

## Management of Meniscal Cysts

### Indications and Techniques

Myles Coolican  
Val d'Isere 2014

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## Australians

- \* Speak English-Badly
- \* Talk too quickly
- \* Use jargon, slang and vernacular
- \* Weird accent
- \* Need interpreters

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## Meniscal Cysts

- \* Background/Incidence
- \* Cause/Pathomechanics
- \* Imaging
- \* Arthroscopic management
- \* When to perform open surgery
- \* Unusual case

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## Meniscal Cysts-Differential

- \* Not all joint line swelling is a meniscal cyst
- \* Potential other causes of joint line swelling
  - Proximal tibio fibular ganglion
  - Meniscal fragments
  - True knee joint ganglion
  - Soft tissue tumours
  - Benign-Synovial chondromatosis
  - Malignant-synovial sarcoma

MRI mandatory

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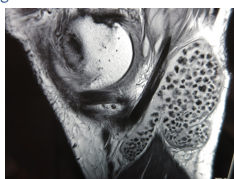
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## Meniscal Cysts-Incidence

Campbell et al AJR 2001-2572 Knee MRI

1402 meniscal tears— 66% medial  
109 meniscal cysts—66% medial

- \* Incidence of cyst with medial meniscal tear—7.8%
- \* Incidence of cyst with lateral meniscal tear—7.7%
- \* 98% had demonstrable connection to tear
- \* 90% horizontal cleavage

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## Meniscal Cysts-Aetiology

Three Theories

- \* Synovial cells congenitally or traumatically displaced
- \* Cystic degeneration after infection, trauma, haemorrhage
- \* Extrusion of synovial fluid thru meniscal tear -Barrie 1979



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## Meniscal Cysts-Aetiology

Many reports and series of cystic menisci without tears

Cystic degeneration can be responsible-similar to wrist ganglion

Alters management



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## Meniscal Cysts-Pathomechanics

Meniscal tear  
Pump theory-Barrie

Requirements for a functioning bike tyre

Pump  
Tube  
Valve

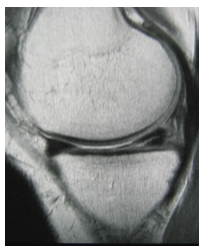


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## Meniscal Cysts-Pathomechanics

Barrie Pump Theory

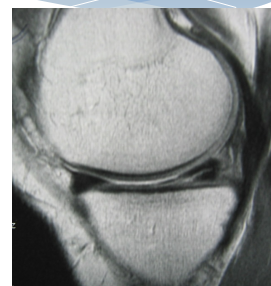
- \* Meniscal tear-typically horizontal component
- \* Small amount of fluid trapped
- \* Normal knee kinematics pump



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## Meniscal Cysts-Pathomechanics

- \* Roll back pumps fluid
- \* Passes through weakest connecting fibres
- \* Cyst wall develops
- \* Tense with activity



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## Meniscal Cysts-Pathomechanics

- \* Bellows



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## Meniscal Cysts-Pathomechanics

- \* Is there a valve?
- \* I've never seen one like this
- \* Soft tissue that could partially trap fluid
- \* Normal kinematics pumps in
- \* No forces to pump fluid back to knee
- \* Resorption of water



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## Meniscal Cysts-Clinical

### Clinical Features

- \* Cystic swelling
- \* Size varies
- \* Undetectable to huge
- \* On or near joint line
- \* MRI usually shows connection



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## Meniscal Cysts-Management

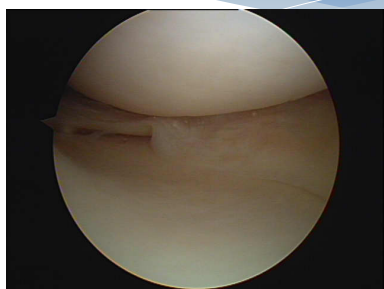
### Arthroscopic Management

- \* Standard arthroscopic portals
- \* Systematically view the knee
- \* Probe the meniscus



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## Meniscal Cysts-Management

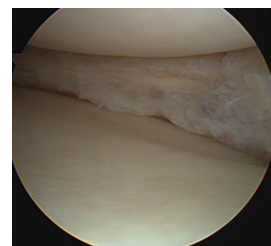


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## Meniscal Cysts-Management

