Small Animal Clinics

ARTHROCENTESIS

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Prezentace vytvořena v rámci projektu IVA VFU BRNO (2020FVL/1660/19)

INDICATIONS

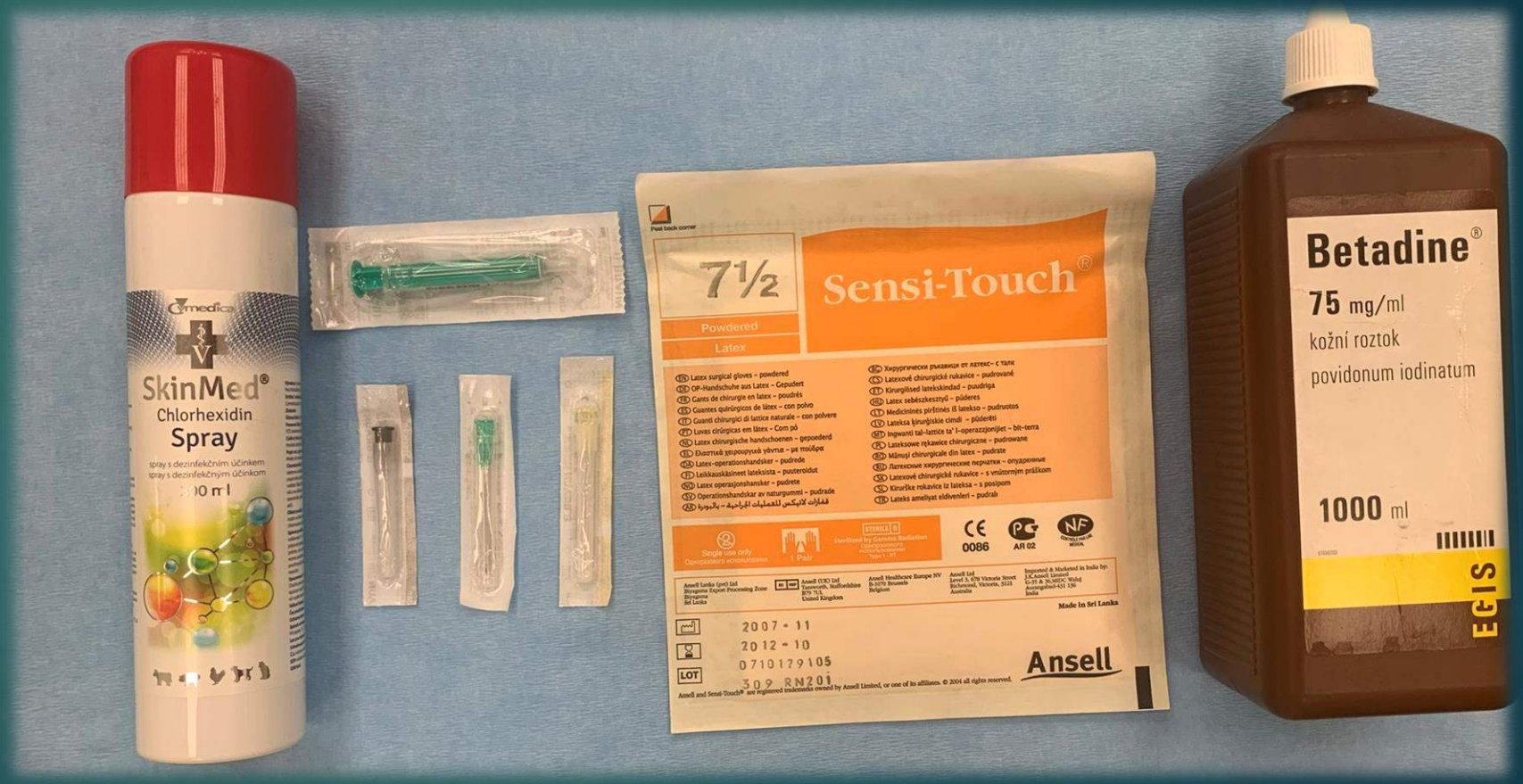
- Diagnostic Arthrocentesis
  - Septic arthritis
  - Immune mediated diseases
  - Osteo-arthritis
- Drug aplication
  - Corticosteroids
  - Derivate hyaluronic acid
  - Experimental
    - Stem cells
    - Conditioned blood serum

