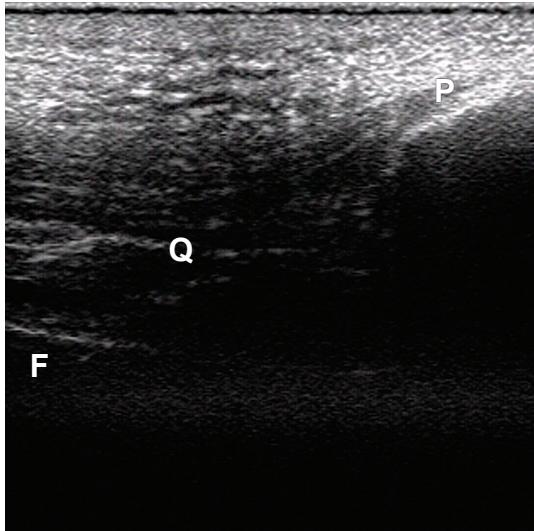


Knee

Healthy Subject
RA
OA
Crystal-related
Other Diseases

Knee



Healthy Subject

**Longitudinal scan of
suprapatella**

P = patella

Q = quadriceps

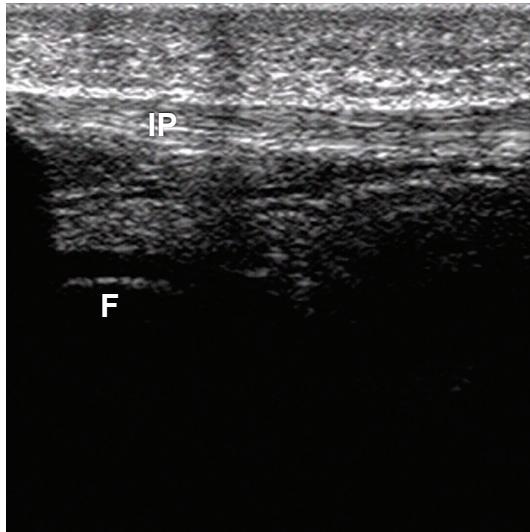
F = femur



Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



Healthy Subject

Longitudinal scan of infrapatella

IP = infrapatella tendon

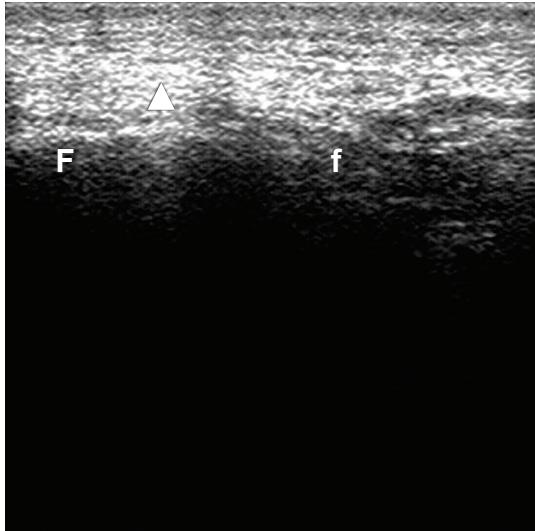
F = femur



Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



Healthy Subject

Longitudinal lateral scan of knee

lateral collateral

ligament(arrow head)

F = femur

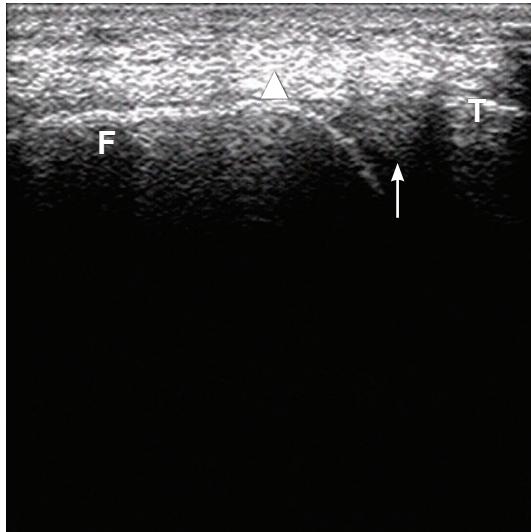
f = fibula



Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



Healthy Subject

Longitudinal medial scan of knee

medial meniscus(arrow),
medial collateral
ligament(arrow head)

F = femur

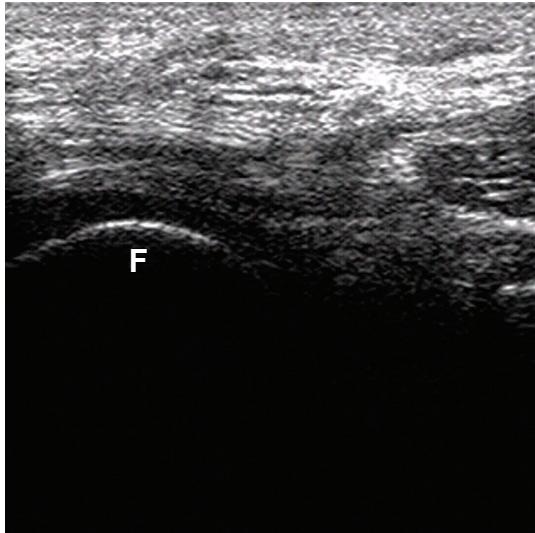
T = tibia



Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



Healthy Subject
Longitudinal scan of popliteal fossa

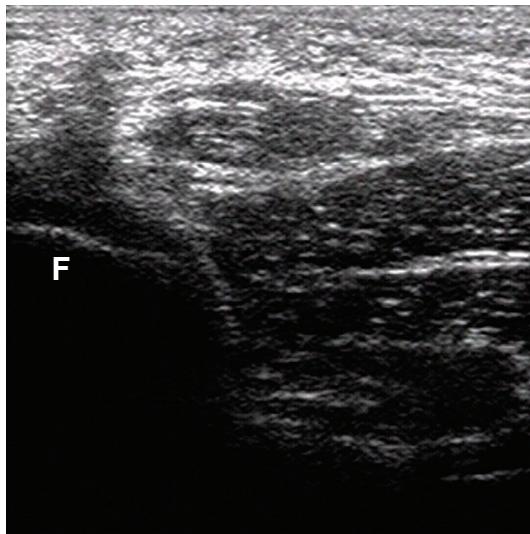
F = femur



Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



Healthy Subject

Transverse scan of popliteal fossa

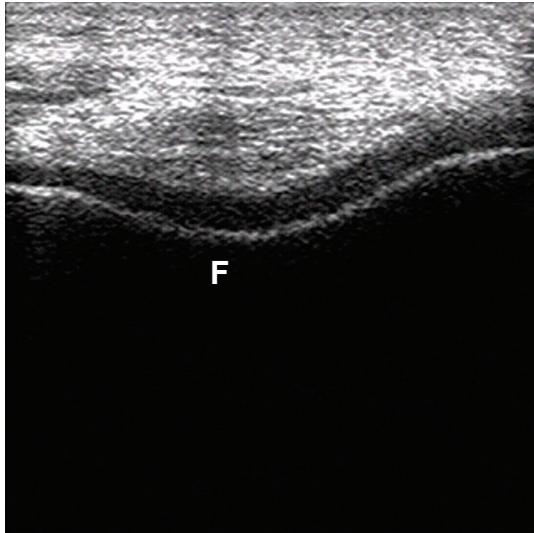
F = femur



Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



Healthy Subject
Transverse scan of
suprapatella

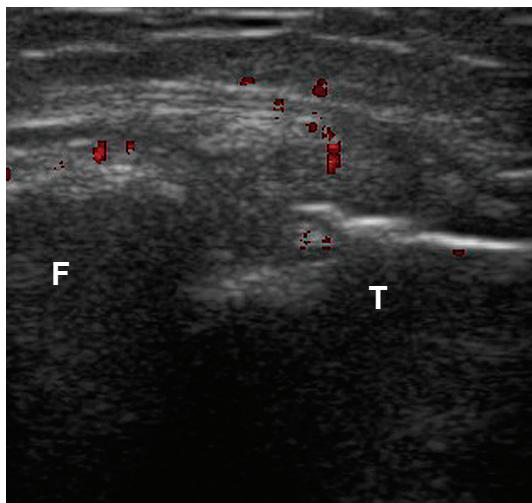
F = femur



Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



RA

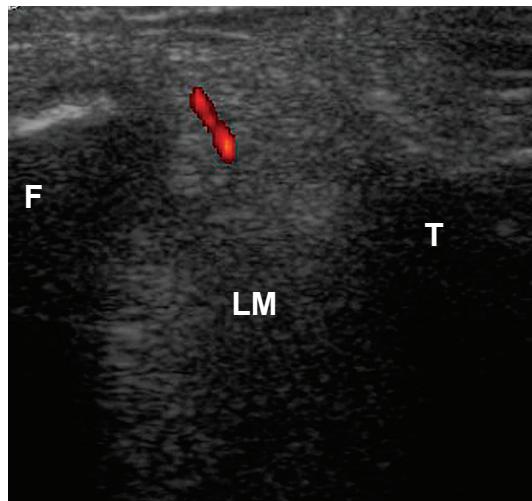
Longitudinal sonogram over lateral meniscus

Confluent vessel powder Doppler signals in less than half of the medial meniscus.

