRI-Based Study. John W. Xerogeanes, MD, Kyle E. Hammond, MD, Dane C. Todd, BS JBJS. Am., Feb 2012; 94 (3); 268-276.

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Breast Reconstruction in the 'Tenties'

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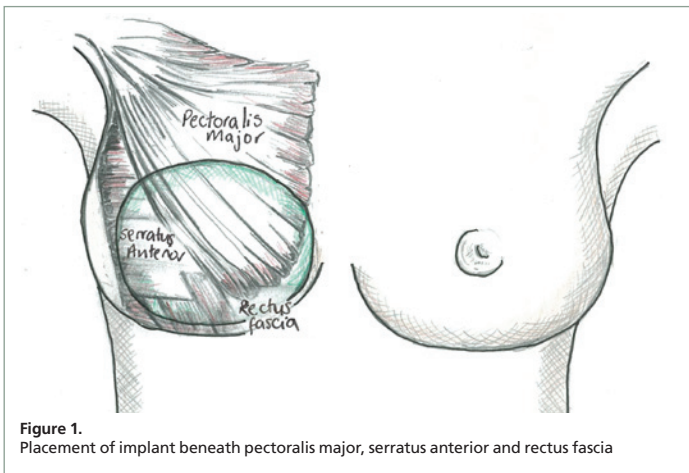
Current guidelines advise us that breast reconstruction should be discussed with all patients who are having a mastectomy. And, it should be offered to these patients unless significant co-morbidity, or (the need for) adjuvant therapy, precludes this option (NICE clinical guideline 80, 2009). However, breast reconstruction is optional. Patients do not need to see me, nor any of my breast reconstructive colleagues, unless they wish to do so. They do not have to choose any one of the reconstructive options that is offered to them, nor do they have to make such a difficult decision immediately. Many patients have their reconstruction a long time after their surgery for breast cancer. This is called delayed reconstruction. This is quite different from a 'delay' procedure which will be explained in this article. Patients should, however, listen carefully to their breast surgeon and take the advice that is given. The next thing that patients should know is that not all types of reconstruction will be suitable for them. For example, I prefer not to perform implant alone reconstructions in patients who are going to have radiotherapy (Kronowitz & Robb, 2009) and some ladies simply don't have enough of

The options and availability of breast reconstruction has changed enormously since the first implant reconstructions in the early 1970's and the first abdominal tissue reconstructions of the late 1970's (Serafin et al., 1978; Hartrampf et al., 1982). Undoubtedly, the cosmetic results have improved and the expectations of patients can be better met than ever before.

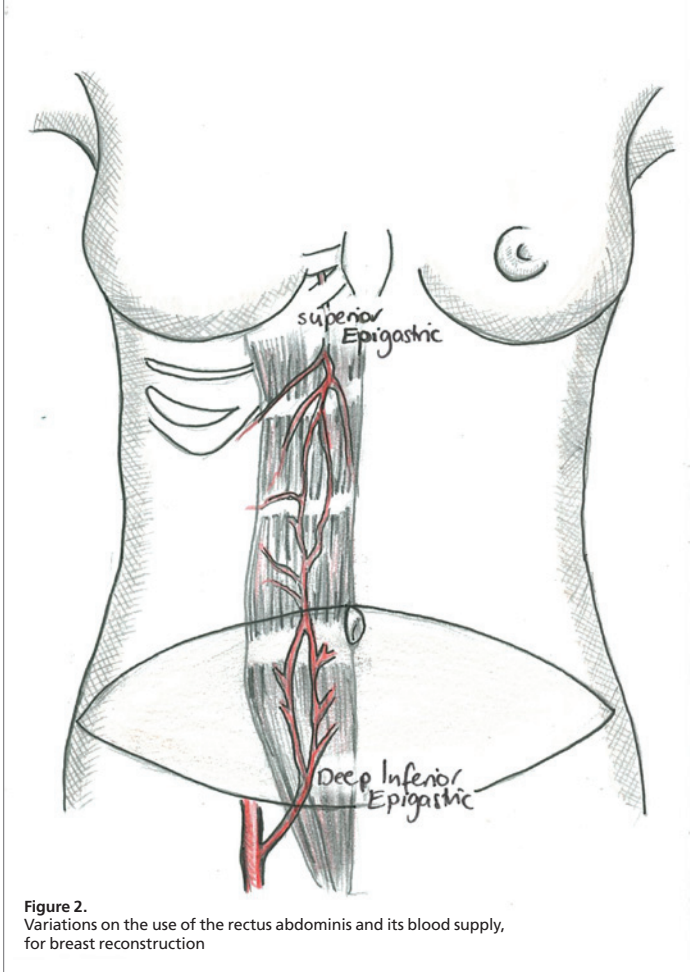
their own tummy or back tissue to avoid the use of implants. Thirdly, no reconstruction is perfect. Each type of reconstruction has its own set of pros and cons. It is our job as reconstructive surgeons to explain to a patient what might be possible for them and then to decide on an appropriate plan. This plan must take into account that patient's individual needs. A martial arts expert may prefer to avoid using her back muscle, whereas another woman may not want the 'down time' away from work that is necessary for a Deep Inferior Epigastric Perforator (DIEP), or Transverse Rectus Abdominus Myocutaneous (TRAM) operation. Plastic and breast reconstructive surgeons are best positioned to advise because we have been trained to perform all the different methods of reconstruction. Broadly speaking, reconstructive types can be divided into:

- implant reconstructions
- autologous tissue reconstructions, that is, patient's own tissue
- or, a mixture of both.

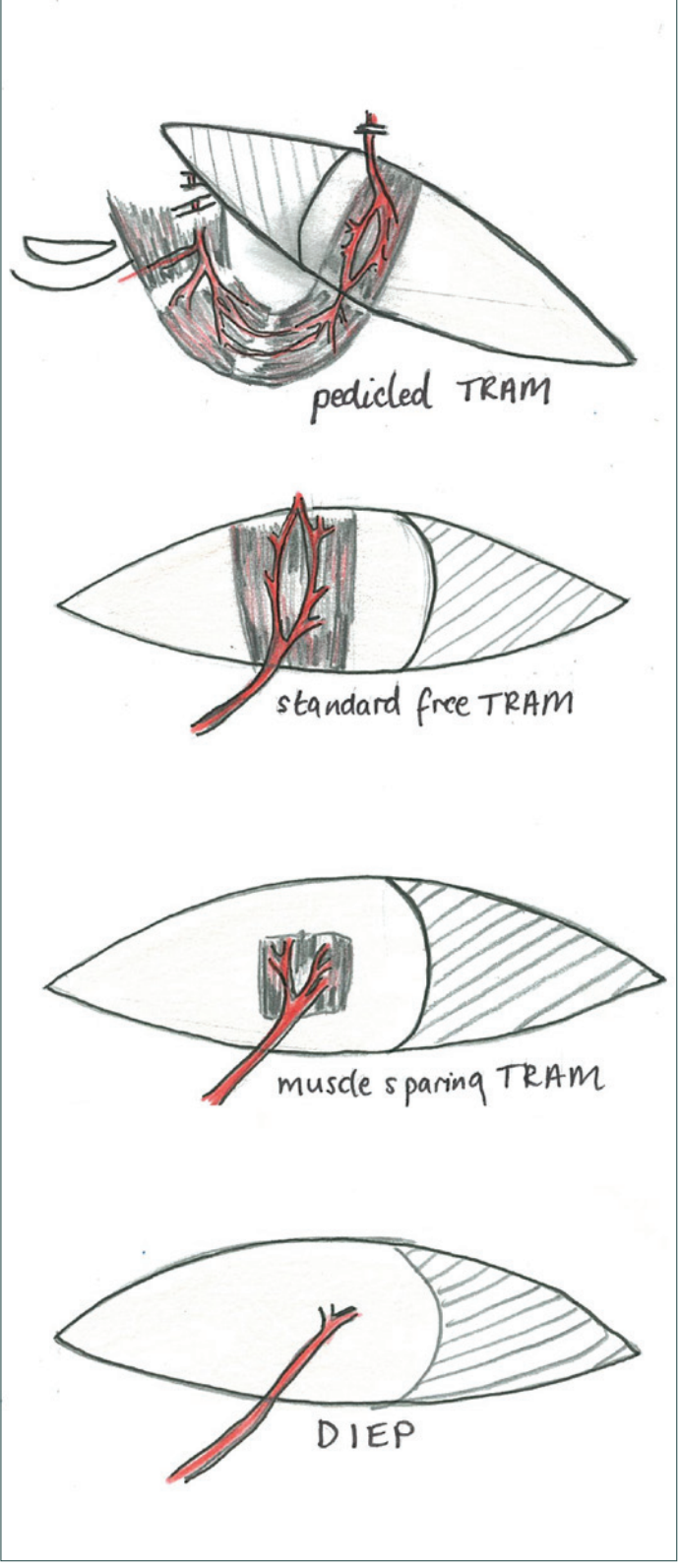
Autologous operations can be further divided into operations using back tissue (Latissimus Dorsi (LD), or extended LD flap) or using abdominal tissue (TRAM, muscle-sparing TRAM, DIEP, Superficial Inferior



