

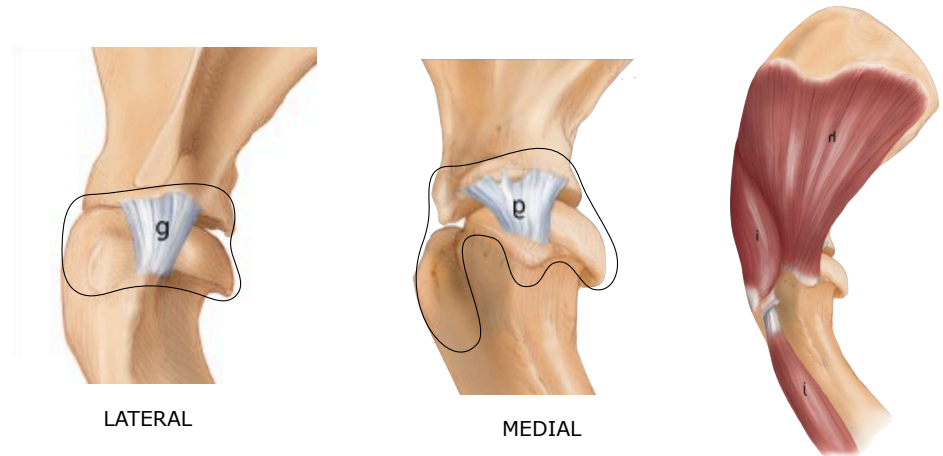
Canine Sports Medicine MSK Ultrasonography - The Forelimb
Espoo - Finland October 6th-7th

**THE ULTRASOUND
EXAMINATION OF THE
SHOULDER JOINT AND
THE MEDIAL SHOULDER
COMPARTMENT**

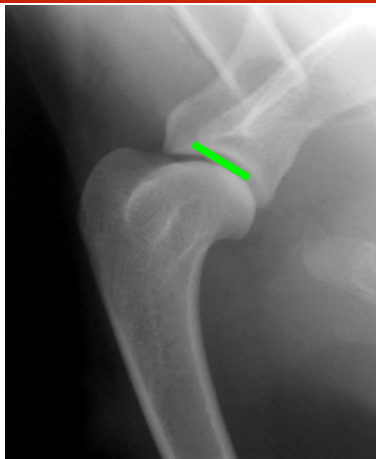
Gabriele Barella
gabriele.barella@gmail.com
DVM, PhD, MSc
Milan - Italy



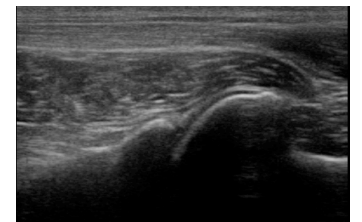
SCAPULO-HUMERAL JOINT



ULTRASONOGRAPHIC TECHNIQUE - CAUDAL SCAN



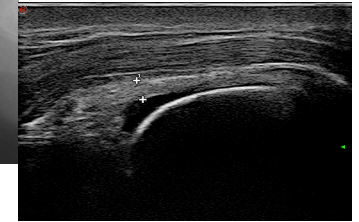
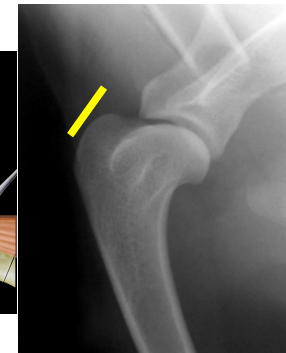
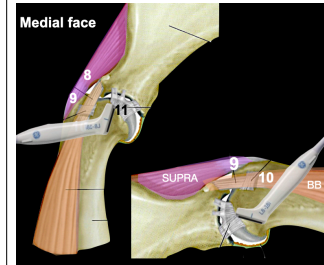
ULTRASONOGRAPHIC TECHNIQUE - CAUDAL SCAN