Abbreviations: femur (F), Tibia (T)

Chen, Ying-Chou

Power Doppler Ultrasonography using CGM OPUS 5000



RA

Longitudinal sonogram over lateral meniscus

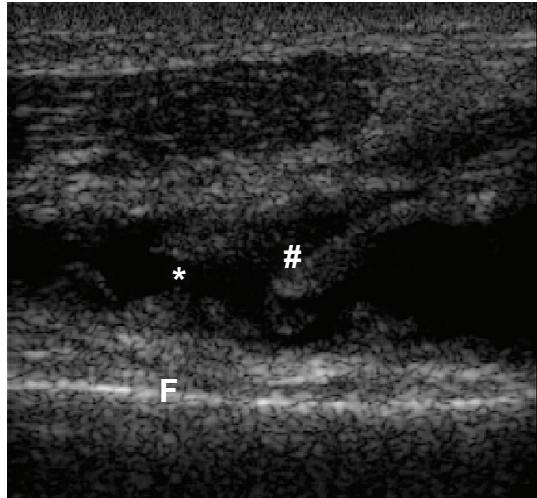
Single vessel signals on powder Doppler ultrasonography.

Abbreviations: lateral meniscus (LM), femur (F), Tibia (T)

Kuo, Chang-Fu

Grey scale US using a Logiq 5 (General Electrics)

Knee



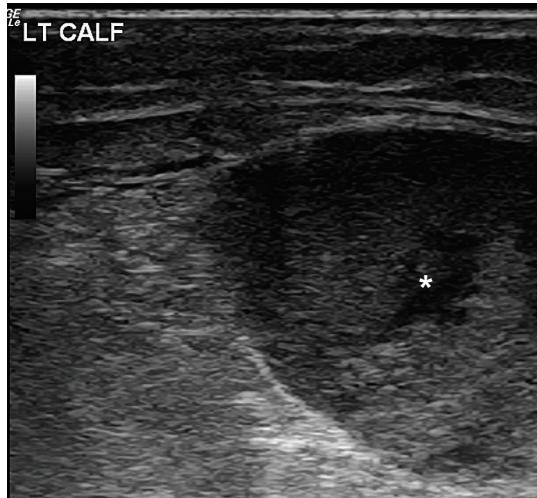
RA

Longitudinal scan of suprapatella

Effusion(*) and synovial proliferation(#)
F = femur

Chang, Chi-Ching

Grey scale US using a Taitan 180



RA

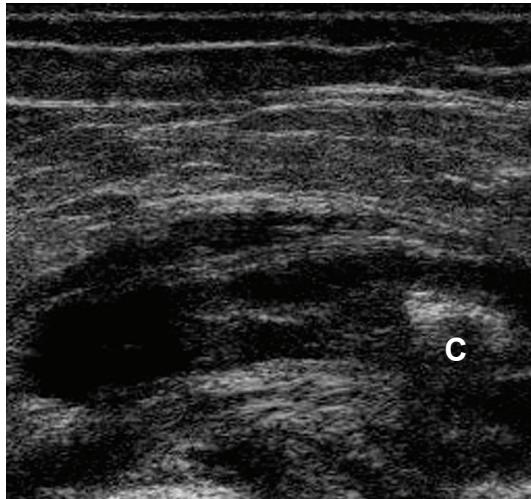
Transverse scan of popliteal fossa

This patient has RA. She has severe knee swelling and large popliteal cyst. Leg swelling was found and echo showed organized ruptured popliteal cyst (*).

Kuo, Chang-Fu

Grey scale US using a Logiq 9 (General Electrics Medical Systems, Milwaukee, WI) with a volumetric probe (4D16L), with power doppler

Knee



RA

Medial Meniscal Cyst

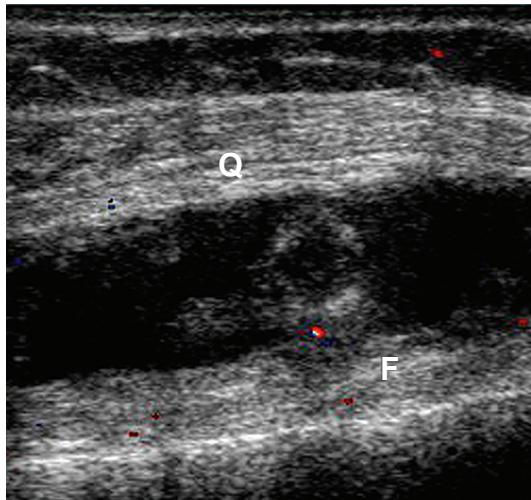
Medial longitudinal scan

Protrusion of the medial meniscus with well defined mass and septum.

C = meniscal cyst

Chen, Ying-Chou

Grey scale US using acuson machicine



RA

Medial longitudinal scan of suprapatella

RT Knee synovial membrane proliferation and effusion

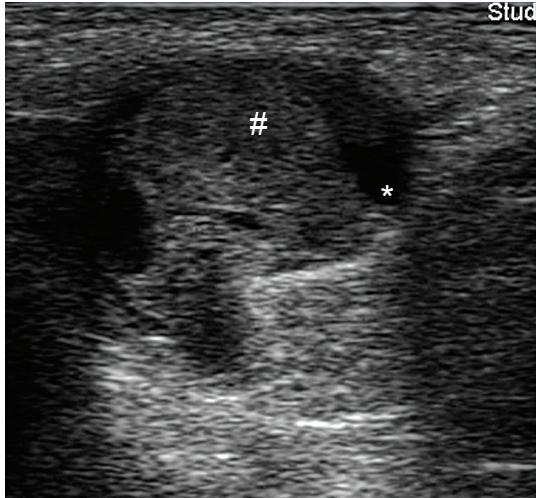
Q = quadriceps

F = femur

Chen, Ying-Chou

Power Doppler US using acuson machicine

Knee



RA

Baker's Cyst

**Posterior transverse scan
(popliteal view)**

Proliferative synovitis.

Marked joint cavity widening

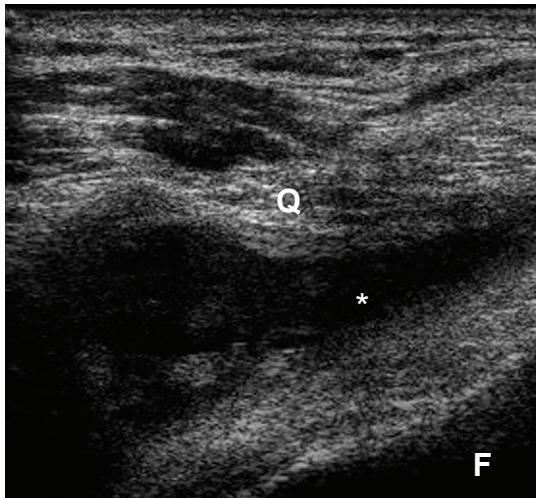
Mainly due to synovial proliferation.

= synovium proliferation

* = synovial fluid

Lin, Liang-Hung

Grey scale US using a Logiq 5 (General Electric)



RA

Longitudinal scan of Suprapatella

Suprapatellar effusion and synovial membrane proliferation

Q = quadriceps

F = femur

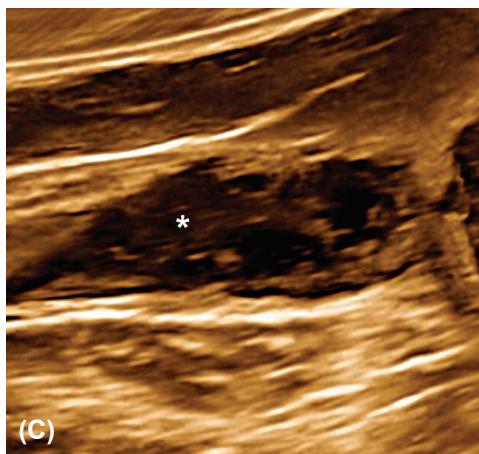
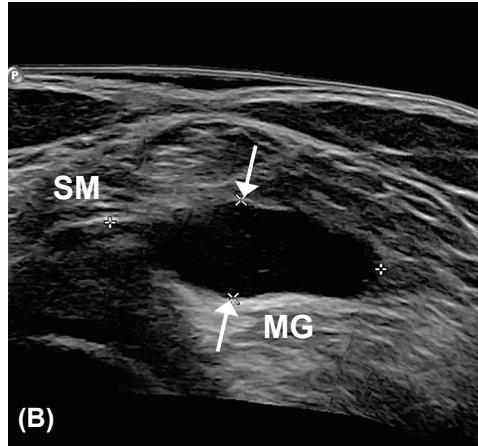
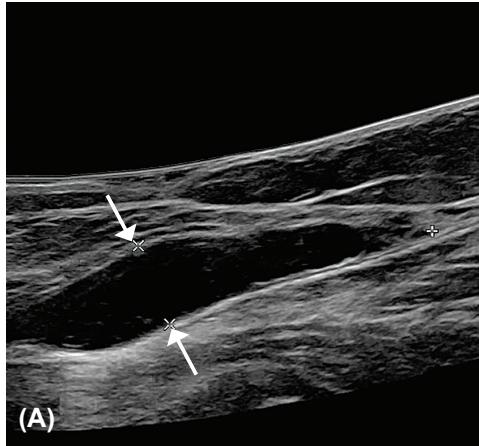
* = synovial fluid

Chen, Ying-Chou

Grey scale US using acuson machicine

Knee

RA



Baker's Cyst

Panoramic view of longitudinal scan (A), transverse scan (B) and 3D scan over popliteal fossa and calf (C)

A cystic lesion protruding out between medial gastroneius tendon and semimenbranous tendon with marked synovial membrane proliferation (*) and moderate anechoic effusion.