Epigastric Artery (SIEA) flaps). There are also less frequently used operations that use tissue from the buttock (Superior Gluteal Artery Perforator (S-GAP), Inferior Gluteal Artery Perforator (I-GAP), flaps) or the inner thigh (Transverse Upper Gracilis (TUG) flap). When I perform implant reconstructions, I prefer implants to have total muscle cover to prevent the risk of extrusion, see figure 1. This means that the reconstruction is often performed in two stages. The first stage involves placement of a tissue expander beneath the muscle. This allows a space to be expanded in the submuscular pocket. The expander is then replaced with the definitive implant at a second stage. Any further adjustments for symmetry can also be made at the second stage. Because of the risks of capsule formation and other complications, I prefer patients to have an autologous reconstruction if it is known that they are going to have radiotherapy (Albino et al, 2010; Kronowitz & Robb, 2009). The LD flap is an excellent, robust flap that is suitable for many patients. However, it generally provides insufficient tissue on its own unless an extended LD flap is used (Rifaat et al., 2008). The latter takes more fat from the back but can leave an obvious and ugly contour defect in larger ladies. Therefore, the traditional LD flap is often used in conjunction with an implant. The operation time is shorter than the abdominal alternatives but can provide more ptosis



than an implant alone reconstruction. The TRAM flap has been used as a 'work horse' flap since the 1980's. The blood supply to this muscle comes from the superior epigastric and the deep inferior epigastric vessels (Boyd et al., 1984), see figure 2. A pedicled TRAM supports the tissue on the superior vessels, which are smaller than the deep vessels. Most of, or all of, the rectus muscle must be sacrificed in raising this flap. Because the blood supply is less reliable than the deep vessels, the definitive reconstruction is frequently preceded by a 'delay' procedure which is performed a week or two before. This involves division of the deep inferior vessels on one side and the similar



continued on page 8

Breast Reconstruction in the 'Tenties'

continued from page 7

The deep inferior epigastric vessels are then anastomosed to either the internal mammaries or the thoracodorsal vessels in the axilla.

There has been the trend over recent years for surgeons to remove even less muscle and keep the required fat and skin tissue alive on smaller vessels called perforators (Koshima & Soeda, 1989). This is how the DIEP has evolved. These perforator flaps have many advantages, which mainly relate to donor site morbidity. This is because muscle that would otherwise have been removed can be left behind. This should decrease the risk of abdominal hernias and weakness when using abdominal tissue in breast reconstruction. However, the increased complexity of these operations means that the surgical times are longer and the flaps themselves may be more vulnerable to complications such as fat necrosis or even complete loss of the flap (Man et al., 2009). They also require careful monitoring by nursing and medical staff in the immediate post-operative period.

There are now variations on the DIEP flap, which involve 'stacking' of the flaps. This means that two flaps can be used together if there is insufficient tissue on one side of the abdomen.

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The vessels are anastomosed to each other either in series or parallel. These flaps are called stacked DIEPs (Dellacroce et al., 2011).

Other free flaps such as the TUG flap have gained popularity (Fansa et al., 2008). This flap is more rapidly raised than a DIEP but the amount of tissue that can be raised from an inner thigh is limited and can preclude its choice. Surgeons have used two TUG flaps together for volume. This also gives symmetry to the donor site. However, two free flaps together add complexity and time to a procedure when a suitable and easier alternative can be found. The S-GAP flap and its inferior counterpart have also been used. Although these flaps can provide a pleasing 'buttock lift' on the one side that is used, the dissection is tedious and the patient has to be turned more than once for an immediate reconstruction (Guerra et al., 2004).

The good news about breast reconstruction is that there are a large variety of techniques available that can cater for most patients needs. The potential for reconstruction can help patients cope with the diagnosis, even if they choose not to take up reconstruction immediately. However, there are some patients for whom it is neither possible nor appropriate. Other women can become overly fixated on the reconstructive process. It is important that these patients do not lose sight of the original pathology and to realise that surviving breast cancer is the main priority.

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New Treatment for Resistant Hypertension



Dr Malcolm Abernethy

Area: Cardiology
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Hypertension is a very common condition affecting approximately 30% of all adults, increasing to around 70% in those over 70 years of age.

The risk of stroke and coronary artery disease are directly related to systolic blood pressure recordings and the treatment to lower blood pressure is typically a combination of lifestyle changes (weight loss, exercise, reduction in salt and alcohol intake) and anti-hypertensive drug therapy.

Most patients need more than one drug to lower their blood pressure adequately, however, in approximately ten percent of patients it is not possible to lower their blood pressure to target levels, despite multiple drugs. If the systolic blood pressure remains above 160 mm Hg (or 150 mm Hg in diabetics), in spite of triple therapy including one diuretic, this is termed severe resistant hypertension.

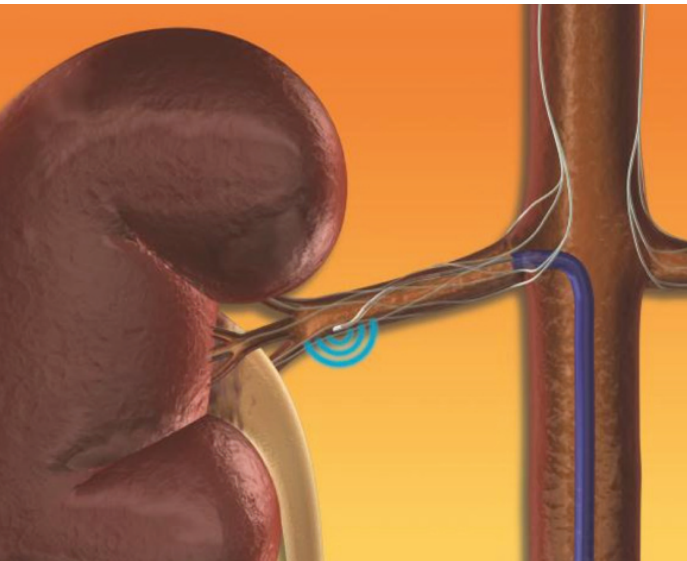
The sympathetic nervous system which supplies the kidneys, running along the outside of the renal arteries, is known to be over active in many hypertensive patients and to aggravate the hypertension. In the 1950's, surgical sympathectomy was effective at lowering blood pressure, but then caused significant problems with postural hypotension.

Sympatholytic drugs have had a limited role to play in the management of hypertension. Recently a minimally invasive technique to block the sympathetic nerve supply to the renal arteries has been shown to be very effective at managing severe hypertension, with minimal complications.

Under sedation and with local anaesthetic, a catheter is placed into the femoral artery and using x-ray guidance, a radiofrequency catheter is placed in the renal artery. The radiofrequency catheter is then used to ablate/denervate the sympathetic supply to both kidneys. Following up a positive first in man safety/efficacy trial, was an Australasian Randomised Control Trial (Simplicity HTN-2 Trial).

This showed that in 106 patients with severe resistant hypertension, that radiofrequency ablation on the renal arteries resulted in a 32 mm Hg reduction in systolic blood pressure after one month and this was maintained for over two years. The control group continued with their diet and medication without any significant alteration in their blood pressure. The benefit of radiofrequency ablation of the renal arteries was obtained without any significant long term complications. Surprisingly, ten percent of patients treated with radiofrequency ablation did not benefit in terms of blood pressure reduction.

We are now offering this treatment to selected patients at the Wakefield Heart Centre. Referred patients are reviewed and secondary causes for hypertension are excluded with standard laboratory tests and possibly sleep apnoea monitoring studies. The initial assessment may also include echocardiography, 24 hour blood pressure monitoring and a CT



This schematic diagram shows a guiding catheter in the origin of the renal artery, which allows passage of the RF catheter into the renal artery. Once against the artery wall the RF energy is delivered and ablates the sympathetic nerve supply of the kidney.

scan to check for adrenal masses and to look at the renal arteries.

The patient's medical therapy will then be optimised and if severe hypertension persists, resistant to three medications including a diuretic, then they may be considered for radiofrequency ablation of their renal arteries. The radiofrequency ablation is performed as a day procedure and the patient will generally be discharged on their current therapy, to be followed up in approximately four to six weeks time. We would expect reduction in systolic blood pressure of approximately 30 mm Hg at this stage, which may require modification in their medication.

Medical insurers will generally cover the cost of the consultation, investigations and follow up, however the cost of the radiofrequency ablation (approximately \$18,000) is not always fully covered.

Renal artery denervation with radiofrequency ablation is a safe option for patients with resistant hypertension and substantially reduces the systolic blood pressure. For this reason it is likely to become increasingly available to hypertensive patients.