CONTRAINDICATIONS

- Peri-articular infections
- Bacteremia

MATERIAL

- 2ml syringe
- Sterile gloves
- Needles
  - Small breeds: 25G,
  - Large breeds: 22G,
- Betadine
- Chlorhexidine spray
- Microscope slides



PATIENT PREPARATION

- ✓ Clinical and orthopedic examination
- ✓ Insertion of i.v. catheter
- ✓ Sedation / Anaesthesia
- ✓ Intubation of brachycephalic breeds
- ✓ Trimming the fur over the joint
- ✓ Scrub 3 times with iodine soap
- ✓ Application of chlorhexidine

SURGEON PREPARATION

- Preparation of sterile material
- Surgical scrub of hands
- Application of sterilium on hands
- Use of sterile gloves
- Follow the principles of aseptic approach

ANAESTHESIA

→ Cat
- ➢ Medetomidine 10 – 25 µg/kg
- ➢ Ketamin 7 – 10 mg/kg
- ➢ Propofol 2 – 10mg/kg titrated

→ Dog
- ➢ Medetomidine 10 – 25 µg/kg
- ➢ Butorphanol 0,1 – 0,3 mg/kg
- ➢ Propofol 2 – 10 mg/kg titrated

Carpus

Antebrachiocarpal & Intercarpal joint

Method:

1. Lateral / dorsal recumbecy
2. Trimming the carpus area
3. Preparation of arthrocentesis area
4. Flexion of carpus

Method:

1. Palpation of joint fissure
2. Palpation of carpal extensors

Method:

1. Inject vertically to the skin
2. Avoid carpal extensors
3. Aspiration after skin penetration

Antebrachiocarpal joint

Intercarpal joint

Antebrachiocarpal joint

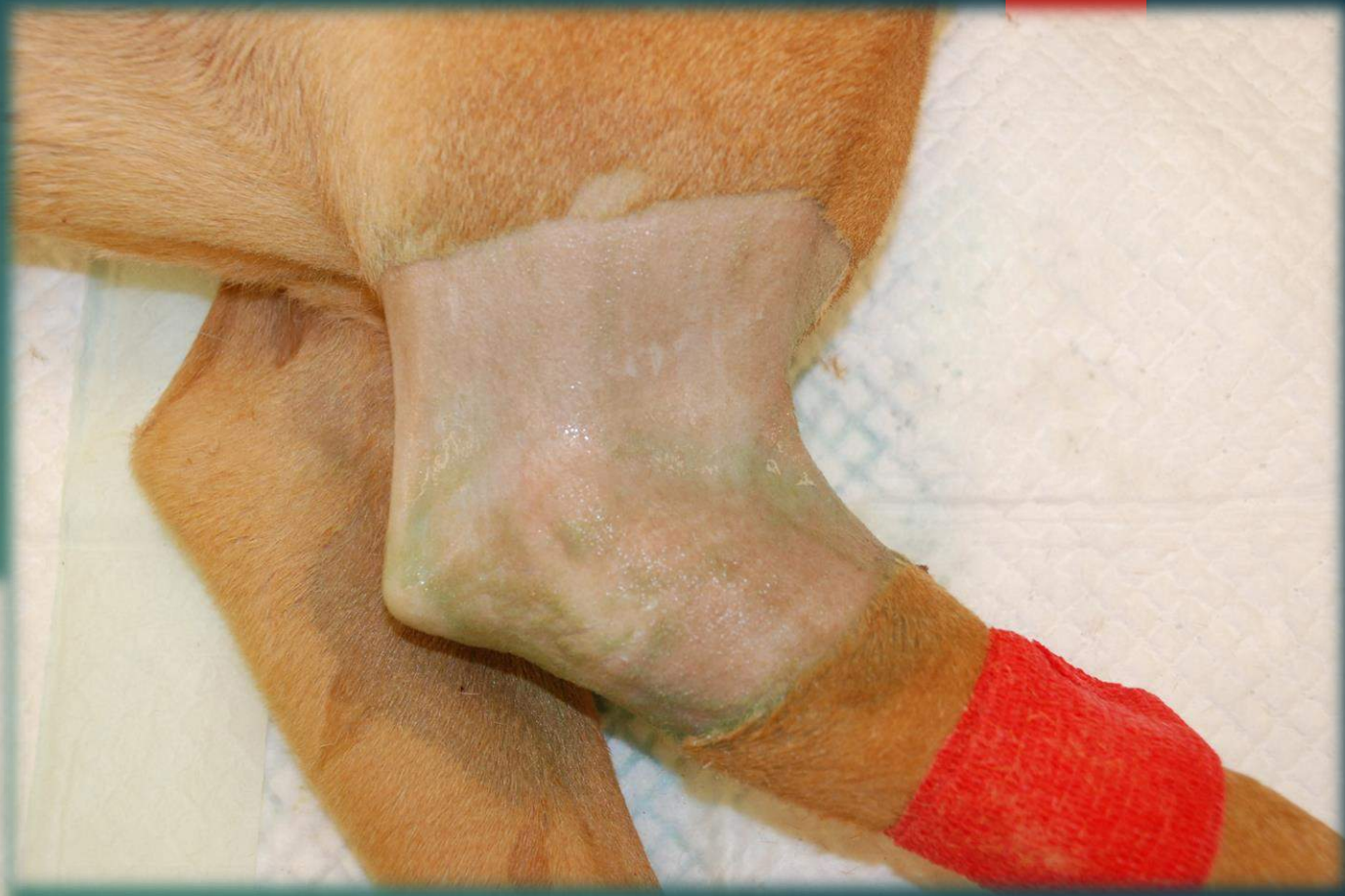
Intercarpal joint

Elbow

Caudolateral approach

Method:

1. Lateral recumbency
2. Trimming of elbow area
3. Preparation of arthrocentesis area
4. Limb in neutral position or flexed