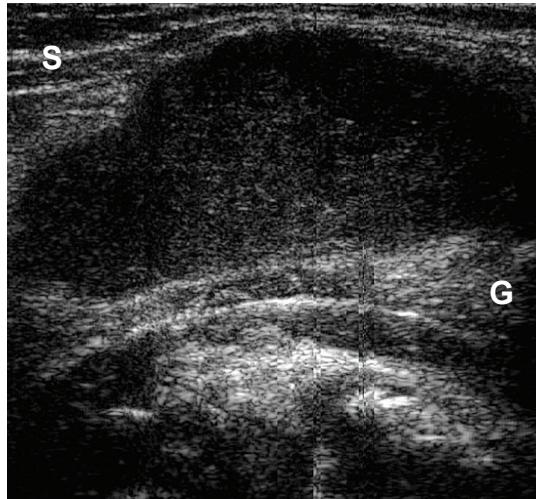
The above findings are compatible with baker's cyst with pannus formation.

SM = semimembranous tendon, MG = medial gastronemius tendon.

Chen, Hsin-Hua

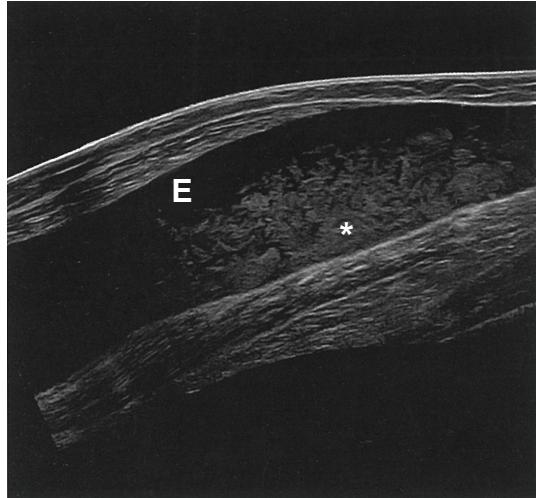
Grey scale and power Doppler US using a Philip iU22 with a volumetric probe (4D, 5-13MHz)

Knee



Chen, Ying-Chou

Power Doppler Ultrasonography using CGM OPUS 5000



Chen, Hsin-Hua

Grey scale US using a Philip iU22 with a volumetric probe (4D, 5-13MHz)

RA

Baker's Cyst

Longitudinal scan and panoramic view of popliteal fossa

A cystic mass lying between the gastrocnemius(G) and semimembranous(S) muscle

RA

RA with Baker's Cyst Extending to Calf

Panoramic view of longitudinal scan over calf

Longitudinal scan over calf shows a huge well-defined intramuscular cystic lesion connecting to baker's cyst containing marked synovial membrane proliferation (*) and massive anechoic effusion (E).

Knee



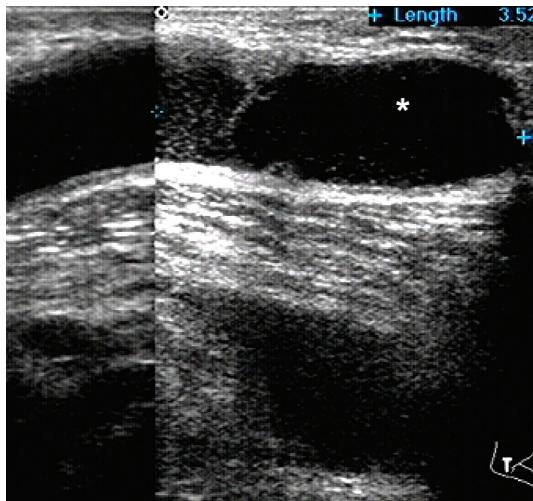
OA

Longitudinal scan of popliteal fossa

Baker's cyst appears as a hypoechoic area (*), with hyperechoic sposts (arrow)

Chang, Chi-Ching

Grey scale US using a Taitan 180



OA

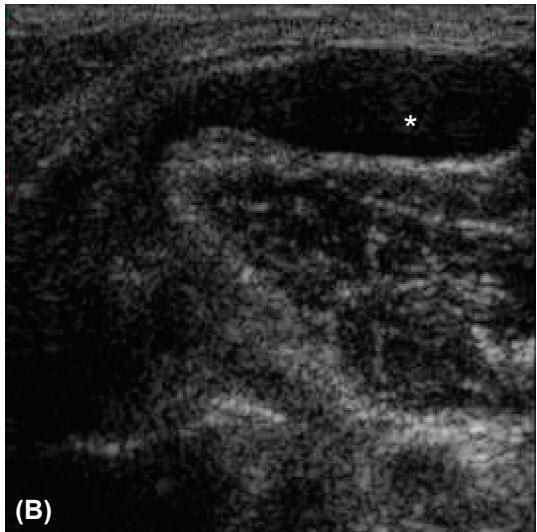
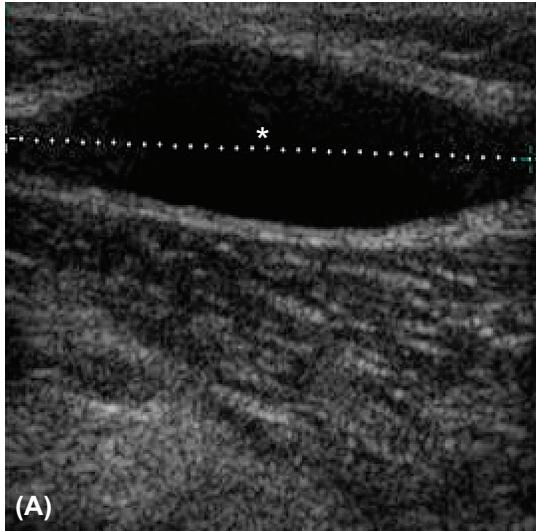
Longitudinal scan of popliteal fossa

Baker's cyst appears as a hypoechoic area (*)

Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



OA
Baker's Cyst

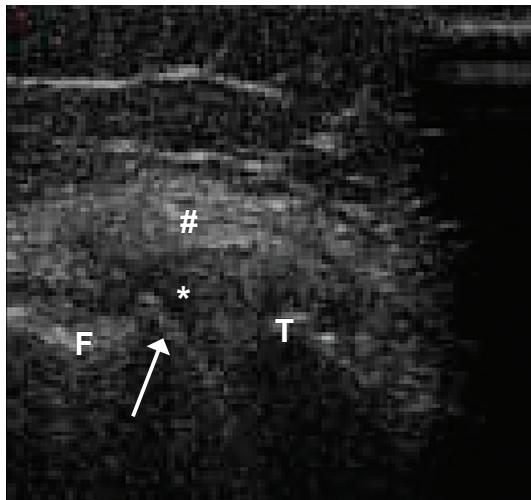
(A) Longitudinal scan of popliteal fossa
(B) Transverse scan of popliteal fossa

Baker's cyst appears as a hypoechoic area (*)

Chang, Chi-Ching

Grey scale US using a Titan 180

Knee



OA

Longitudinal scan of medial knee

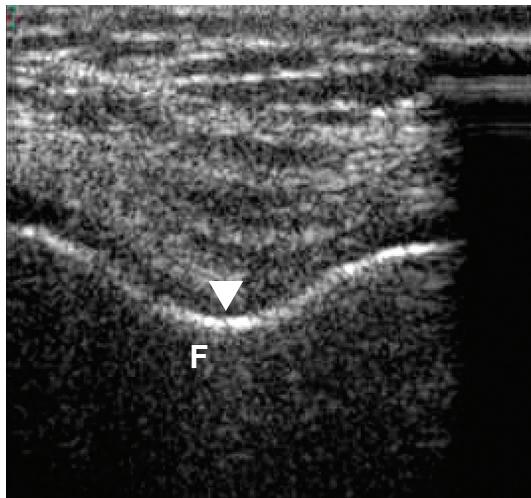
Protrusion of the anterior horn of the medial meniscus(*) with distension of the MCL(#). Osteophyte (arrow)

F = femur

T = Tibia

Chang, Chi-Ching

Grey scale US using a Taitan 180



OA

Transverse scan of suprapatella

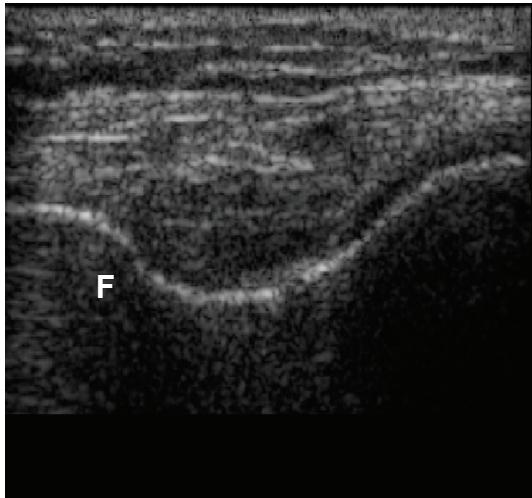
Decreased thickness of cartilage (arrow head)

F = femur

Chang, Chi-Ching

Grey scale US using a Taitan 180

Knee



OA

**Advanced
Osteoarthritis**

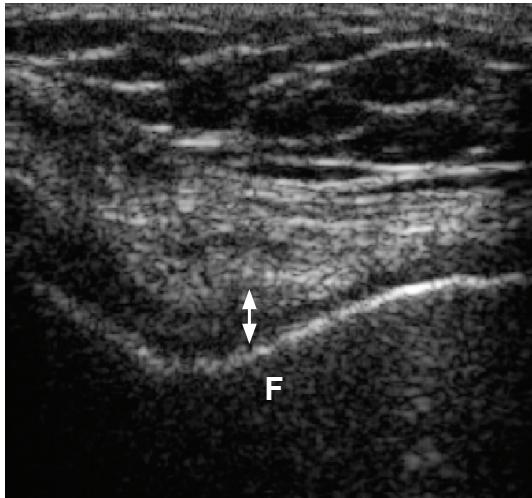
**Transverse scan of
suprapatella**

Marked thinning of articular cartilage.