Dr Malcolm Abernethy is a Cardiologist and consults at the Wakefield Heart Centre, Wakefield Hospital. For further information on the above, please contact the Wakefield Heart Centre, P: (04) 381 8115.

Our Changing World



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Gastric Bypass Resolves Type 2 Diabetes

Professor Richard Stubbs



Article written by: Professor Richard Stubbs, General, GI & Hepatobiliary Surgeon, Director Wakefield Obesity Clinic and Wakefield Biomedical Research Unit, Wakefield Hospital, phone (04) 381 8110

The concept that type 2 diabetes is a chronic, relentlessly progressive, incurable disease, resulting in microvascular and macrovascular complications which impact on both quality and length of life, has been challenged by the finding that it may totally resolve in severely obese individuals who undergo certain types of bariatric surgery.

In these people glycaemic indices are restored to normal, and there is substantial reduction in the subsequent risk of complications from diabetes. This resolution of diabetes is most reliably seen following gastric bypass surgery, usually within the first week, in around 85% of individuals. The speed of diabetes resolution indicates it has nothing to do with weight loss.

Resolution or improvement in type 2 diabetes is also seen, although less frequently, after laparoscopic adjustable banding (around 50% resolution) and laparoscopic sleeve gastrectomy (around 65-75% resolution). For these surgeries diabetes resolution occurs more slowly, and appears to be linked to restricted intake of food and weight loss.

Thus for gastric banding and sleeve gastrectomy operations the diabetes resolution may be dependent on the success of the operation in achieving weight loss, whereas following gastric bypass the effect is largely independent of weight loss.

The Wakefield Obesity Clinic and Wakefield Biomedical Research Unit have been investigating this important phenomenon for over ten years, and have made many important contributions to this field of research. We were essentially the first to demonstrate that insulin resistance is resolved within six days of gastric bypass, and that this does not return. We believe this is achieved by the 'switching off' of a 'signal' coming from that part of the gut bypassed by the operation (stomach and duodenum), and acting on the liver to dysregulate hepatic glucose production by glycolysis and gluconeogenesis. We are seeking to identify that signal, with a view to interfering with it using newly developed drugs.

The potential role of bariatric surgery, and gastric bypass in particular, in the management of severely obese individuals with type 2 diabetes was acknowledged by the International Diabetes Federation (IDF) in a position statement released in April 2011. They indicated that thought should be given to this intervention for these individuals.

Participants wanted

We at Wakefield Hospital are going a step further, and have recently been granted ethical approval and limited financial support to embark on an experimental operation seeking to resolve type 2 diabetes in individuals with high insulin resistance who are not obese (BMI 25-30).

Potentially interested study participants are welcome to contact us directly.

Further information is also available on our website, www.obesityclinic.co.nz

Resolution of diabetes is most reliably seen following gastric bypass surgery, usually within the first week, in around 85% of individuals.

Professor Richard Stubbs, is the Director of the Wakefield Obesity Clinic, and has been at the forefront of the development of more effective and safer procedures for severe obesity over a number of years. Richard is an internationally acknowledged expert in his field and has an active obesity surgery research programme.

For further information on any of the above, please contact: Professor Richard Stubbs, Wakefield Obesity Clinic, P: (04) 381 8110, E: gastro@wakefield.co.nz



The Management of the Painful Hip Joint in the Younger Adult

Article written by: Mr Fred Phillips, Orthopaedic Surgeon, Hip and Knee Specialist, Wellington Orthopaedic and Sports Surgeon, The Bowen Centre, phone (04) 464 0035

Our patients’ demands and expectations have increased exponentially over the past 15 years. Exercise and sport has become a vital component in many people’s day to day activities. This places increased demands on our joints and our patients continually want to push harder and faster.

Hip pain in an active patient has for a long time been a one dimensional beast. Often classified as a groin strain or sprain which was recurrent and resistant to treatment. These patients either reduced their activity or in some cases had surgical procedures that had little basis in known pathophysiology. As with other joints we have recently been through a period of increased understanding of the hip joint.

It is important to remember that it was not that long ago that most orthopaedic surgeons considered the Anterior Cruciate Ligament 'vestigial' and that standard practice for a meniscal tear was to remove the whole of the meniscus. Like the knee, greater understanding of the structures within the hip has lead to more sophisticated treatments, both operative and non-operative. Also the effect of a dysfunctional joint on adjacent structures is more and more a key factor in global reconditioning of the patient.

Most recently, interest has been focused on the bony anatomy of the hip joint and its subsequent effect on the labrum and cartilage of the hip. We have known for many years that Acetabular Dysplasia, as a result of Developmental Dysplasia of the Hip (DDH), will result in premature failure of the hip articular cartilage and the development of osteoarthritis of the hip. The key bony features of dysplasia are a shallow hip acetabulum, with increased anteversion of the acetabulum and sometimes the femoral head. This leads to increased joint forces which ultimately causes failure of the biomechanical properties of normal cartilage. This type of dysplasia can be treated prior to cartilage damage with reorientation of the acetabulum or femur, in the hope of normalising joint forces and preventing the adverse effects on articular cartilage.

We have come to realise over the past 15 years that other changes in hip morphology can have an adverse effect upon hip articular cartilage. It has become clear that the hip labrum also plays a crucial role in the maintenance of functional hip articular cartilage.

The labrum provides a degree of stability, limiting anterior translation of the femoral head, it provides a seal to the joint which facilitates appropriate joint lubrication and it has an intimate continuous relationship with the peripheral articular cartilage. Bony changes such as deepening of the socket or a prominent anterior wall can cause a pincer effect on the labrum when the hip is flexed and internally rotated. This is often associated with a slightly aspherical femoral head which with the same movement can cause further damage to the peripheral articular cartilage and labrum. Subsequent tearing and detachment of the labrum and the consequent negative effects on the peripheral weight bearing hip articular cartilage are what is now known as Femor Acetabular Impingement (FAI).

FAI will present as groin pain in a younger patient, often during or after sporting activities. Activities where the hip is flexed, such as getting in and out of a car or stair climbing will also aggravate symptoms.

Examination will find that the pain is replicated with flexion, abduction and internal rotation of the hip joint. Plain radiographs of the hip joint may be normal or may show some bony features of FAI. An MRI scan will demonstrate labral and cartilage pathology clearly.

Given the potential for cartilage failure and features of FAI that are seen in patients with osteoarthritis of the hip, it is a reasonable and likely concept that FAI is a precursor to osteoarthritis of the hip joint. With this being highly likely, treatment of the underlying cause may serve not only to alleviate symptoms but also prevent osteoarthritis of the hip joint.

Patients with disabling FAI are best treated with hip arthroscopy. Hip arthroscopy is a safe, minimally invasive operative technique with a low complication profile. Patients require general or regional anaesthesia, they undergo a two hour procedure, have one night in hospital and are mobilising the next day. By six weeks patients are independent and by six months high level sport can be undertaken. During hip arthroscopy, the labrum can be repaired, debrided or reconstructed. The bony rim of the acetabulum can be trimmed to prevent pincer impingement and the aspherical femoral head can be reshaped to prevent further impingement. Loose bodies can be removed and damage to the iliopsoas tendon and ligamentum teres can be addressed.

Published results show that this procedure has a 90% success rate in appropriated patient groups.

It is also becoming clearer that a dysfunctional hip joint has adverse effects upon neighbouring structures. Classically osteitis pubis, sports hernia, snapping hips, sacroiliac joint pain and trochanteric bursitis have been treated in isolation with varying results. It is easy to understand how a hip joint in an athlete which is limited in internal rotation and flexion can cause stress upon the pubic symphysis, the conjoint tendon, the sacroiliac joint and the adductor tendons.



Cemented hip joint replacement

Analysis of biomechanical models has demonstrated how this occurs and also how important a balance between core muscles and hip flexors and extensors is essential to maintaining a stable hip. Clinicians and physiotherapists should therefore keep these concepts in mind when assessing hip pain. Hip pain in the young adult is rarely one isolated pathology, it is a mix of different pathologies all of which contribute in varying amounts to hip dysfunction. All too often though we are faced with the patient in their fourth or fifth decade who has moved beyond FAI and has established cartilage damage in their hip. These patients are difficult. They are very fit physically and have a desire to continue their activities. They are not willing to modify their activities and are wary of the regular use of non-steroidal anti-inflammatory drugs (NSAIDs).

The question of whether hip arthroscopy has a role in these patients is controversial. It is clear in published results that patients with established cartilage damage and more advanced age do not do as well with hip arthroscopy. Given though that there is a low complication profile and the rehabilitation is not onerous it is reasonable in selected patients to offer this. There certainly seems to be a group of patients who develop sudden failure of their hip, with large labral tears but relatively minimal reduction of the joint space on plain film, but clear evidence of chondral damage on MRI, who get significant improvement when the labral pathology is fixed and areas of full thickness cartilage loss are treated with microfracture.