ULTRASONOGRAPHIC TECHNIQUE - CRANIOMEDIAL SCAN

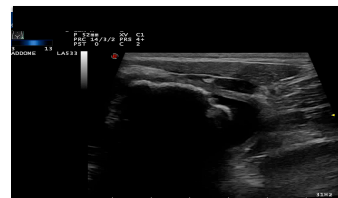


ULTRASONOGRAPHIC TECHNIQUE - CRANIOMEDIAL SCAN



DEGENERATIVE JOINT DISEASE

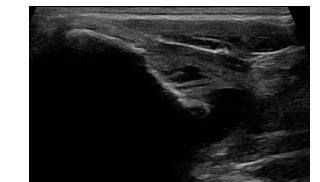
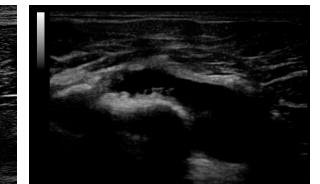
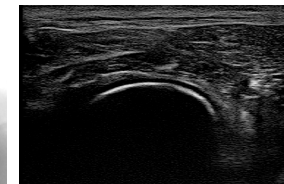
NORMAL ANATOMY **DJD**
Transverse plan - Longitudinal scan



Bone surface irregularities
Joint effusion
Capsule thickening

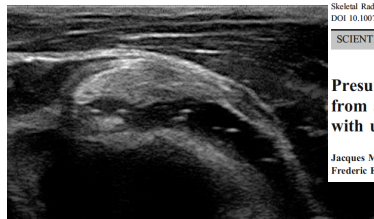
DEGENERATIVE JOINT DISEASE

NORMAL ANATOMY **CARTILAGE DEG/LESION**
Longitudinal plan - transverse scan



LGHL LESION

SYNOVIAL FLUID - CAVITATION



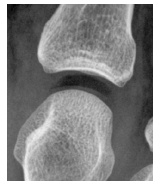
Skeletal Radiol
DOI: 10.1007/s00256-011-1107-5

SCIENTIFIC ARTICLE

Presumed intraarticular gas microbubbles resulting from a vacuum phenomenon: visualization with ultrasonography as hyperechoic microfoci

Jacques Malghem · Patrick Omoumi ·
Frederic E. Lecouvet · Bruno C. Vande Berg

In conclusion, we showed that the intraarticular vacuum phenomenon related to traction maneuvers could generate a hyperechoic band in the joint cavity. We also showed that this transient phenomenon could lead to intraarticular hyperechoic microfoci that likely correspond to gas microbubbles and that can persist in the synovial fluid after traction on the joint is stopped. These phenomena can be observed in normal joints and are not necessarily pathological.



Anechoic

Homogeneous

Heterogeneous

BORG

English Setter, M,
9.5 months

Shoulder lameness II

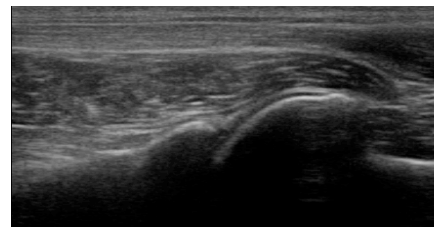
Progressive lameness

Pain caudal shoulder palpation



NORMAL ANATOMY

Transverse plan - Longitudinal scan

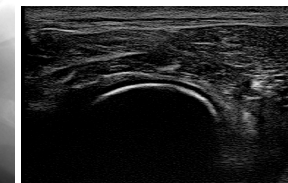
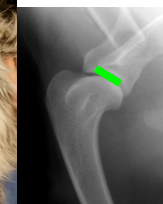
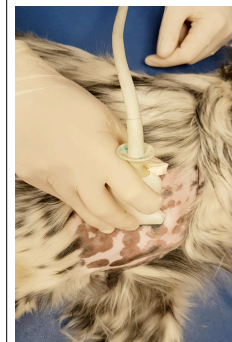