F = femur

Chang, Chi-Ching

Grey scale US using a Taitan 180



OA

**Advanced
Osteoarthritis**

**Transverse scan of
suprapatella**

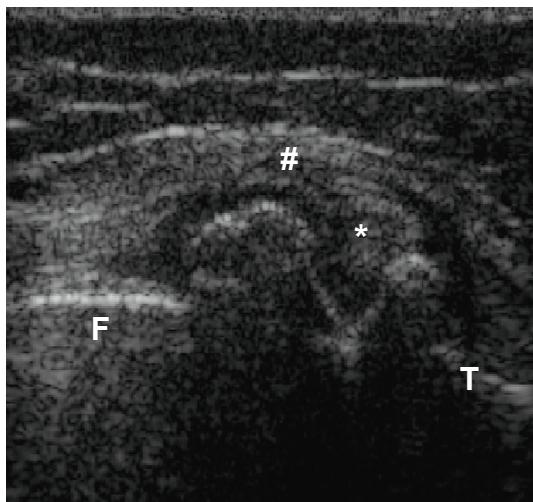
Decreased thickness of cartilage of knee (double arrow head)

F = femur

Chang, Chi-Ching

Grey scale US using a Taitan 180

Knee



OA

Advanced Osteoarthritis

Longitudinal scan of medial knee

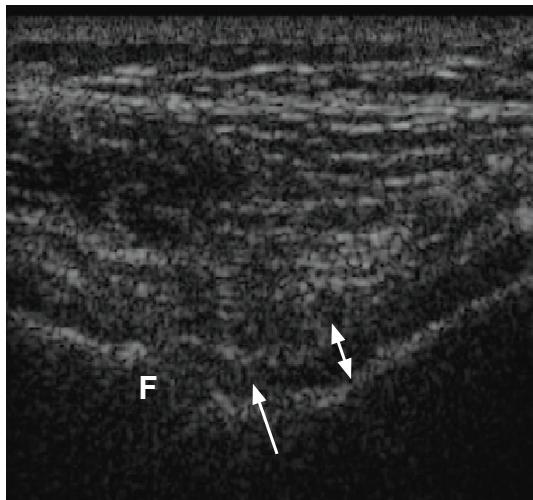
Protrusion of the anterior horn of the medial meniscus(*) with distension of the MCL(#). Osteophyte (arrow)

F = femur

T = Tibia

Chang, Chi-Ching

Grey scale US using a Taitan 180



OA

Transverse scan of suprapatella

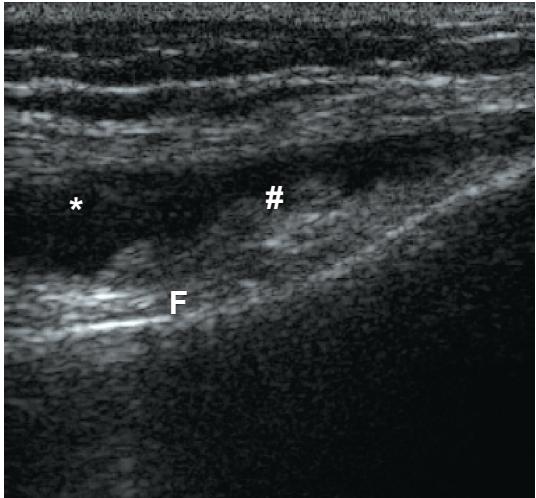
Decreased thickness of cartilage(double arrow head) disruption of bone cortex (arrow)

F = femur

Chang, Chi-Ching

Grey scale US using a Taitan 180

Knee



OA

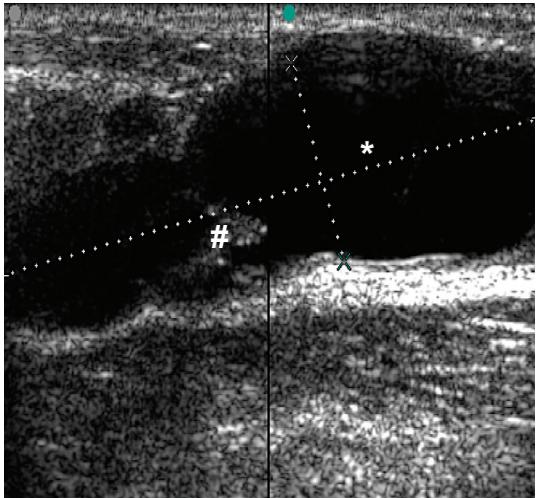
Longitudinal scan of lat knee

Effusion(*) and synovial proliferation(#)

F = femur

Chang, Chi-Ching

Grey scale US using a Taitan 180



OA

Longitudinal scan of popliteal fossa

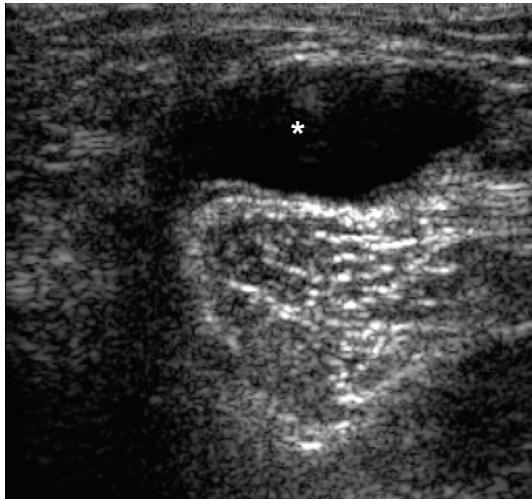
Baker's cyst appears as a hypoechoic area, with synovial proliferation (#)

* = effusion

Chang, Chi-Ching

Grey scale US using a Taitan 180

Knee



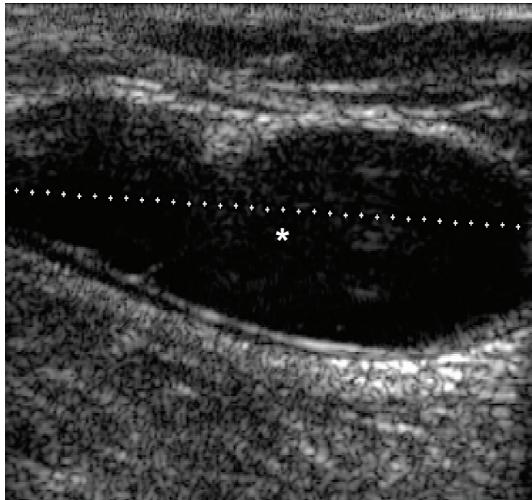
OA

Transverse scan of popliteal fossa

Baker's cyst appears as a hypoechoic area (*)

Chang, Chi-Ching

Grey scale US using a Taitan 180



OA

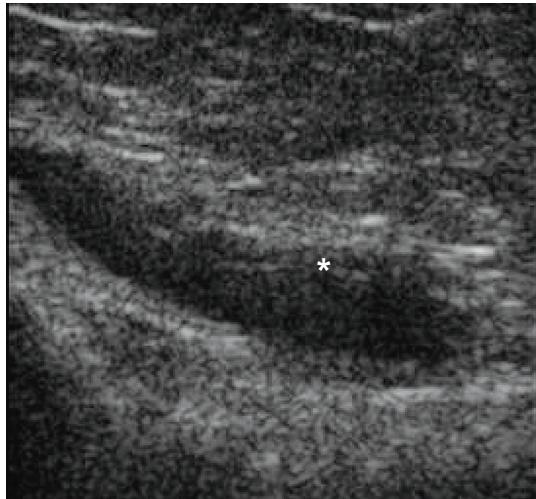
Longitudinal scan of popliteal fossa

Baker's cyst appears as a hypoechoic area (*)

Chang, Chi-Ching

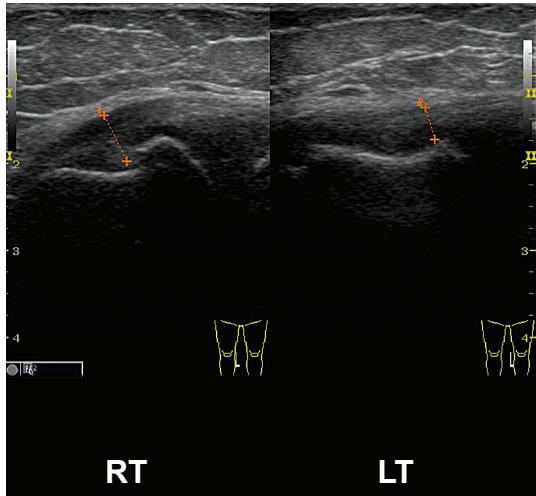
Grey scale US using a Taitan 180

Knee



Chang, Chi-Ching

Grey scale US using a Taitan 180



Wu, Chien-Hui

Grey scale US using a Logiq P5 (General Electrics Medical Systems, Milwaukee, WI) with a linear probe (12L)