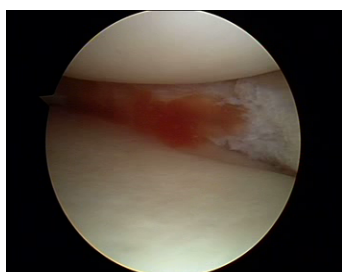
### Arthroscopic Management

- \* Debride meniscal tear
- \* Remove top and bottom leaves of horizontal cleavage tear
- \* Excise the pump-often all that needs to be done
- \* Probe and empty cyst-palpable
- \* Patient concerns



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## Meniscus Cysts-Management

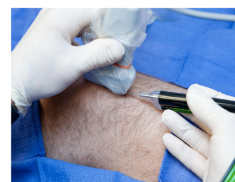


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## Meniscal Cysts-Management

### MRI joint line ganglion and no meniscal tear

- \* Ultra Sound guided aspiration and corticosteroid injection

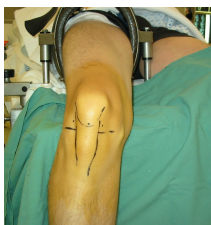


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## Meniscal Cysts-Management

Arthroscopic Management-no meniscal tear  
Fail to resolve with CS injection

- \* Can't see obvious meniscal tear
- \* Needle cyst-enter joint
- \* Probe in area of needle
- \* No meniscal tear-explore and excise swelling

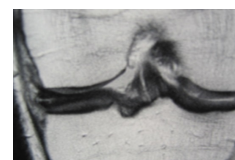


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## Meniscal Cysts-Management

Arthroscopic Management-no meniscal tear

Do not remove a normal meniscus



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## Meniscal Cysts

Open Surgery

- \* No meniscal tear-ganglion
- \* Large cysts -cyst wall
- \* Big opening between cyst and joint-requires closure



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## Meniscal Cysts

Summary

- \* Usually but not always associated with meniscal tear
- \* Horizontal cleavage-pump
- \* MRI to confirm and r/o other causes
- \* Usually arthroscopy alone to treat
- \* Remove bellows
- \* Open surgery - huge cysts - true ganglia

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## Unusual Pump

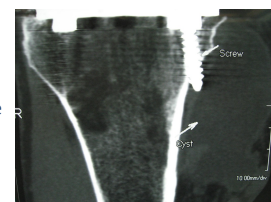
- \* 69 year old male
- \* Rheumatoid arthritis
- \* 6 years post porous TKR
- \* Screwed base plate
- \* Large posteromedial swelling developed in past 3 months



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## Unusual Pump

- \* CT showed cyst
- \* Around tip of screw
- \* Likely joint fluid
- \* Pumped by polyethylene against base plate
- \* Screw track pathway

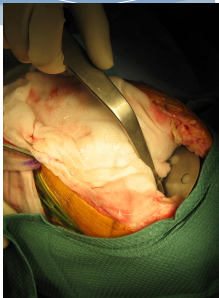


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### Unusual Pump

- \* Medial screws removed
- \* Unable to milk cyst into joint
- \* Cured screw pathway
- \* Holes filled low viscosity PMM
- \* Cyst left in situ
- \* Poly exchange

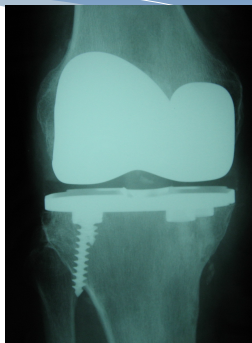


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### Unusual Pump

Post op radiograph

Blocked connection




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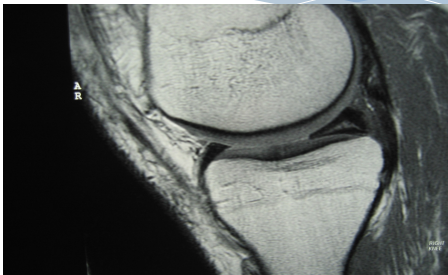
Clinical appearance at 6 weeks

Message-meniscal cysts  
Remove the pump  
Don't always need to empty or excise cyst



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### Thank You



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