BORG



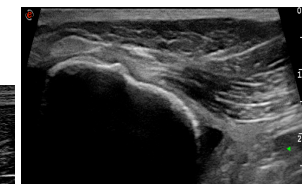
NORMAL ANATOMY

Longitudinal plan - transverse scan



BORG

Shoulder native position



Shoulder Adduction-Intrarotation



OSTEOCHONDROSIS

COMPARISON OF THE ULTRASONOGRAPHIC APPEARANCE OF OSTEOCHONDROSIS LESIONS IN THE CANINE SHOULDER WITH RADIOGRAPHY, ARTHROGRAPHY, AND ARTHROSCOPY

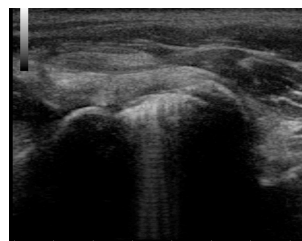
BARBARA VANDEVELDE, BERNADETTE VAN RYSEN, JIMMY H. SAUNDERS, MARTIN KRAMER, HENRI VAN BREE
Veterinary Radiology & Ultrasound, Vol. 47, No. 2, 2006, pp 174-184.

TABLE 2. Cartilage at the Level of the Defect: Arthroscopy vs. Ultrasound and Arthrography (n = 29)

Arthroscopy	Ultrasonography	Arthrography
Loose cartilage flap (n = 20)	Loose cartilage flap: 18 Inconclusive: 1 Nondiagnostic: 1	Loose cartilage flap: 18 Normal: 1 Nondiagnostic: 1
Normal (n = 6)	Loose cartilage flap: 1 Thickened cartilage: 5	Normal: 6
Chondromalacia (n = 2)	Inconclusive: 2	Normal: 2
Scar tissue (n = 1)	Inconclusive: 1	Normal: 1

- Describing **technique and the US appearance of lesions**
- Describing **limits** of ultrasound (experience, patient position, anatomy)
- **Identifying** non mineralized cartilage **flaps** of OCD lesions

OSTEOCHONDROSIS on ULTRASOUND



Second hyperechoic line at the bottom of the subchondral defect

Localizing joint mice

Joint effusion

DJD

OSTEOCHONDROSIS/OCD

DIAGNOSTIC SENSITIVITY OF RADIOGRAPHY, ULTRASONOGRAPHY, AND MAGNETIC RESONANCE IMAGING FOR DETECTING SHOULDER OSTEOCHONDROSIS/OSTEOCHONDROITIS DISSEANS IN DOGS

COREY R. WALL, CRISTI R. COOK, JAMES L. COOK

Vet Radiol Ultrasound, Vol. 00, No. 0, 2014, pp 1-9.

- US in the diagnostic approach to OC/OCD of the humeral head is recommended only as an **ancillary modality**
- US clinically useful for ruling in the presence of **fragments**
- US clinically useful for determining the **absence** of OC/OCD lesions
- US **high Sensitivity (90%)** but **low Specificity (60%)**



HOGAN

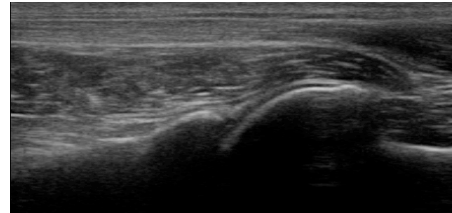
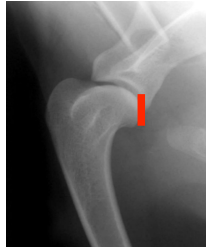
Greyhound, F
4 years old