OA

Pes-anserine bursitis

Longitudinal scan of medial knee

Effusion in Bursa

* = effusion

OA

Pes Anerine Tendinitis

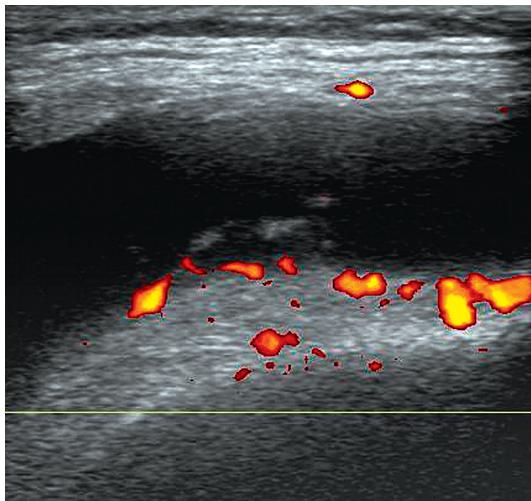
Longitudinal scan of pes anserine tendon

Hypoechoic swelling of pes anserine tendon compared with left side

RT = abnormal

LT = normal

Knee



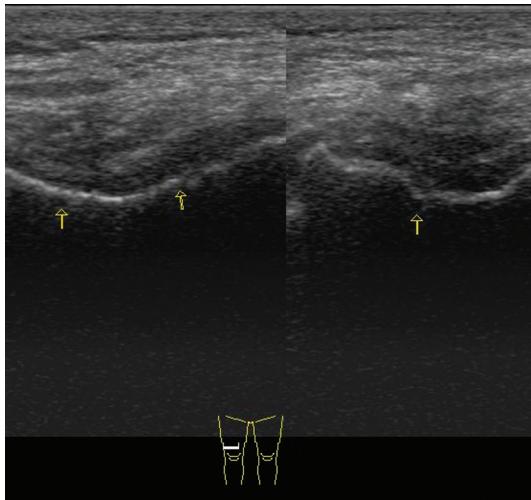
OA

Oblique scan

Synovial hypertrophy with effusion and power Doppler scan showed grade 3 inflammatory change

Wu, Chien-Hui

Power doppler US using a Logiq P5 (General Electrics Medical Systems,Milwaukee,WI) with a linear probe (12L)



OA

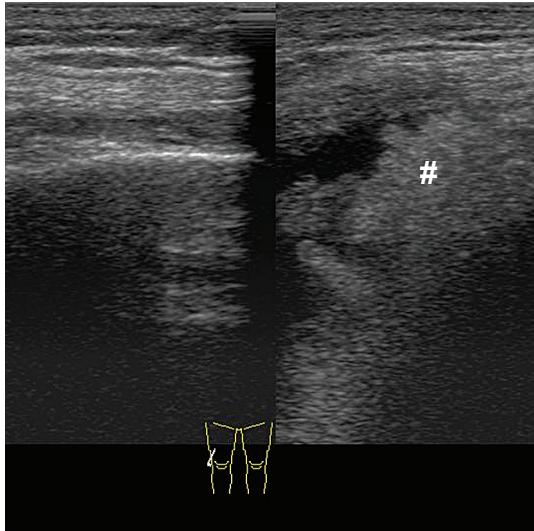
Transverse scan of suprapatella

Uneven bone surface and narrow cartilage more over medial side

Wu, Chien-Hui

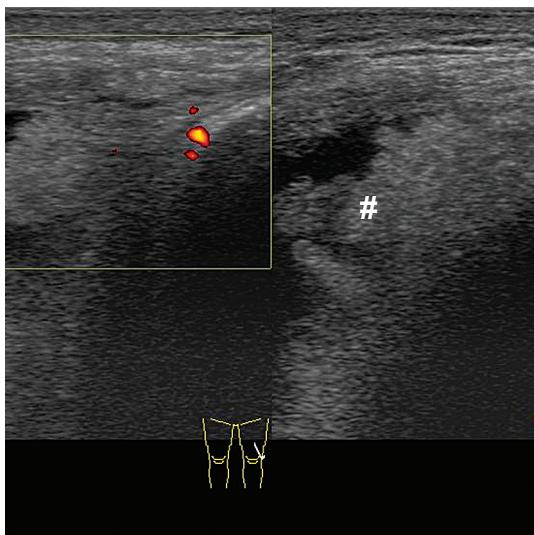
Grey scale US using a Logiq P5 (General Electrics Medical Systems,Milwaukee,WI) with a linear probe (12L)

Knee



**OA
Inflammatory
Oblique scan**

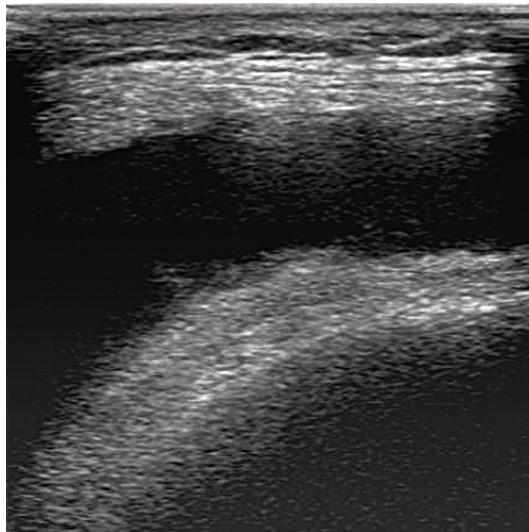
Synovial hypertrophy(#) with effusion Power doppler scan showed grade 2 inflammatory change



Wu, Chien-Hui

Grey scale US and power doppler using a Logiq P5 (General Electrics Medical Systems,Milwaukee,WI) with a linear probe (12L)

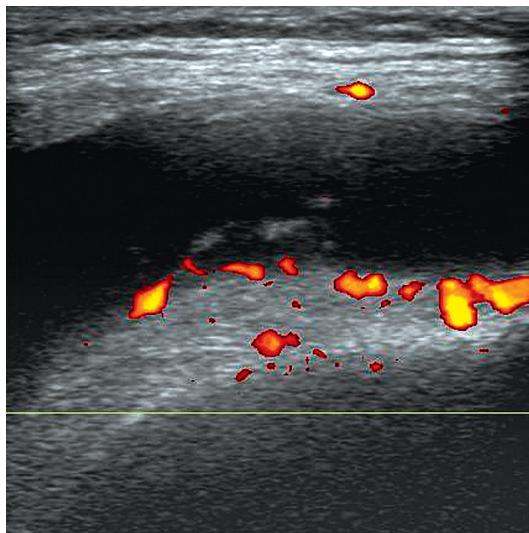
Knee



OA

Inflammatory
Osteoarthritis
Oblique scan

Rt suprapatellar pouch
showed synovial hypertrophy
and effusion and inflammatory
change PDI grade 3



Wu, Chien-Hui

Grey scale US using a Logiq P5 (General Electrics Medical Systems, Milwaukee, WI) with a linear probe (12L)

Shoulder

Elbow

Wrist

Hand

Hip

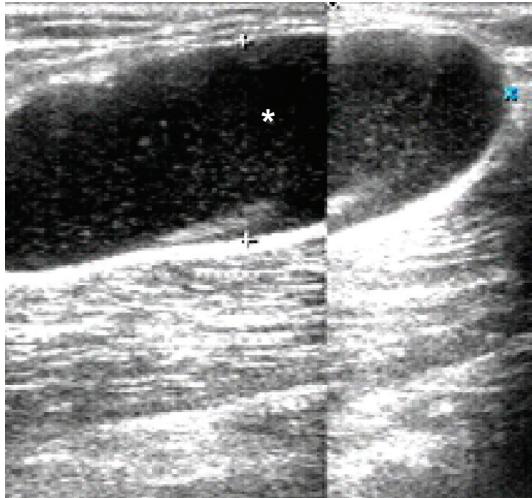
Knee

Others

Foot

Ankle

Knee



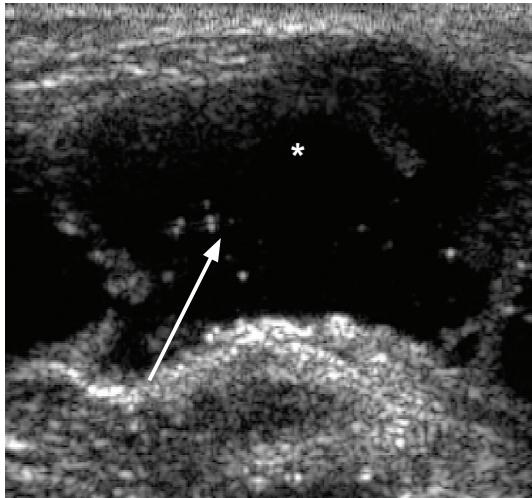
OA

Longitudinal scan of popliteal fossa

Baker's cyst appears as a hypoechoic area (*)

Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)



OA

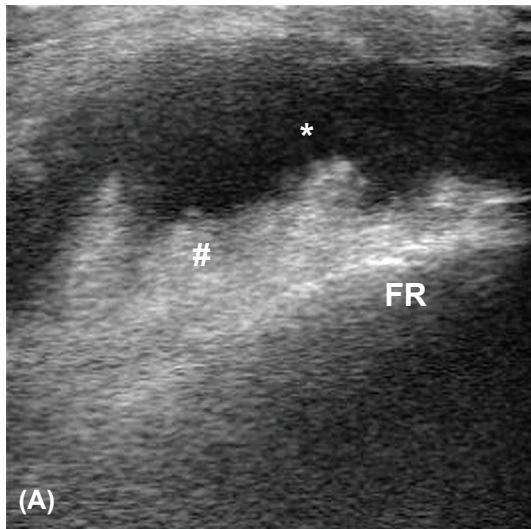
Longitudinal scan of popliteal fossa

Baker's cyst appears as a hypoechoic area (*), with hyperechoic sposts (arrow)