Finally, there is the younger patient with advanced and disabling osteoarthritis of the hip. There is no doubt that these patients no longer wish to wait until they are in their sixties until they are offered sustained pain relief from their diseased hips. Total Hip Replacement has a reputation

as a safe effective procedure. The concern is rightly, that on current evidence, such a patient is likely to have to undergo revision surgery later in life. It is the goal of a joint replacement in a younger patient to minimise the chance of revision later. The bearing surface and whether the joint is cemented or uncemented all have an influence upon this but it is fair to say that the answer is not clear. What is clear though, is that the position that the implants are placed has a significant effect on the wear characteristics. Poorly placed implants in younger patients will result in inferior results and it is in this area that computer navigation of hip replacements may be of great benefit.

Mr Fred Phillips is an Orthopaedic Surgeon who is based at the Wellington Orthopaedic and Sports Surgeon, The Bowen Centre, 98 Churchill Drive, Crofton Downs, Wellington. He has a particular interest in hip and knee computer navigated surgery, hip arthroscopy and a continuation of the high standard of joint replacement surgery already undertaken throughout the Wellington region. For further information contact Mr Phillips, P: (04) 464 0035, E: Fred@woss.co.nz



Mr Fred Phillips



Conference Programme

FRIDAY 13TH APRIL

TIMING	PROGRAMME
8.15am	Registrations open
8.50am	Welcome address from Wakefield Health Limited
Our Changing World - Detecting cancer symposium	
9.00am	Professor Swee Tan, Wellington <i>Topic: Stem cell origin of haemangioma and the renin-angiotensin system – a new paradigm</i>
9.35am	Professor Peter Gibson, Australia <i>Topic: New developments in diagnosing and managing functional gastrointestinal disorders</i>
10.15am	Morning Tea
10.45am	Dr Trevor FitzJohn, Wellington <i>Topic: Advances in imaging detection and staging of cancer</i>
11.10am	Dr Shelly Soo, Wellington <i>Topic: Endoscopic ultrasound</i>
11.35am	Associate Professor Parry Guilford, Dunedin <i>Topic: New genetic markers for detecting cancer</i>
12noon	Mr Burton King, Wellington <i>Topic: Breast cancer treatment in the 21st century</i>
12.25pm	Chair concludes
12.30pm	Lunch
1.30pm	Workshop Sessions A Professor Peter Gibson, Australia <i>Workshop: Managing inflammatory bowel disease</i> Associate Professor Ed Gane, Auckland <i>Workshop: Viral hepatitis – the detection and treatment of viral hepatitis in view of recent changes in treatment options</i> Dr Alexander Sasse, Wellington <i>Workshop: Changes around atrial fibrillation and the new anticoagulants</i> Dr Dynes McConnell, Wellington <i>Workshop: Developments in hysterectomy and how it benefits your patients</i>
2.15pm	Delegates transition to second workshop
2.30pm	Workshop Sessions B As above - delegates select a second workshop to attend
3.30pm	Afternoon Tea
4.00pm	Dr Ian Coutts, Wellington <i>Quiz topic: Difficulties of managing skin cancer and how to avoid common pitfalls</i>
4.30pm	Dr Ian Wilson, Wellington and Dr Mike Nowitz, Wellington <i>CT Colonography or Real Colonoscopy: three studies - two views</i>
5.00pm	Closing remarks
5.15pm	Complimentary networking drinks hosted by Wakefield Health



SATURDAY 14TH APRIL

TIMING	PROGRAMME
8.30am	Registrations open
Our Changing World - Learnings from recent disasters symposium	
9.00am	Professor Beverley Raphael, Australia <i>Topic: Disaster management – lessons from Australia and New Zealand for primary healthcare</i>
9.50am	Dr Mark Leadbitter, Wellington <i>Topic: Radiology - coping in the digital age</i>
10.05am	Dr Frances Hughes, Wellington <i>Topic: Psychological issues in the medium to long term following a disaster such as the Christchurch earthquake</i>
10.20am	Dr Adrian Gilliland, Wellington <i>Topic: How the DHB is preparing for disasters</i>
10.50am	Morning Tea
11.15am	Workshop Sessions C Mr Grant Kiddle, Wellington <i>Workshop: Management of common musculoskeletal injuries seen at an After Hours clinic</i> Professor Beverley Raphael, Australia <i>Workshop: Core knowledge and skills in disaster mental health: GPs</i> Dr Justin Travers, Wellington <i>Workshop: Case scenarios and latest trial results in treating patients with COPD</i>
12.00pm	Lunch
12.50pm	Workshop Sessions D As above - delegates select a second workshop to attend
Our Changing World - Our future	
1.40pm	Associate Professor Dawn Elder, Wellington <i>Topic: Sleep disorders in children – assessment and prevention</i>
2.00pm	Mr Rob Rowan, Wellington <i>Topic: Advancing Paediatric Orthopaedics : Growth - the Good the Bad and the Ugly</i>
2.25pm	Tania Thomas, Deputy Commissioner <i>Update from the Health and Disability Commissioner's Office</i>
3.15pm	Close of conference by Dr John Wyeth, Chairman of the Wakefield Health GP Conference, including exhibitor give-aways
3.30pm	Afternoon tea and conference concludes at 4.00pm

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Reflux is Not Only Acid

– A New Test to Confirm the Diagnosis

Area: Gastroenterology
Article written by: Dr John Wyeth, Gastroenterologist, The Bowen Centre, phone (04) 479 8261

Gastro-oesophageal reflux (GOR) is common. Most of us report symptoms at least occasionally, and maybe up to 40% have frequent or severe problems. Gastric acid has a pH less than two and is very corrosive to the lining of the oesophagus if it comes in contact with it. The typical symptoms of acid reflux are heartburn or a feeling of liquid coming into the throat. By reducing acid secretion in the stomach with proton pump inhibitor (PPI) drugs such as omeprazole (Losec), symptoms are reduced but the underlying problem of reflux is still present.

Reflux is a combination of physiological events – transient relaxation of the lower oesophageal sphincter which removes the barrier for reflux from the stomach, poor oesophageal emptying that increases the likelihood of damage from acid reflux and delayed gastric emptying increasing secretion of gastric acid. For many years now the 'gold standard' for diagnosis of reflux is measuring acid in the oesophagus. Two methods are available to measure acid reflux. These are pH catheters inserted via the nose and kept in place for 24 hours and the Bravo capsule which requires an endoscopy to insert the capsule into the oesophagus.

Standard software analysis packages then formulate tables and graphs to help determine if significant acid reflux is present. However, there is a problem. Use of PPI drugs is very effective for managing reflux symptoms, but it is well known that a proportion of patients do not obtain complete symptom relief. Also, there are patients who have atypical symptoms of cough, sore throat, hoarse voice and chest pain without heartburn or reflux. In both these situations reflux of non-acid stomach contents may be a factor in producing symptoms.

Until now, non-acid reflux could not be measured. A standard pH study, catheter or Bravo capsule, would not register a drop in pH from a non-acid reflux event and the event would remain undetected. With the development of a new technology, called impedance, we can now measure reflux events irrespective of the pH of the refluxate.

What is Impedance?

Essentially impedance refers to electrical resistance and is measured in ohms. Electrical resistance changes according to what solution electrodes are placed in.

Air is a very poor conductor of current with high resistance, or impedance, whilst gastric acid has very low resistance or impedance. The mucosal lining of the oesophagus has an impedance value between these two extremes. It is a simple matter to incorporate several impedance channels on a catheter to capture passage of a liquid bolus passing through the oesophagus.

A normal swallow will register a drop in impedance moving from the upper oesophagus to the lower oesophagus. A reflux event registers the opposite with the drop in impedance beginning in the lower oesophagus and moving upwards.

By also incorporating a pH channel in the impedance catheter it is possible to determine if the reflux is acidic, that is, pH drops, or non-acidic with no recorded pH drop.

The difference between what a pH study measures and an impedance study records is shown in figure 1.