Coursing

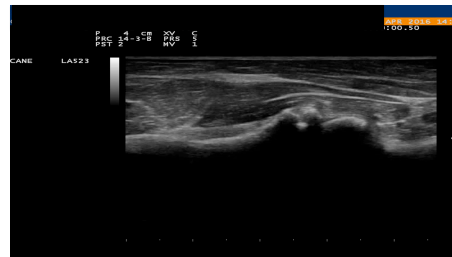
Poor performances

Pain at palpation of caudal shoulder region

NORMAL ANATOMY Transverse plan - Longitudinal scan



HOGAN

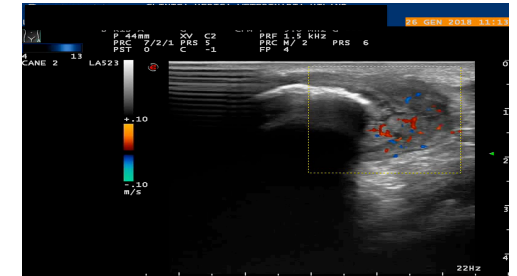


ADHESIVE CAPSULITIS

Adhesive Capsulitis in Eight Dogs: Diagnosis and Management

Brittany J. Carr, Sherman O. Canapp¹, Debra A. Canapp, Lauri-Jo Gamble and David L. Dycus

Adhesive Capsulitis in Eight Dogs:
Diagnosis and Management.
Front. Vet. Sci. 3:55.
doi: 10.3389/fvets.2016.00055



- Thickening of the synovium/scar tissue
- Enhanced vascularity and hypoechoic change around the rotator interval
- Can be associated with supraspinatus and biceps tendinopathy
- Histopathology performed in one patient (lymphoplasmacytic synovitis and fibrosis)

ZLATAN

Border Collie
10 years old
Retired from Agility
for chronic shoulder pain

Trekking

Got stuck in the rocks
climbing up on a
mountain creek

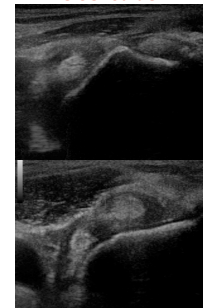
Pain medial should palpation



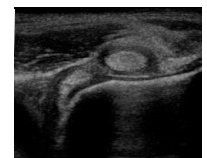
NORMAL ANATOMY Transverse plan - Transverse scan

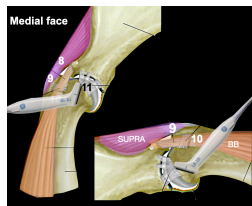


ZLATAN Left shoulder

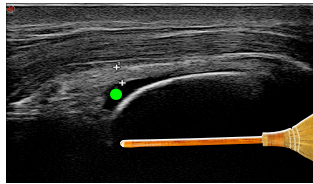


Right shoulder

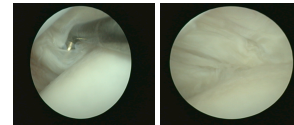
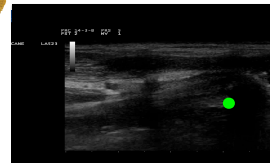
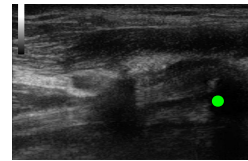




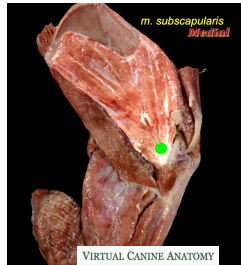
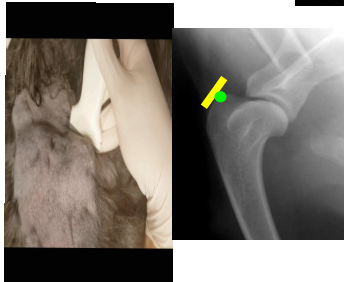
NORMAL ANATOMY Longitudinal plan - longitudinal scan



ZLATAN



Courtesy Dr. Pavanelli

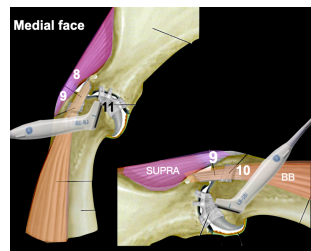


Subscapularis tendon

TEQUILA

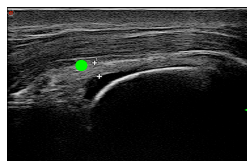
Boerder Collie
5 years old

Shoulder Lameness grade II
Refuses tight turns
Pain medial shoulder palpation

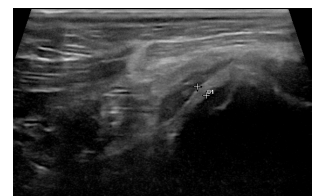
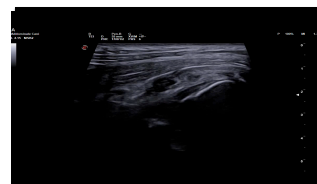