Chang, Chi-Ching

Grey scale US using a Titan 180

Knee



Crystal-related

Gouty Arthritis

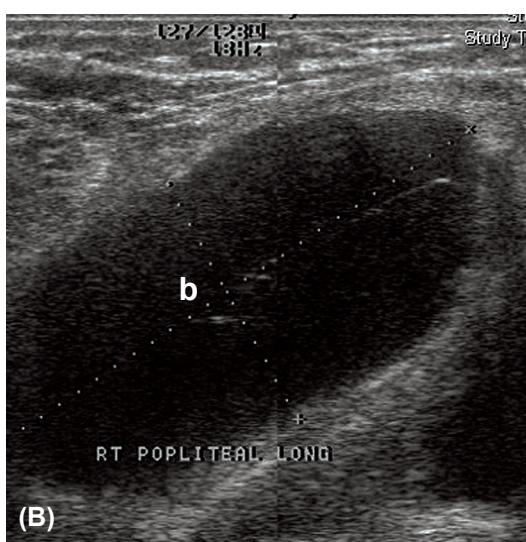
Right knee(A),
popliteal fossa(B)

Longitudinal scan

Marked synovial proliferation
(#) within distended
suprapatella pouch; Baker's
cyst(b) formation

FR = femur

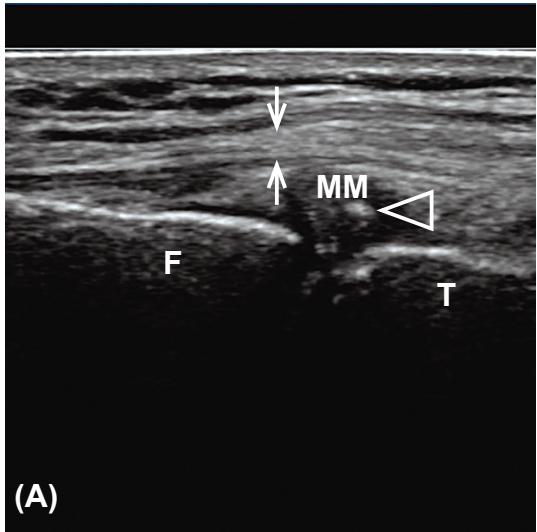
* = effusion



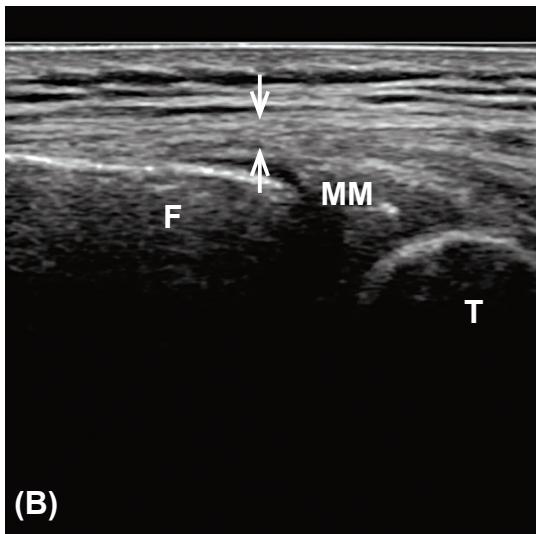
Tsai, Wen-Pin

Aloka 5500

Knee



(A)



(B)

Crystal-related Chondrocalcinosis

Longitudinal scan of medial aspect of extended (A) and mild-flexed tibioferoral joint (B).

(A) Note a tiny hyperechoic lesion (open arrow-head) without acoustic shadow within the triangular anterior horn of medial meniscus (MM).

(B) The echogenicity of medial longitudinal ligament (arrows) increased while the mildly flexed.

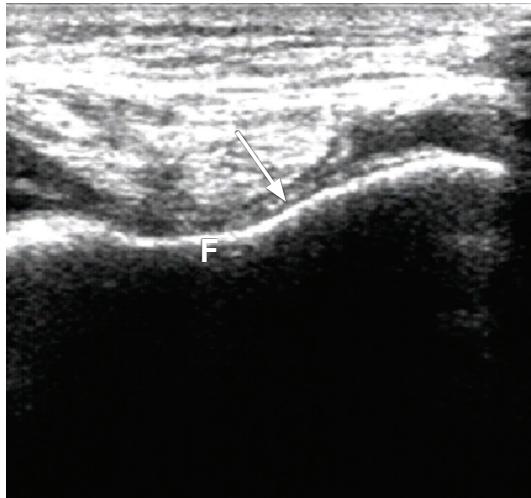
F = femur

T = tibia

Chen, Hsin-Hua

Grey scale US using a Philip iU22 with a volumetric probe (4D, 5-13MHz)

Knee



Crystal-related

CPPD

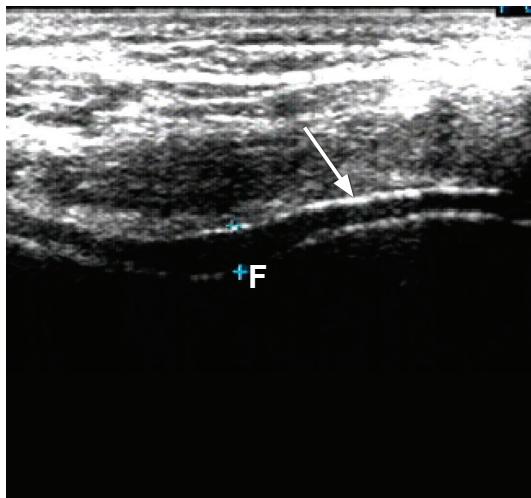
Tranverse scan of suprapatella

calcium pyrophosphate crystals are layered in the centre of articular cartilage (arrow)

F = femur

Chang, Chi-Ching

Grey scale US using a Taitan 180



Crystal-related

Gout

Tranverse scan of suprapatella

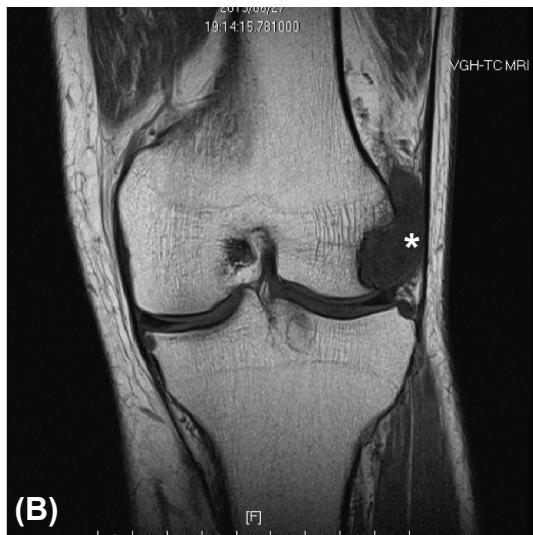
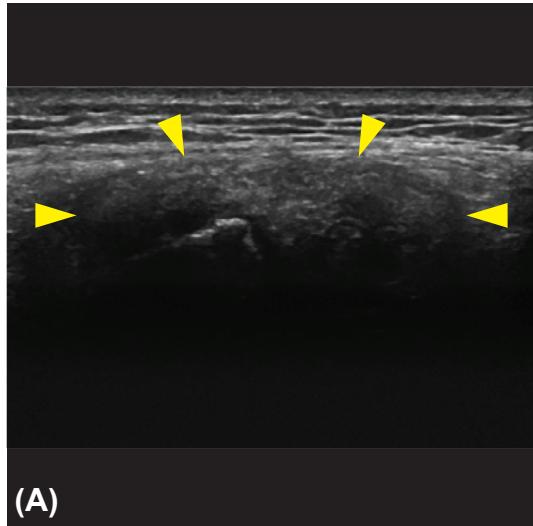
monosodium urate crystals on the surface of articular cartilage (arrow), double contour sign

F = femur

Chang, Chi-Ching

Grey scale US using a Envisor (Philips, the Netherland) with a multi-frequency linear transducer (7~12 MHz)

Knee



Crystal-related

Tophi

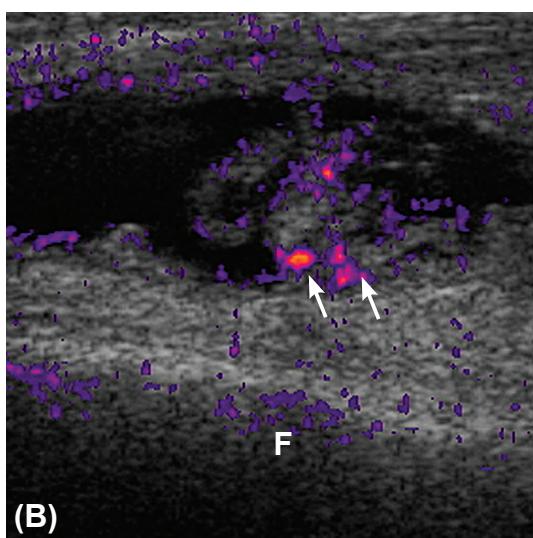
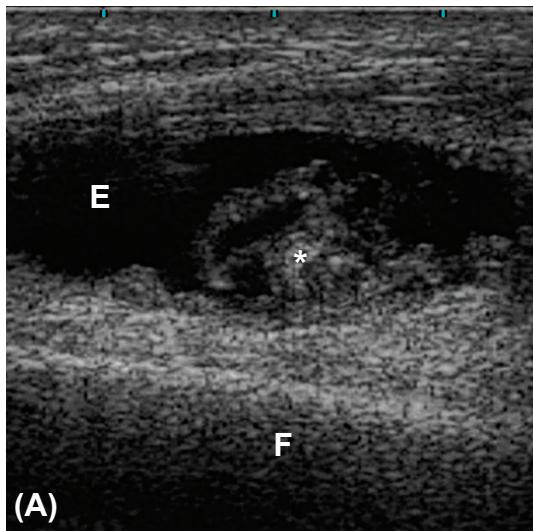
Longitudinal scan of left knee lateral side

Tophi. (A) Longitudinal US scan showed an echoic mass (arrowheads) with acoustic shadow at lateral femoral condyle (B) MRI (T1 weighted image) showed a hyposignal mass (*) with invading to lateral femoral condyle.