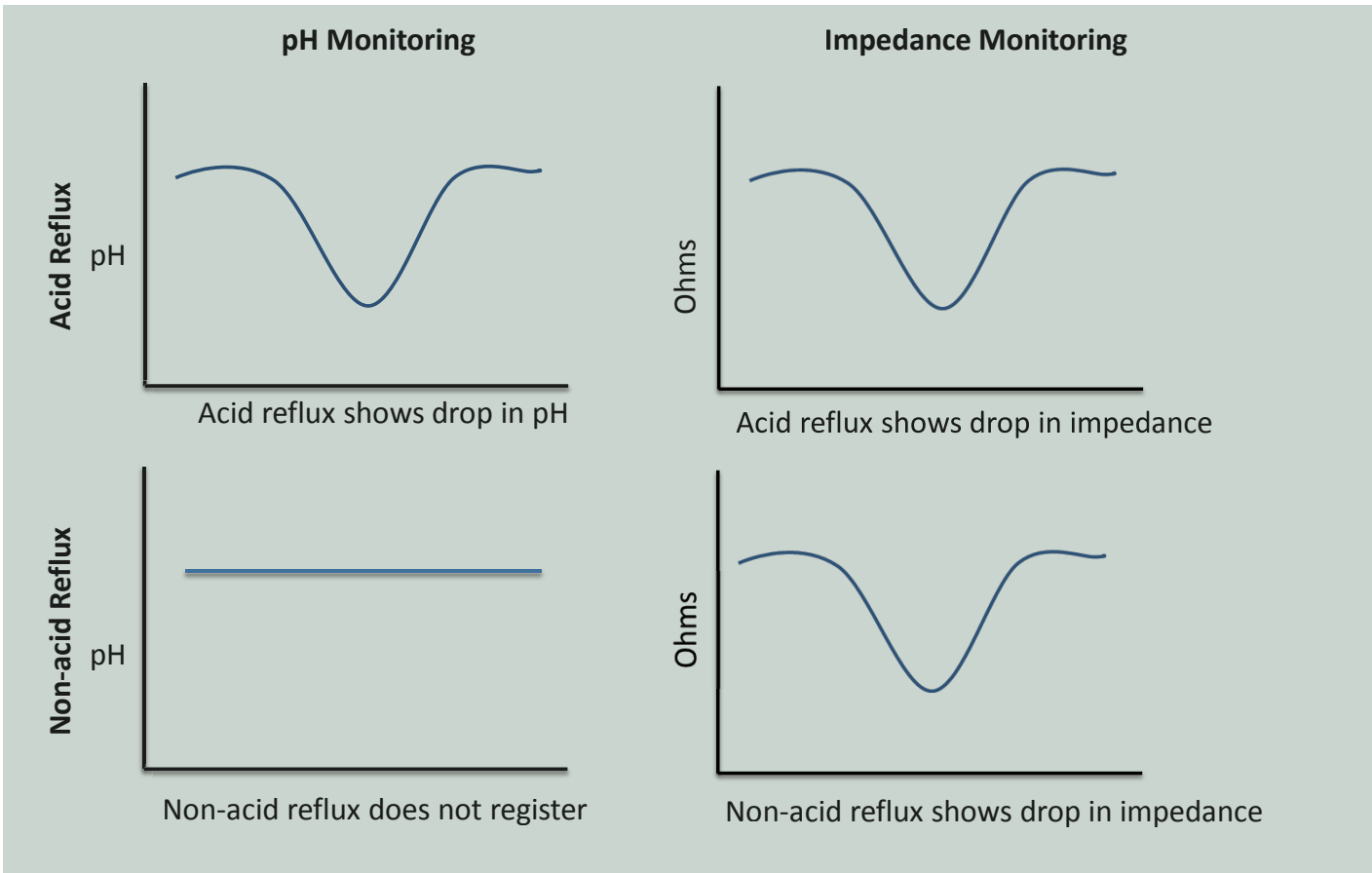
A Case Study

A 72 year old man is referred for further investigation of chronic cough and the question is whether this is related to reflux. It is known that he does have acid reflux as previous endoscopy has confirmed reflux oesophagitis and he is taking omeprazole daily. Since taking omeprazole he has had relief of heartburn but the cough has persisted. A standard pH study is performed and reveals that he has good control of gastric acidity whilst on omeprazole and there is no significant acid reflux measured in the oesophagus. Does he have non-acid reflux causing his symptoms?



Dr John Wyeth

Figure 1.
Comparing pH and Impedance Monitoring



When an impedance study is performed this confirms that indeed he is having frequent episodes of non-acid reflux. More importantly when a correlation is done, called a symptom index, it is found more than 70% of his coughing episodes are preceded by a non-acid reflux event. This is strong evidence of an association between the reflux and the cough.

Non-acid reflux can be difficult to manage. Use of prokinetic drugs may be helpful. Anti-reflux surgical procedures seem to be effective and are being used in some cases.

Impedance oesophageal pH studies are the new 'gold standard' for investigation of reflux symptoms. Bowen Hospital has impedance pH monitoring equipment and has been performing studies now for several years. Bowen Hospital has an agreement with Capital & Coast District Health Board to perform impedance pH studies and manometry on patients referred from the public system. Direct referrals can also be made by calling Endoscopy and Pain Management, phone (04) 479 8261.

Dr John Wyeth is a Gastroenterologist who specialises in Endoscopy (gastroscopy and colonoscopy), Manometry and Oesophageal pH studies. For more information on any of the above, please contact: Dr John Wyeth, P: (04) 479 8261.

Bowen Hospital welcomes Mr Burton King and The Breast Centre to the Bowen Centre



The Breast Centre team

On 7 March 2012 the Prime Minister, Rt Hon Mr John Key, officially opened The Breast Centre at Bowen Hospital in Crofton Downs, Wellington. This is Wellington's first dedicated private breast centre, and is the initiative of Mr Burton King, who has been a breast surgeon in the Wellington region for over ten years.

The Breast Centre is focused on the detection, diagnosis, treatment, rehabilitation and long term follow-up of women with breast cancer.

Approximately 2,500 new patients present with breast cancer in New Zealand each year, including about 20 men. Last year 370 of these were in the Wellington region. Breast cancer is the leading cause of cancer death in women in New Zealand. Breast surgeons are general surgeons with a focused specialty in breast surgery. Most of the cure of breast cancer results from surgery despite the great advances in other pharmacological therapies.

Breast cancer management requires a multidisciplinary team approach that includes radiologists, radiographers, pathologists, specialist nurses, medical and radiation oncologists, plastic and breast surgeons. Mr King noted that the best results come from a combination of treatments and the majority of breast cancer patients have no recurrence of their disease after treatment. The Breast Centre will work very closely with breast screening radiologists, pathologists and oncologists from all regional sites both private and public.

Mr King highlighted the advantages of situating The Breast Centre at the Bowen Centre.

"In developing this practice, location was very important to us as we have sought to integrate all the necessary services and processes into a seamless continuum for our patients. The Bowen Centre provides us with the ability to access plastic surgery and radiology services on the same site as Bowen Hospital's new operating theatres and its wards", he said. This will enable The Breast Centre to track breast cancer patients through the chemotherapy and radiotherapy process and aftercare, and be available for support.

Patients will be able to have mammograms on the day of consultation with radiology services, including Wellington's only PET scanner, on site. The Centre is also developing an onsite lymphoedema service and has the only bioimpedance device for measuring lymphoedema in the Wellington region.

Andrew Blair, Chief Executive of Wakefield Health Ltd which owns Bowen Hospital, welcomes

Mr King and all those involved in establishing The Breast Centre and congratulates them for choosing the Bowen Centre site. He said,

"We believe the location with great views, natural light and a parklands outlook is conducive to a positive patient experience"

Mr King said that the Breast Centre would be actively involved with research and publication.

For further information:



The Breast Centre

Level B1, Bowen Centre
98 Churchill Drive, Crofton Downs,
Wellington 6035
P: 04 891 0575
F: 04 891 0577
E: info@thebreastcentre.org.nz

The Breast Centre – Lymphoedema



Area: Lymphoedema
Article written by: Hilary Bartle, Lymphoedema Therapist, The Breast Centre, phone (04) 891 0575

Many people will be unfamiliar with the condition known as lymphoedema. They may be more aware of it if they have a family member, friend or colleague who has had a diagnosis of breast cancer, followed by surgery and/or radiotherapy.

Lymphoedema can be loosely defined as accumulation of fluid in the tissues caused by interruption or damage to the lymphatic system. There are various causes; these include surgery (of any type), removal of lymph nodes, and radiotherapy. All of these risk factors can lead to the development of what is termed secondary lymphoedema. Lymphoedema can develop months or even years after cancer treatment and usually develops gradually.

Once swelling occurs the affected area needs help to drain the accumulated fluid back into the lymphatic system.

This is achieved by way of specific lymphatic drainage exercises, and self massage. The wearing of a graduated compression garment is usually required and good skin care is essential. Once established, lymphoedema is considered a chronic condition needing lifelong management.

The Breast Centre offers a unique point of difference to the people of Wellington in that it offers patients both an on-site lymphoedema therapist, and the opportunity to be assessed for lymphoedema using bioimpedance spectroscopy (BIS).

Bioimpedance measurements use a low strength, harmless, electrical signal to assess the amount of fluid carried in both arms, which will determine if fluid is accumulating in the affected arm. The use of BIS pre-surgery and cancer treatment, to establish what is 'normal' for that patient, and on-going monitoring post-treatment, means that accumulating fluid can be detected earlier, before any visual swelling is seen. Early intervention often prevents progression to the more chronic phase, thereby saving costs both financially, and to the lifestyle of the patient.

The Breast Centre has the only bioimpedance device in the Wellington area and the information gathered will be used to monitor the incidence of lymphoedema after breast cancer and its treatment.