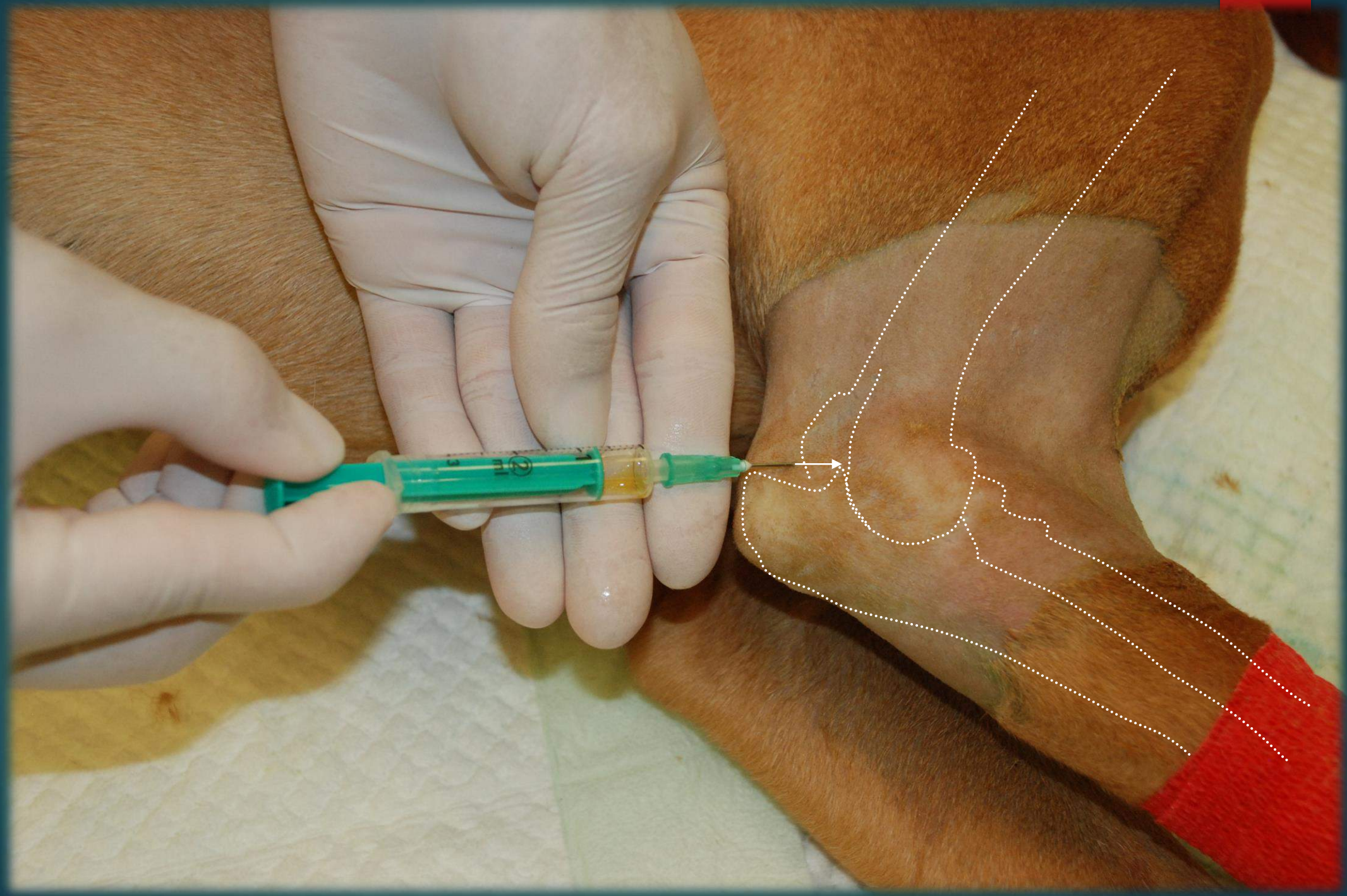


Method:

1. Palpation of olecranon
2. Palpation of lat. epicondyle

Method:

1. Skin penetration caudally at level of lat. epicondyle
2. Needle is introduced between lat. epicondyle and olecranon

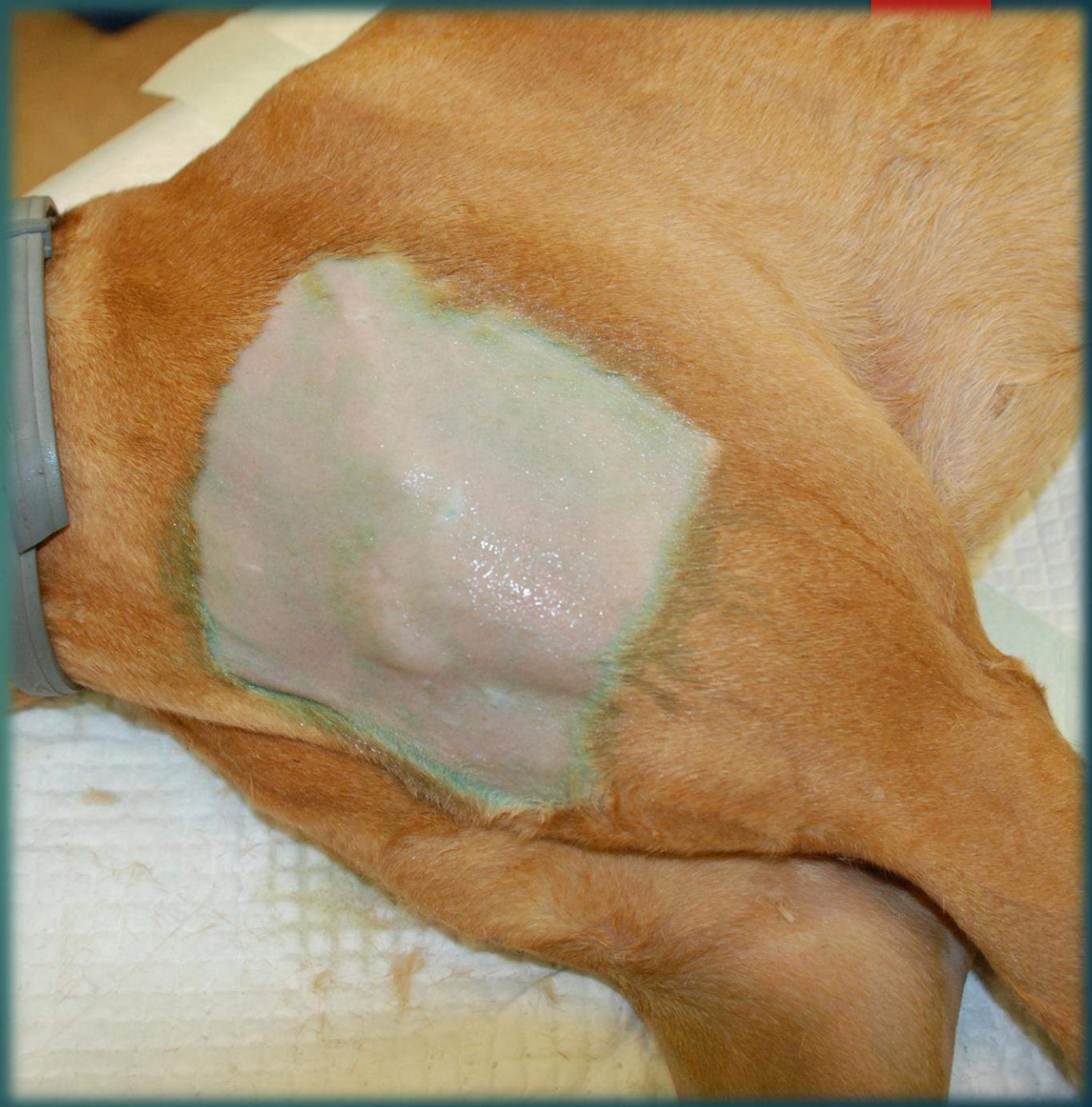


Shoulder

Craniolateral approach

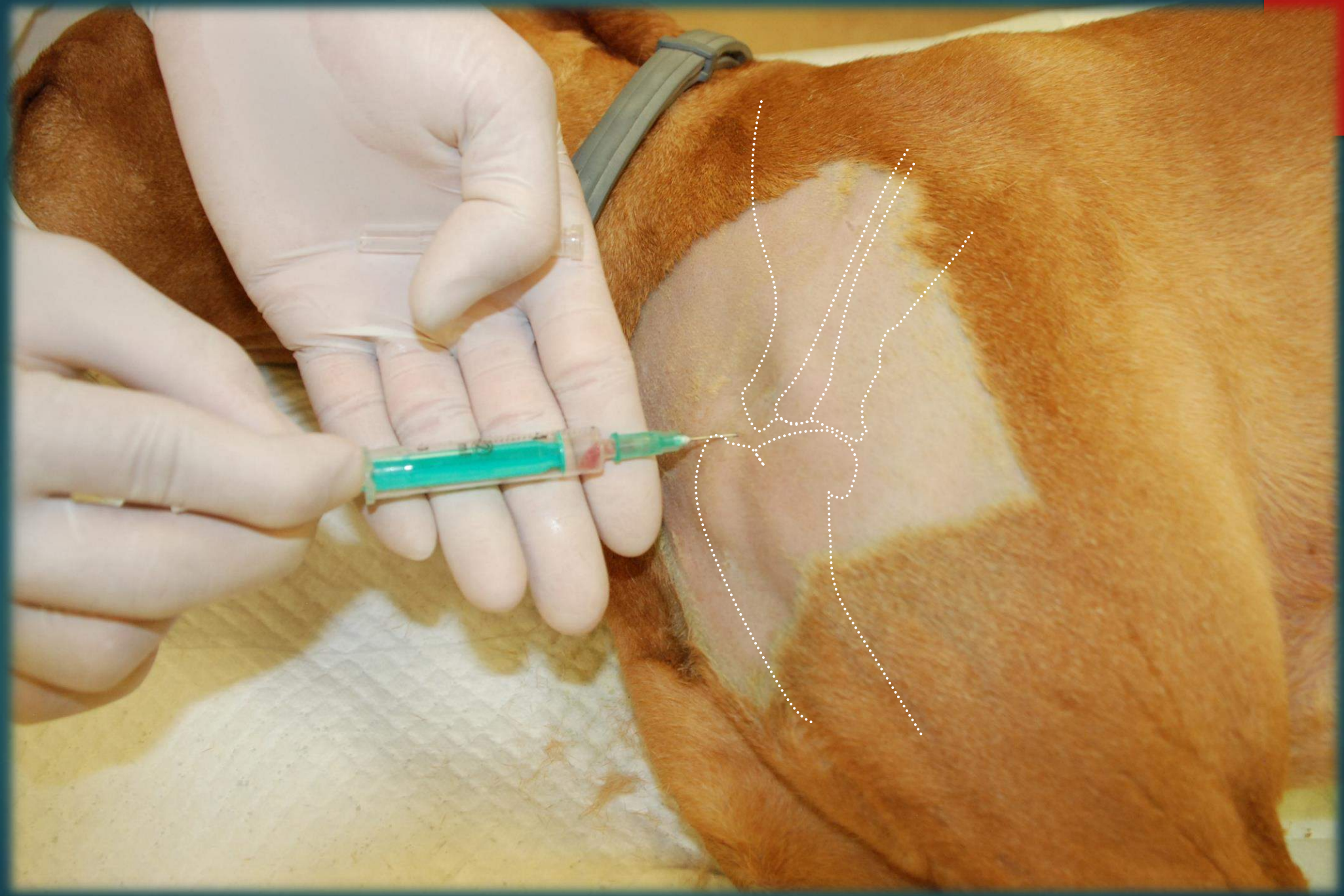
Method:

1. Lateral recumbency
2. Trimming the shoulder area
3. Preparation of arthrocentesis area
4. Neutral limb position



Method:

1. Palpation of acromion
2. Palpation of turberculum majus humeri
3. Skin penetration 1-2cm below acromion
4. Skin penetration on cranial margin of tuberculum majus humeri



