

April 2013

## ULTRASOUND OF THE KNEE

Ultrasound of the knee is a useful examination in the relevant clinical setting and should be performed predominantly for external structures and generally in conjunction with plain radiographs.

The utility of the test depends on understanding the appropriate indications as well as the limitations of ultrasound. Suspected ligamentous injury and intra-articular derangement are much better assessed with MRI.

### Indications:

- Quadriceps or Patellar tendon tear or tendinosis
- Knee joint effusion - presence or absence
- Confirmation of a Baker's Cyst
- Popliteal vascular structures – e.g. DVT or popliteal artery aneurysm
- Image guided intervention

### Not Indicated:

Most intra-articular pathology with the exception of confirmation/exclusion of a knee joint effusion.

- Meniscal tear
- Cruciate ligament injury
- Medial or lateral collateral ligament injury (due to limited efficacy for mild – moderate grade sprain and less sensitivity and specificity compared to MRI)
- Osteochondral injury
- Degenerative or erosive change
- Suspected intra-articular mass
- Diffuse /poorly localized knee pain



Subtle hypoechoic change proximal patellar tendon consistent with tendinosis



Very symptomatic distal patellar insertion demonstrates minimal thickening but moderate neovascularity in keeping with insertional tendinosis

### Findings:

**Tendinosis** – fibrillar continuity, thickening, hypoechoic change, increased vascularity, mineralization.

**Partial Tear** - linear, anechoic zone, loss of fibre detail.

**Complete Tear** - discontinuity, disorganization, hematoma, fluid

**Baker's cyst** - fluid containing, narrow neck in communication with knee joint between medial head of gastrocnemius and semimembranosus. May have debris, hemorrhage, extravasation.

**Meniscal Cyst** - multiloculated, cystic mass with close relationship to medial or lateral joint line. Cannot visualize the meniscus or meniscal tear.



A soft, compressible swelling with pain and tenderness clinically corresponds with a lobulated and septated cystic swelling strongly suggestive of a meniscal cyst. MRI required for confirmation of cyst and associated meniscal tear.

Classical appearance of comma shaped fluid echotexture Baker's cyst in a patient with progressive posteromedial popliteal fossa swelling and pain.

**CONCLUSION:**

Knee ultrasound has a limited but valuable role in assessment of specific structures external to the knee but should not be used to assess internal derangement or nonspecific knee pain which requires MR imaging.

**Dr Clinton Pinto**

**Ultrasound Services Offered at 14 ARG Branches**

|                 |             |              |                |
|-----------------|-------------|--------------|----------------|
| 101 Remuera Rd  | Ph 529 4850 | Panmure      | Ph 527 6793    |
| Avondale        | Ph 820 0366 | Papakura     | Ph 298 4106    |
| Hauraki         | Ph 489 3681 | Papatoetoe   | Ph 278 9708    |
| Henderson       | Ph 836 2040 | Ponsonby     | Ph 360 2493    |
| Howick          | Ph 535 6084 | Pukekohe     | Ph 09 238 3887 |
| Kohimarama      | Ph 521 2394 | Queen Street | Ph 357 0515    |
| Northern Clinic | Ph 442 2963 | Royal Oak    | Ph 624 2023    |

**New Associates join the Auckland Radiology Group Team**



**Dr Chris McKee**

Chris graduated from the University of Auckland School of Medicine in 1992 and completed his Radiologist training in Auckland, becoming FRANZCR in 2000. His post graduate experience has included a 12 month MRI Fellowship at Monash Medical Centre in Melbourne followed by further experience in Neuroradiology and Body imaging at the Alfred Hospital. Chris has a General radiology interest with expertise in MRI and Body imaging as well as imaging guided procedures. He also has a Consultant position at North Shore Hospital.



**Dr Damien Hoon**

Damien graduated from the Auckland School of Medicine in 2000 and completed radiology training at Auckland in 2008. He was the MRI fellow at Middlemore hospital in 2008, an Australasian Musculoskeletal Society Imaging Group fellow in Albury, New South Wales in 2010, and has acquired further expertise in Canberra. Damien has a part-time appointment at Middlemore Hospital and specialty interests in MRI and imaging guided spinal and musculoskeletal intervention.