For more information on any of the above, please contact:
The Breast Centre
P: (04) 891 0575
F: (04) 891 0577
E: info@thebreastcentre.org.nz



The Breast Centre offers a unique point of difference to the people of Wellington in that it offers patients both an on-site lymphoedema therapist, and the opportunity to be assessed for lymphoedema using bioimpedance spectroscopy (BIS).

Area: Maxillofacial
Article written by: Mr Derek W Goodisson, Maxillofacial Surgeon, Royston Hospital, phone (06) 974 8150

One third of major trauma in New Zealand has an associated facial injury and facial trauma accounts for nearly ten percent of emergency department presentations¹. The severity of trauma is related to the mechanism of injury².

The last 30 years have seen significant improvement in the management of facial trauma throughout the world. There have been three major advances:

- unified approach to the critically injured patient
- improved techniques of access to the facial skeleton
- improved fixation systems.

Trauma teaching organisations such as AO have been instrumental in harnessing these developments and delivering a unified hypothesis to the management of cranio-maxillofacial trauma. The underlying concept is 'getting it right first time', recognising that correction of post-traumatic facial deformity is often problematic. The following aims to give an overview of current concepts in the management of these patients.

Motor vehicle accidents and trauma account for the majority of facial injuries in New Zealand. We also have some interesting national variations, with high incidences of mountain bike and quad bike injuries reported^{3,4}. The severity of impact, not surprisingly, is directly related to the severity of injury².

A unified approach to the critically injured patient has had a dramatic impact not only on survival, but also on quality of life. The trimodal peak of death following injury has improved most for those in the hours to weeks following injury. Maxillofacial injuries are frequently associated with other injuries. Al Quainey et al. identified up to 30% of maxillofacial injuries had moderate to severe ocular injuries⁵. Ten percent will have a cervical spine injury and a third will have mild to severe head injuries¹. For many trauma cases, a multi-disciplinary approach is often indicated. In addition, with an aging population, and with paediatric patients, specialist physician input may be needed.

Diagnosis

History and thorough examination remain fundamental aspects of diagnosis. The mechanism of injury will alert the clinician to the severity of injury and a detailed maxillofacial examination may refine the primary and secondary trauma triage, as well as facilitate interpretation of radiological findings.

Mechanism of Trauma and Associated Injuries

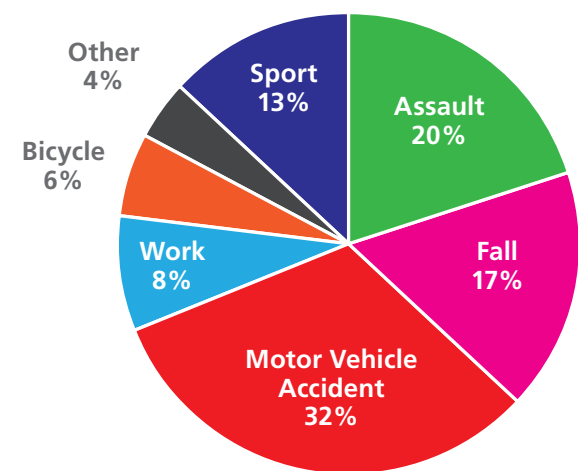


Figure 1. Causes of Facial Injuries²

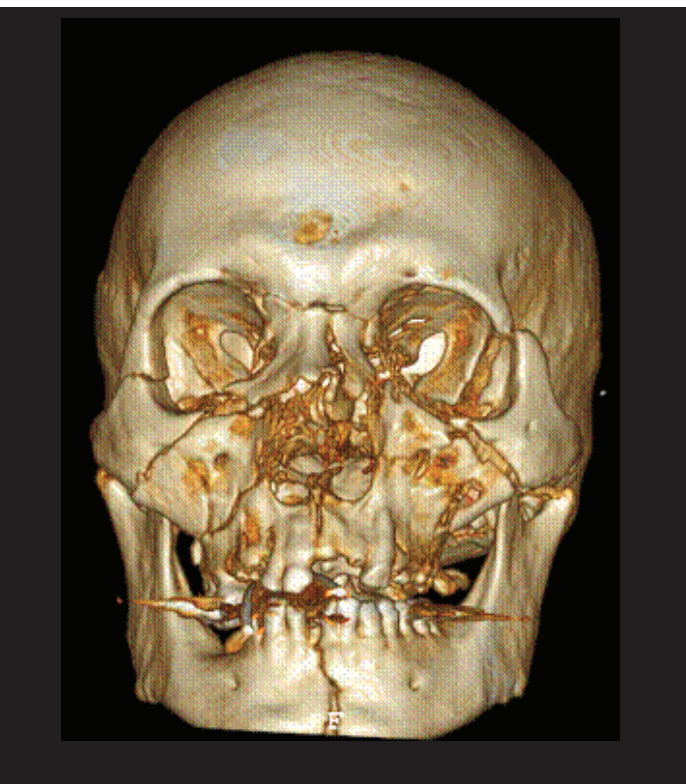


Figure 2. Modern CT scanning significantly aids treatment planning of maxillofacial injuries



Figure 3A. 'White eyed blow out fracture' – entrapment of inferior rectus

Without a doubt, however, the advent of multi-planar computerised tomography (CT) has significantly improved treatment planning of craniofacial trauma. The initial trauma CT allows rapid assessment of intracranial, vascular, spinal, abdominal, orthopaedic and maxillofacial injuries. When a decision to treat the injury in a sub-acute manner has been made, dicom data from these trauma images can be manipulated for bio-modelling or navigational surgery.

Timing of Surgery

Many factors influence when surgery is performed. Patient condition, staff and theatre availability and surgical preference all play a role. Paul Manson's concept of 'dual injury' to the soft tissues (initial traumatic injury then the subsequent iatrogenic soft tissue with delayed repair) considers that patients have worse soft tissue outcomes if not treated acutely (within 24-48 hours).

There is some evidence to suggest that delayed treatment of compound mandibular fractures (most are compound, at least into the mouth)

may result in higher rates of infection⁶. For other craniofacial injuries, repair of these following settling of facial swelling and in a semi-elective setting is often a more pragmatic approach. The timing of repair of isolated orbital fractures continues to cause debate, although extreme delay (weeks to months) is no longer appropriate.

Certainly, orbital compartment syndrome requires immediate intervention. Entrapment of inferior rectus muscle in a greenstick blow out fracture of the orbit presents with classic oculo-cardiac reflex and if not addressed acutely will result in ischaemic necrosis of inferior rectus. It is mostly seen in younger patients. Failure of resolution of diplopia and the presence of enophthalmos usually indicate the necessity for repair, although this may be in a semi-elective setting.

Large defects in key areas of the orbit also are likely to need repair, but not always. With a real risk of blindness from surgery (1:1500), orbital surgery must have a clear benefit.

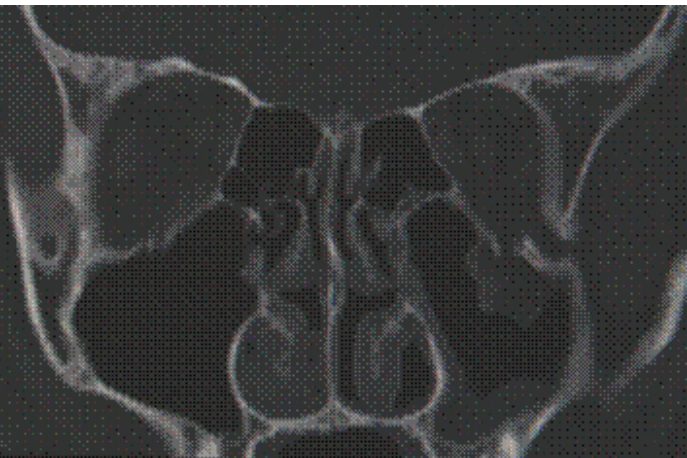


Figure 3B.

Maxillofacial Trauma Conditions Requiring Immediate Intervention

- Airway compromise
- Uncontrolled facial bleeding
- Orbital compartment syndrome (retrobulbar haematoma), any reduction in visual acuity
- 'White eyed' blow out fracture (inferior rectus entrapment).

Approaches

Wide access to the entire facial skeleton greatly enhances the accurate repositioning and stabilisation of facial bones. The anatomical basis of this has been significantly refined over the last 20 years and has come about through the cross-pollination which occurs when these cases are managed in a multi-disciplinary manner.