Lai, Kuo-Lung

Gray scale US using a GE E9 (General Electrics) with a linear probe (15MHz)

Knee



Other Diseases

Pigmented Villonodular Synovitis

Dorsal longitudinal scan (A) and Power Doppler image of suprapatella(B).

Widening of suprapatellar pouch with villonodular like mass lesions (*) and massive anechoic effusion. PDUS showed some confluent Doppler signal (arrows) in lesions. The scattered Doppler signals beneath the bone were artifacts. The Aspirated synovial fluid was bloody.

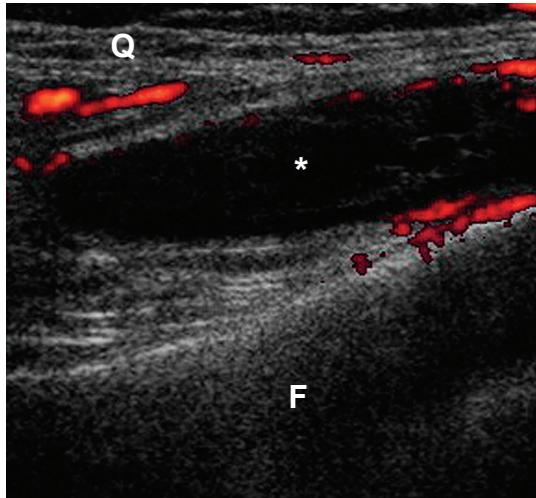
E = effusion

F = femur

Chen, Hsin-Hua

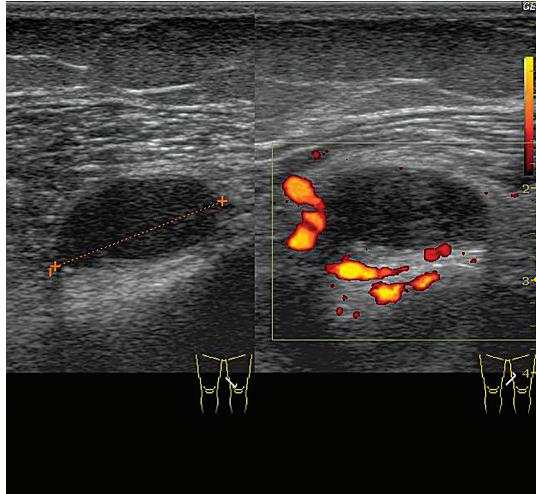
Grey scale and power Doppler US using a Logiq 500 (General Electrics Medical Systems, Milwaukee, WI) with a linear probe (6-13MHz)

Knee



Chen, Ying-Chou

Power Doppler Ultrasonography using CGM OPUS 5000



Wu, Chien-Hui

Grey scale US using a Logiq P5 (General Electrics Medical Systems, Milwaukee, WI) with a linear probe (12L)

Other Diseases

Salmonella Septic Arthritis

Lateral longitudinal scan of suprapatella

Effusion(*) with hyperechoic strands, hyperemic synovial membrane

Abbreviations: femur (F), quadriceps (Q)

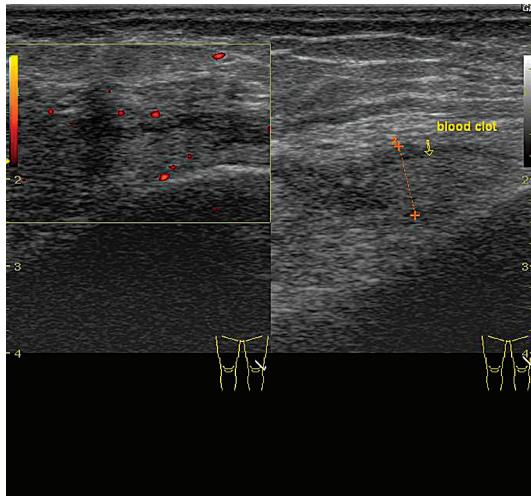
Other Diseases

Subcutaneous Cyst

Oblique scan of quadriceps muscle

A cyst found over rt medial portion of quadriceps muscle and inflammatory change surrounding the cyst

Knee



Other Diseases

Hemoathrosis

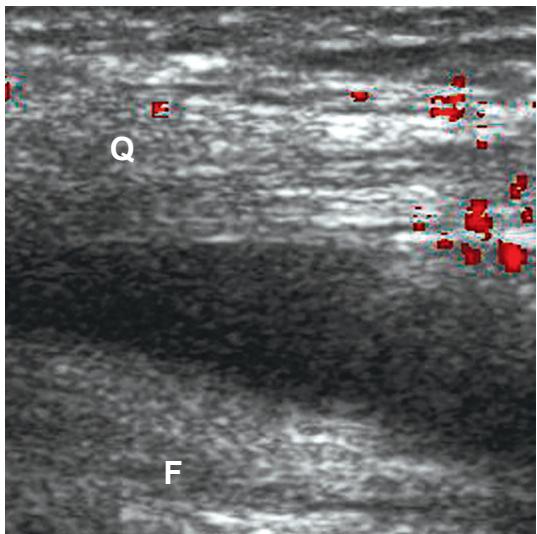
Oblique scan of suprapatella

Lt knee joint cavity showed hyperechoic substance
By trauma history and aspiration, blood clot

Wu, Chien-Hui

Grey scale US using a Logiq P5 (General Electrics Medical Systems, Milwaukee, WI) with a linear probe (12L)

Knee



Chen, Ying-Chou

Power Doppler Ultrasonography using CGM OPUS 5000

Other Diseases

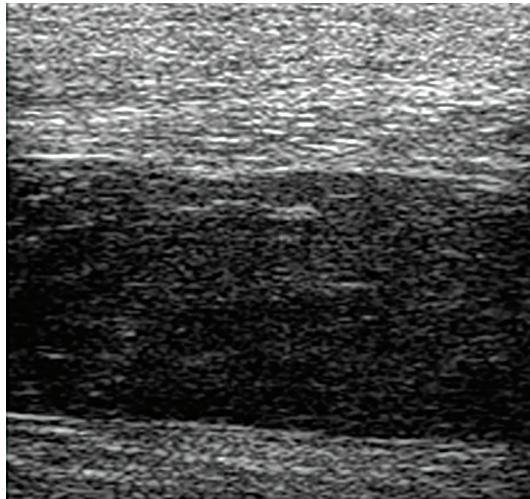
Primary Sjogren's Syndrome

Longitudinal images obtained with a 7.5 MHz transducer over the suprapatella

Power Doppler signals in less than half the synovium of the metacarpophalangeal joints, an anechoic fluid is identified within the suprapatellar bursa.

Abbreviations: femur (F), quadriceps (Q)

Knee



Chen, Ying-Chou

Grey scale US using Acuson machine

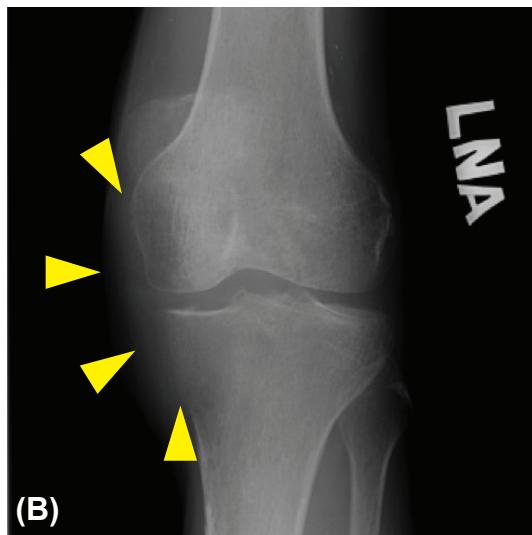
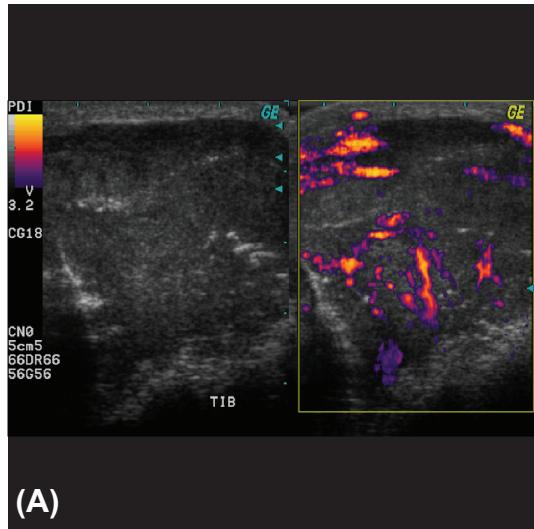
Other Diseases

Baker's Cyst Rupture

longitudinal scan of calf

Baker's cyst rupture into calf

Knee



Lai, Kuo-Lung

Gray scale and power Doppler US using a GE LOGIQ500 (General Electrics) with a linear probe (11MHz)

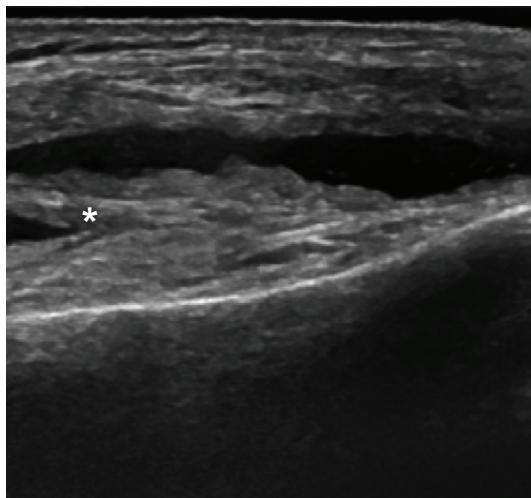
Other Diseases

Metastatic tumor of knee

Longitudinal scan of left knee medial side

Metastatic tumor of knee. (A) Longitudinal US scan showed a big heteroechoic mass with calcifications and tibia bone destruction (left). The mass was hypervascular on power Doppler study (right). (B) X-ray showed a soft tissue mass (arrowheads) with invading to tibia and lateral femoral condyle. TIB: tibia.