NORMAL ANATOMY

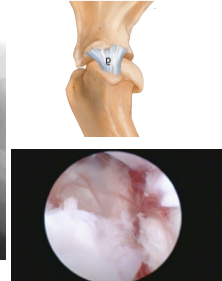
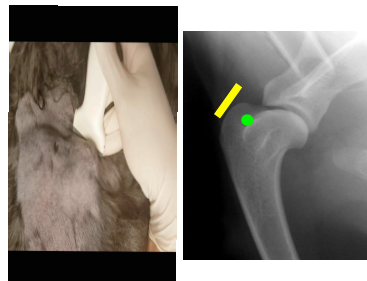
Longitudinal plan - longitudinal scan



TEQUILA



Courtesy Dr. Pavanelli



SHOULDER MEDIAL COMPART

- Medial glenohumeral ligaments can be sometimes visualized (Cogar et al 2008)
- US may lead to a **suspect diagnosis**
- Impossible to recognize each anatomical structure as a separate structure
- **Fluid-fillment of medial recess**
- US findings must be related to clinical signs and arthroscopy
- **Need for evidence**

SHOULDER MEDIAL COMPART

Treatment of medial shoulder joint instability in dogs by extracapsular stabilization with a prosthetic ligament: 39 cases (2008–2013)

Erica M. O'Donnell DVM
Sherman O. Canapp Jr DVM, MS
James L. Cook DVM, PhD
Fred Pike DVM

JAVMA • Vol 251 • No. 9 • November 1, 2017

Most common US findings:

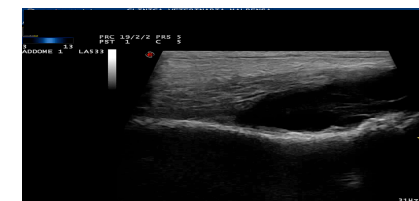
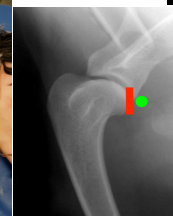
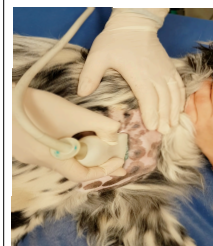
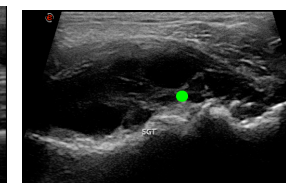
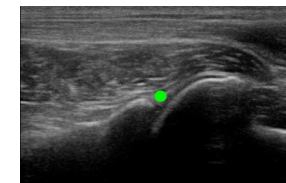
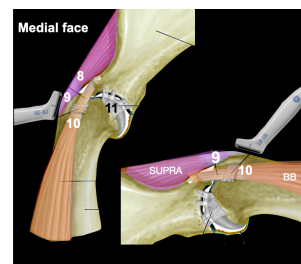
- Thickening of the medial aspect of the joint capsule and tissue (n=15)
- MGL abnormalities (n=9)
- BT effusion or synovitis (n=16)
- Alterations of subscapularis (n=11), supraspinatus (n=5), infraspinatus (n=1)
- Thickening of the lateral aspect of the capsule (n=3)
- Joint effusion (n=3)

NEOPLASIA

NORMAL ANATOMY

SINOVIAL SARCOMA

Transverse plan - Longitudinal scan



NEOPLASIA

NORMAL ANATOMY

CHONDROBLASTIC OSA

Longitudinal plan - Transverse scan



OSA



TIMIDO

Mixed-Breed 30 kg
14 years old

Right hindlimb lameness grade III to IV
Severe unilateral hypomiotropy