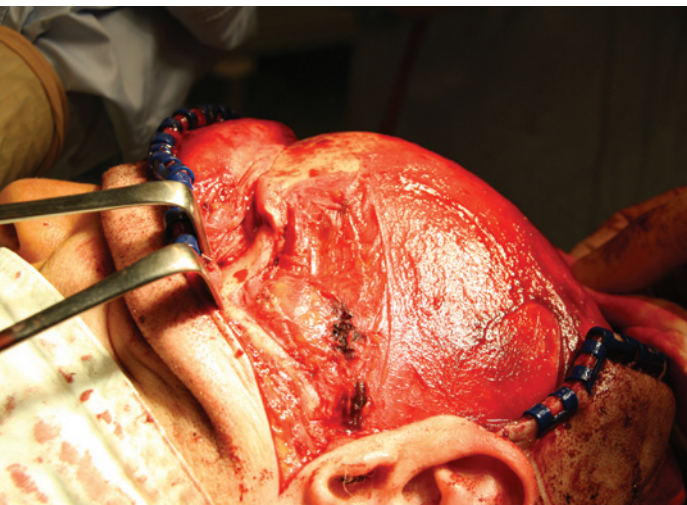


Figure 4. Coronal approach

Management of Facial Trauma

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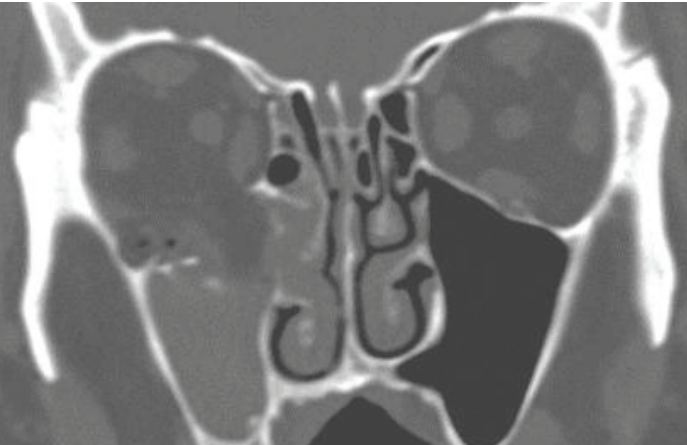


Figure 5.
Customised orbital plate in a large orbital defect

Coronal, see figure 4, trans-oral, trans-nasal and trans-conjunctival approaches are all common, predictable approaches respecting local neurovascular structures allowing excellent exposure of the facial bones in a cosmetically acceptable manner.

Fixation

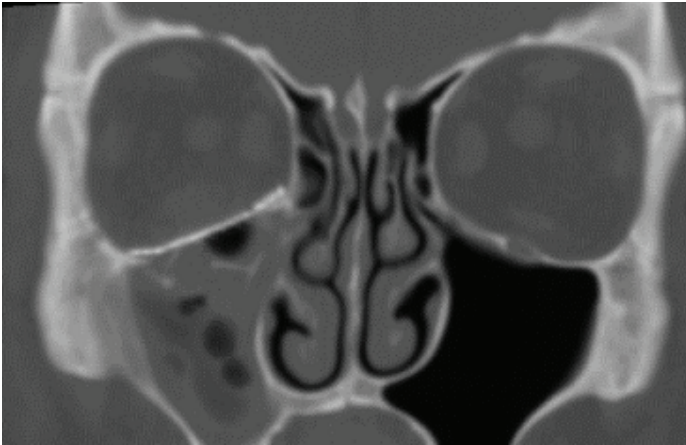
The advent of biocompatible, low profile systems of fixation plates allowing adequate fixation has greatly enhanced surgical outcomes and resulted in faster recovery for patients. However, the hardware used is only as effective as the training of the surgeon using it, and will not overcome failures of reduction or inappropriate plate and screw selection. Bio-modelling allows customised implants to be made intra-operatively and near perfect results in the appropriate setting, see figure 5. Intra-operative navigational surgery for cranio-maxillofacial surgery is not yet available in New Zealand, but overseas experiences suggest excellent outcomes for very complex trauma cases.

Recovery

Not only has bone plate guided osteo-synthesis allowed more predictable results, but it has also permitted faster rehabilitation. Inter-maxillary fixation is not nearly as widespread and patients are able to return to work and normal function much earlier than previously. Immediately post-operatively, airway issues are significantly reduced, as is the burden on nursing staff and analgesia regimes. Hospital stays are reduced, and in all, patients make faster, better recoveries than with older techniques of closed reduction or open reduction and wire fixation.

Post Traumatic Deformity

Where principles are adhered to with initial fracture management, post traumatic deformity is minimised. Although correction of post traumatic deformity may be challenging, CT and bio-model planning are useful tools. The key areas of reconstruction are the facial buttresses, allowing correction of facial width, projection and height. Centro-facial defects require control of the medial canthal ligaments. Wide exposure of the facial skeleton is useful to ensure symmetry and allow adequate



mobilisation and fixation of osteotomised segments.

Summary

The modern management of craniofacial trauma reflects several key developments:

- a standardised approach to resuscitation
- wide, safe and cosmetic exposure of the facial skeleton and,
- the development of a facial plating system allowing adequate and predictable osteosynthesis.

When these factors are integrated with sound principles, post traumatic deformity is minimised and patient outcomes improved.

Derek Goodisson is a Maxillofacial Surgeon who manages facial trauma for Hawke's Bay. He is dually qualified, having finished his training in head and neck surgery in the United Kingdom. He has a long association with AO, a not for profit trauma

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teaching organisation based in Switzerland, and is currently the New Zealand board member for Craniomaxillofacial Surgery (AO CMF). For further information please contact Mr Derek Goodisson, P: (06) 974 8150

Bowen Hospital New Operating Theatres

Article co-written by: Dorothy Shaw, Bowen Hospital Manager, phone (04) 479 2069
Anro Becker, Stryker and Tony Hammond, Getinge

Bowen commenced a major rebuild and refurbishment programme 36 months ago. The Bowen Centre was opened in stages from January 2011 and on 24 January 2012 we opened our new Operating Theatre Suite.

The three digital theatres or iSuites (integrated operating rooms) were installed by Stryker™. Stryker tell us that the iSuites at Bowen are not only the most advanced theatres in New Zealand but arguably the most modern innovative theatres in Australasia. The visualisation platform includes Stryker's third-generation (HD 1080p) 3-chip camera system, LED lightsource, HD digital data management system, HD router and controller system which are all integrated via fibre optic cabling.

All images and video from within the iSuites including those from the camera control unit, in-light camera, PTZ cameras, microscopes, II-scanners, ipads and PACS electronic x-rays can be routed to any of the five HD screens (including a 55" LCD wall monitor) in the theatre. Furthermore, all of the standard operating equipment such as insufflators, ablation unit, fluid pump, shaver systems, LED lightsource, camera control unit, LED theatre lights can be controlled from two touch panels (one in sterile field) or via voice control.

Live images and audio to and from any of the theatres can also be routed to the seminar room for training sessions or tele-mentoring purposes.

These unique innovative iSuites certainly offer Bowen Hospital surgeons and theatre teams, the ability to provide exceptional results and care to their patients.

The Sterile Store Department (SSD)

The SSD of Bowen now prides itself in having Getinge™ equipment. Getinge is the world's leading manufacturer in Decontamination and Sterilisation.

The equipment supplied is leading edge technology in speed and ease of use; we have combined shorter lead times along with higher throughput without compromising cleaning efficacy of sterile protocol.

The new 66 series Turbo steriliser reduces cycle times by up to 35% depending on load configuration with the obvious benefits being higher throughput that can cut turnaround times as well as total costs as it saves up to 75% of water consumption. The sterilisation easily meeting upcoming EN285 standards due to its modern technology of system PACS PLC 3500 control, this system monitors each stage of sterilisation producing the perfect cycle.



New Operating Theatre



The Sterile Store Department

The new 88 Turbo washer disinfectant is Getinge's premium product offering a high level 15 din tray throughput in half the time of its competitors and model predecessors. It does this by preparing the next phase of the cycle before use cutting filling times, heating times and draining times.

These innovations have kept Getinge ahead of any other competitor. Our focus is now on refurbishment of the former theatre suite to transform this area into a modern new day surgery and education facility.

Management of Rheumatoid Arthritis

How early diagnosis and treating to target prevents damage and saves lives



Associate Professor Andrew Harrison

Area: Rheumatology
Article written by: Associate Professor Andrew Harrison, Rheumatologist, The Bowen Centre, phone (04) 479 2019

There has never been a better time to get rheumatoid arthritis (RA). Older rheumatologists can reflect on the difference that the change in treatment of RA has made to the outcome over the last two decades. Fifteen or 20 years ago our clinics were full of patients with severe joint deformities requiring multiple surgical interventions. Now such patients are becoming a rarity and it is common for patients to come to clinic declaring that they 'feel like a fraud' attending clinic when they are essentially asymptomatic.

So what has changed? The two biggest factors leading to improved outcome are not exactly technological breakthroughs. The first has been earlier diagnosis and referral, which has largely been the result of greater awareness among general practitioners but also the availability of the anti-CCP antibody test, which has similar sensitivity and greater specificity than rheumatoid factor and is often present before the joints become inflamed.

We are now seeing patients in the prodromal and very early symptomatic phase of the disease when the pathological immune response is particularly susceptible to treatment with steroids and disease modifying drugs.