Knee



Other Diseases

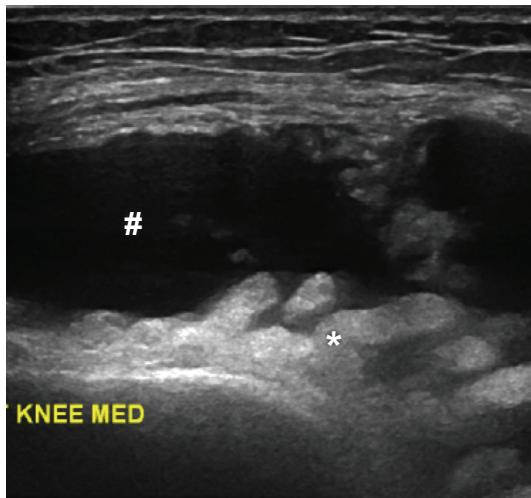
Plica syndrome

Longitudinal scan at lateral side of suprapatellar pouch

Plica syndrome. Longitudinal US scan at lateral side of suprapatellar pouch showed a characteristic synovial band (*) complicating with synovial effusion and synovitis.

Lai, Kuo-Lung

Gray scale US using a GE E9 (General Electrics) with a linear probe (15MHz)



Other Diseases

Lipoma arborescens

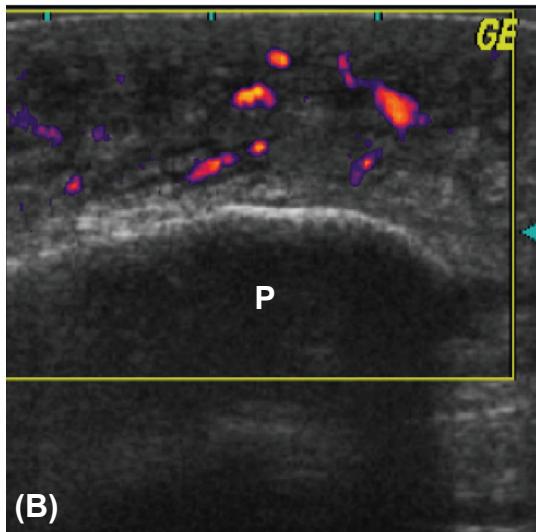
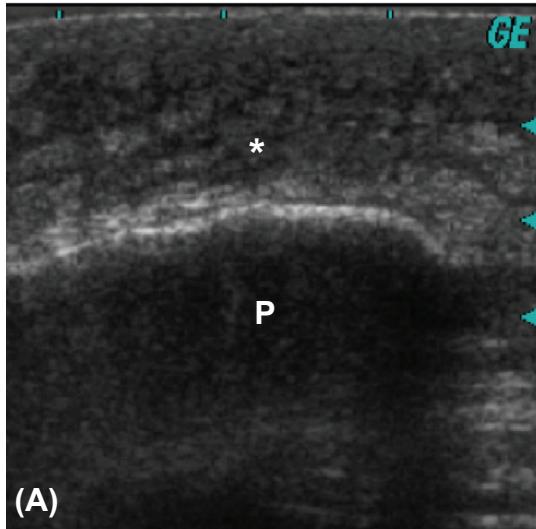
Longitudinal scan at medial side of suprapatellar pouch

Lipoma arborescens of knee. Villous proliferation of synovium (*) is the characteristic feature. Massive synovial effusion (#) was also noted.

Lai, Kuo-Lung

Gray scale US using a GE E9 (General Electrics) with a linear probe (15MHz)

Knee



Other Diseases

Prepatellar bursitis

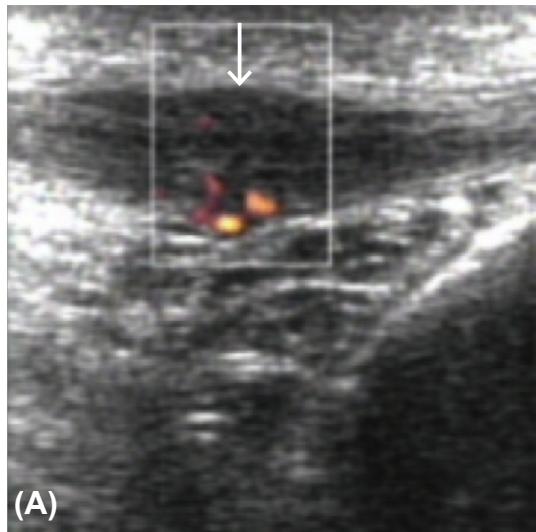
Longitudinal scan of patella

Prepatellar bursitis. (A) Gray scale US showed hypertrophy of the prepatellar bursa synovium (*) and (B) power Doppler US showed bursa synovial vascularity. P: patella.

Lai, Kuo-Lung

Gray scale and power Doppler US using a GE LOGIQ500 (General Electrics) with a linear probe (11MHz)

Knee



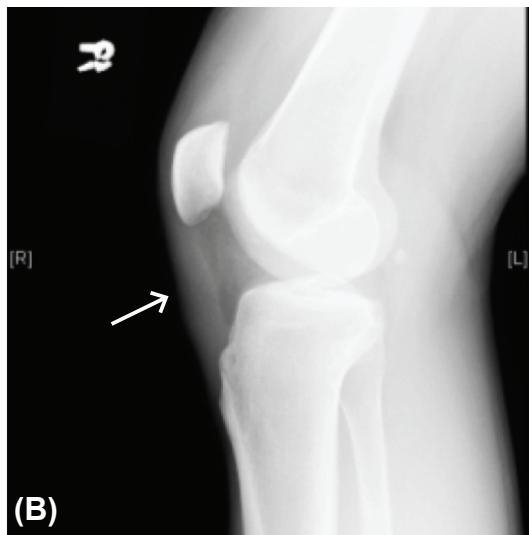
(A)

Other Diseases

Patellar tendinitis

Longitudinal scan of patellar tendon

Patellar tendinitis. (A) US scan showed patellar tendon swelling (arrow) with hypoechoic areas and increased vascularity. (B) X-ray showed patellar tendon swelling (arrow).

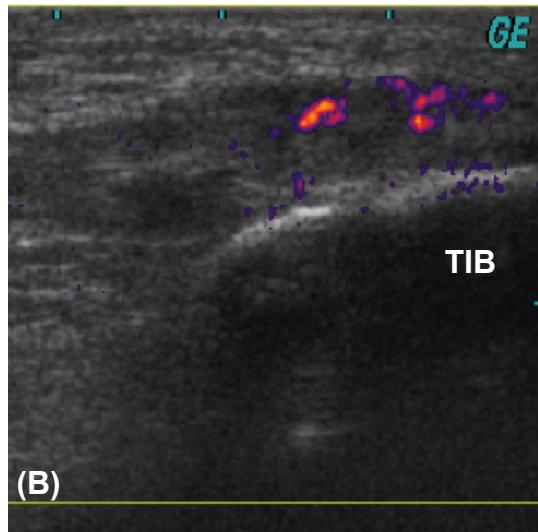
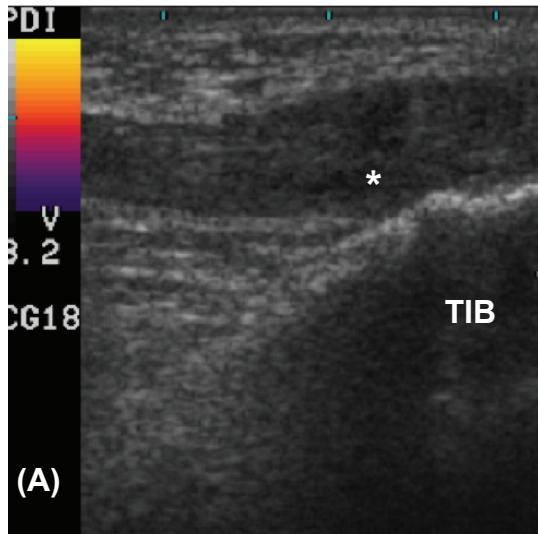


(B)

Lai, Kuo-Lung

Gray scale US using a GE LOGIQ500 (General Electrics) with a linear probe (11MHz)

Knee



Other Diseases

Patellar enthesitis

Longitudinal scan of patellar tendon

Patellar enthesitis. (A) The tibial insertion of patellar tendon (*) had swelling and hypoechoogenicity on longitudinal gray scale US, and (B) increased vascularity on power Doppler US. TIB: tibia.

Lai, Kuo-Lung

Gray scale and power Doppler US using a GE LOQIG500 (General Electrics) with a linear probe (11MHz)