The second is the application of the treat to target principle to RA. This has emerged over the last few years out of observations that joint damage correlates with the degree and duration of exposure to inflammation. The concept that outcome can be optimised by eradicating all subjective and objective evidence of

active inflammation has now been formalised in the international collaborative treat to target in RA initiative, of which I am chair of the New Zealand steering committee. Improvements in the ability to measure the inflammatory burden using composite disease scores like the DAS28 and CDAI have provided quantitative targets and validated thresholds at which treatment regimens can be aimed.

Another important factor in the management of RA that has become apparent in the last decade is the need for intensive control of traditional cardiovascular risk factors like smoking, blood pressure and serum lipids. RA confers an excess mortality due to cardiovascular disease that equates with that of type 2 diabetes, in which it has been commonplace to apply statins and ACE inhibitors almost regardless of baseline parameters. A similar approach has been advocated for RA. Interestingly, patients with RA using methotrexate have lower

mortality than RA patients not using this medication, which is attributable to a reduction in cardiovascular disease.

Of course our patients have also benefited from the biologics revolution. Antibodies and peptides that target specific molecules in the inflammatory cascade such as adalimumab, etanercept and rituximab have the capacity to provide excellent control of disease that is resistant to treatment with conventional agents, but these patients represent a small proportion of the total number living with RA.

By following the simple principles of recognising and treating RA in its earliest stages, abrogating all evidence of active inflammation and managing conventional cardiovascular risk factors as effectively as possible, a diagnosis of RA need not have the dire implications it once had.

Associate Professor Andrew Harrison is a Rheumatologist in private practice at The Bowen Centre, Churchill Drive, Crofton Downs, Wellington. Appointments can be made by P: (04) 479 2019.

Laparoscopic Course Meets Weta Workshop

Area: Laparoscopy Training
Article written by: Nicki Babbage, General Team Leader, Theatre, Wakefield Hospital

In 2008 registered nurses at Wakefield Hospital highlighted a need for additional training to gain the technical skills required for assisting with camera work. We wanted something that was linked to the National Education framework, focused on the experienced laparoscopic nurse, developed skills within the registered nurse scope of practice and was both professional and practical.

A two day course was developed in association with Whitireia Polytechnic. It covered a mixture of lectures and practical skills training required for a competent laparoscopic camera operator. This task is performed by a small group of highly skilled theatre nurses who work here. In order to pass on these skills to our colleagues it was felt that some practical application was necessary.

The question was, how to go about achieving this end? It was decided that we needed to replicate the human anatomy to successfully achieve this goal. The hours spent unwrapping minties and lifting life saver lollies onto sticks was not in any way a satisfactory exercise to understand the intricacies of laparoscopic camera work.

By chance a staff member had a contact at Weta Workshop so we decided to email Weta and see if there was any way they would be interested in making an abdomen for us. We had all seen the pictures of Sir Richard Taylor receiving his Oscar and marvelled at the effects in the 'Lord of the Rings' movies, so knew it was possible. To our

surprise we received a reply almost immediately inviting us to meet with Sir Richard Taylor and discuss what we had in mind. Sir Richard had obviously done his homework and was very enthusiastic about what we wanted to achieve. He set about asking us to 'feel' various consistencies of gel-like material to ascertain what was the most realistic representation of our internal organs. He told us that the human body was closest to a pig's anatomy and felt the best way was to take a mould from a pig's organs. He suggested we organise for some organs to be delivered to him at Weta for this to happen.

There are no pigs killed in Wellington; the closest abattoir is in the Wairarapa. The abattoir was very helpful, and let us know when a female pig was going to 'donate her organs'. We arranged collection and then after freezing the organs dropped them off at Weta for the process to begin. We had our workshop make up five lap trainers and with the Weta organs the process was complete. Each abdomen had a liver, gall bladder, kidneys,



Sir Richard Taylor and Nicki Babbage holding 'internal organs'

ureters, bladder, large and small bowel, uterus, fallopian tubes, ovaries and cervix.

We connected the lap trainers to laparoscopic towers and scenario based workstations were set up for practical skills training. We had a trainer at each of the workstations with no more than four students per station to allow for rotation of the roles. The course was a great success with some participants taking photos on their cell phones to show their colleagues when they returned to work. The participants found it both educational and motivating. The course has been run twice with 20 participants at each, and hopefully will be a regular feature on the academic calendar.

Wakefield Hospital achieved highly commended in the New Zealand Private Surgical Hospital Association's Quality awards with this initiative.

Currently two nurses at Wakefield Hospital have completed the Registered Nurse First Surgical Assistant (RNFSA) course and two others are working towards this qualification. This laparoscopic course is seen as complimentary to the RNFSA qualification, and provides more experienced registered nurses with a 'real feel' experience.

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Reducing Patient Risk

The Patient at Risk (PAR) Initiative at Wakefield Hospital

Article written by: Rachael Lucas, Clinical Operations Manager, phone (04) 381 8100 ext 5307 and Lee White, Clinical Charge Nurse, Intensive Care Unit, Wakefield Hospital

All patients receiving hospital services require risk management strategies to keep them safe. Early recognition and management of the deteriorating patient is acknowledged worldwide as a key tool in improving the safety and quality of care for patients.

The overall aims of early intervention or rapid response systems are:

- Improved assessment of patient condition
- Provision of rapid and appropriate intervention
- To improve safety and reduce risk to patients.

Patient safety and quality of service delivery are the cornerstones of the nursing philosophy at Wakefield Health. Over the past 18 months the nursing team at Wakefield Hospital have developed the Patient at Risk (PAR) initiative. The aim of this process was to improve identification of deteriorating patients, and therefore enable early intervention and reduce the likelihood of adverse patient outcomes such as longer hospital stays or unplanned Intensive Care Unit (ICU) admissions.

The PAR team was formed from the already established ICU team and senior nurses with expert skills in assessment, supported by leadership from an ICU intensivist. Integral to the project was the development of an early warning scoring system and observation chart that is now used throughout the hospital. Every patient is scored each time their observations are recorded. If the patient scores above the agreed reportable threshold, the PAR team formally assess the patient and make recommendations for the ongoing management of the patient's condition in consultation with the surgeon, anaesthetist and intensivist. The PAR team provides a 24 hour, seven day a week service.

While the role of the PAR team is primarily to provide advanced patient assessment, they also enhance communication between nursing and medical staff to ensure appropriate patient management and the facilitation of timely transfers to higher levels of care if required. The team sees between ten and 20 patients a month, often returning to assess two or three times to support the nursing staff, the patient and their family. Common reasons for initiating a

SCORE	3	2	1	0	1	2
Respiratory Rate				9 - 14	15 - 19	20 -
Systolic BP			1 - 100	101 - 160	160 - 180	≥
Heart rate/min				51 - 100	101 -	
Temperature			≤ 35		37.6 - 37.9	38
4 hourly observations			≤ 80	81 - 100	≥ 120	
Level of Consciousness				Alert	Responds to voice	

PAR Score Management Pathway

review by the PAR team include signs of hypovolaemia, sepsis, decreased levels of consciousness and pain management.

Continued improvements to the initiative are planned including formal education for the nursing staff with a view to the development of specialist roles, and the development of a communication tool to further improve the quality and timeliness of the notification of patient conditions to relevant parties. Positive feedback from consultants, nursing staff and patients has been received throughout the implementation of the project. The initiative has had an extremely positive influence on the assessment and monitoring of changing patient conditions and the promotion of patient safety for all patients undergoing treatment at Wakefield Hospital.

We are fortunate to be able to work collegially with the local District Health Board (DHB) to develop policy and share knowledge to enhance the patient's experience.

The development of the PAR programme was introduced as a result of reviewing a similar system in operation at Capital & Coast DHB and other private hospitals in Australia.

We acknowledge the support of the surgeons and anaesthetists who operate at Wakefield who support our ongoing commitment to a high standard of patient care.

Wakefield Sports Medicine and Injury Rehabilitation continues at Wakefield

Wakefield Sports Med continues to provide the full range of professional injury assessment and rehabilitation services.

Wakefield Sports Med is available to provide expert injury consultation services and both Dr Ian Murphy, Sports Physician, and Kim Tottenham, Podiatrist, form an essential part of our injury management services. TBI Health Physiotherapists and Exercise Therapists are also available to provide services for those who are returning from injury to work, activity and sport, as well as those who are looking to prevent further injury or improve on their performances.

To book an appointment with Dr Murphy or Kim Tottenham please call the Wakefield Sports Med number on P: (04) 381 8125.

To contact TBI Health for a physiotherapist or exercise therapy appointment visit our website www.tbihealth.co.nz or P: (04) 381 8690.



Book an appointment with Dr Murphy or Kim Tottenham please call the Wakefield Sports Med number on 04 381 8125.

Our Changing World

Wakefield Health GP Conference 2012

FRIDAY 13th & SATURDAY 14th APRIL 2012, TE PAPA, WELLINGTON

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