Tarsus

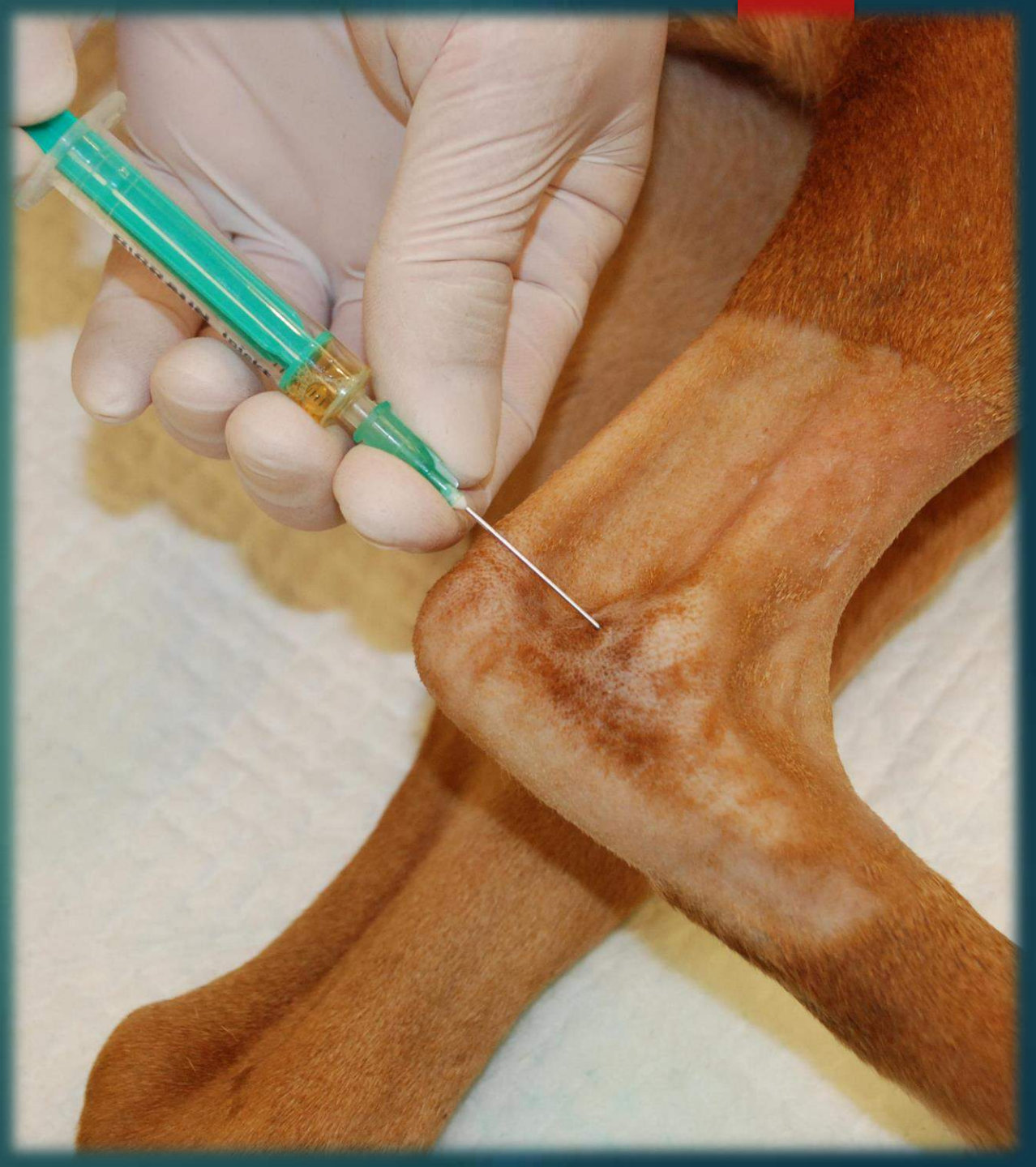
Caudolateral approach

Method:

1. Lateral recumbency
2. Trimming of the tarsal area
3. Preparation of arthrocentesis area

Method:

1. Flexion of tarsus
2. Palpation of malleolus
3. Insertion of needle caudally
4. The needle is placed axial to the malleoli



Stifle

Lateral Approach

Method:

1. Lateral recumbency
2. Trimming of the stifle area
3. Preparation of arthrocentesis area
4. Flextion of the knee joint

Method:

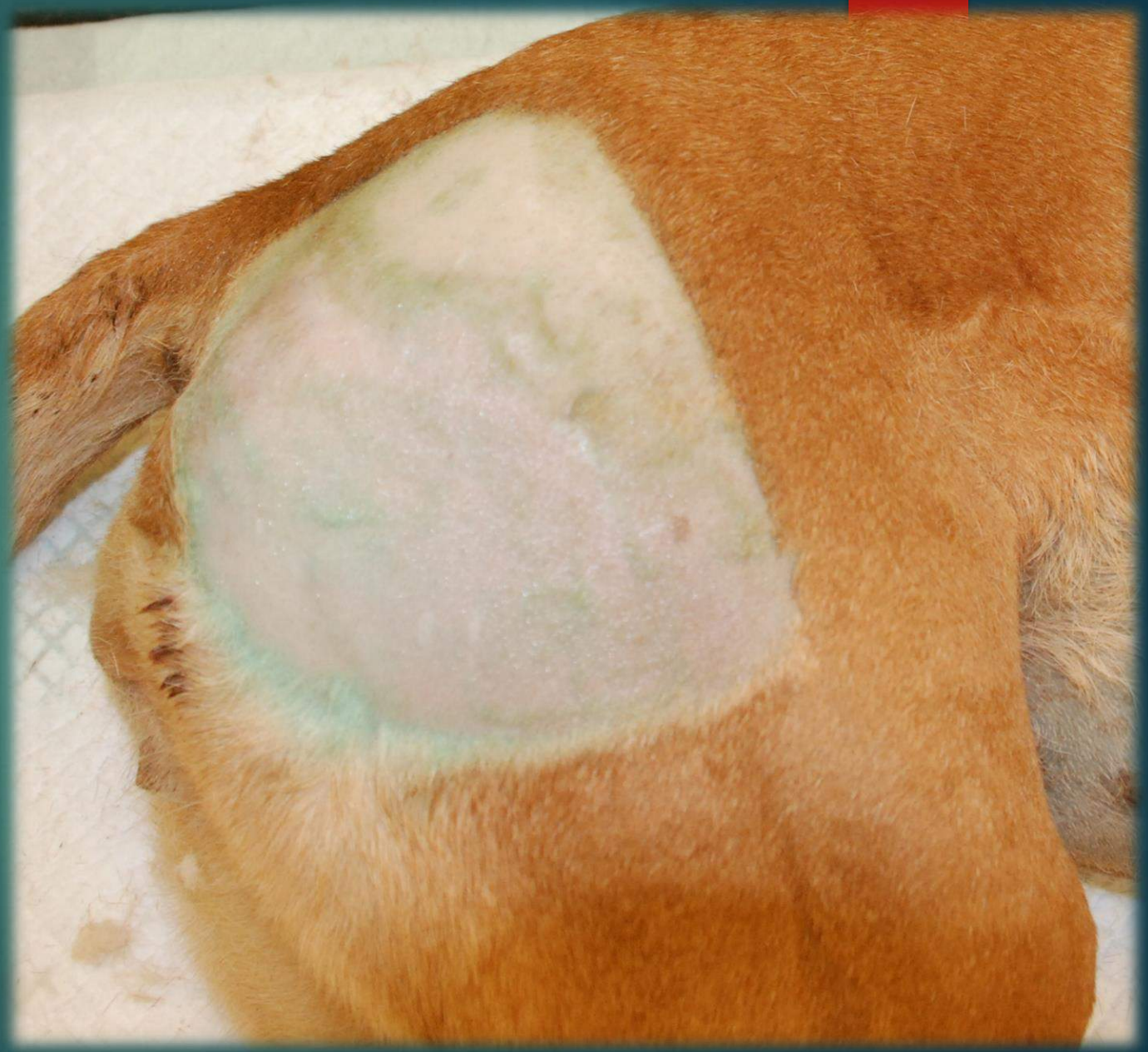
1. Palpation of lig. patellae
2. Injection laterally/medially to lig.
3. Finger pressure from the opposite site
4. Aspiration after skin penetration

HIP

Dorsal Approach

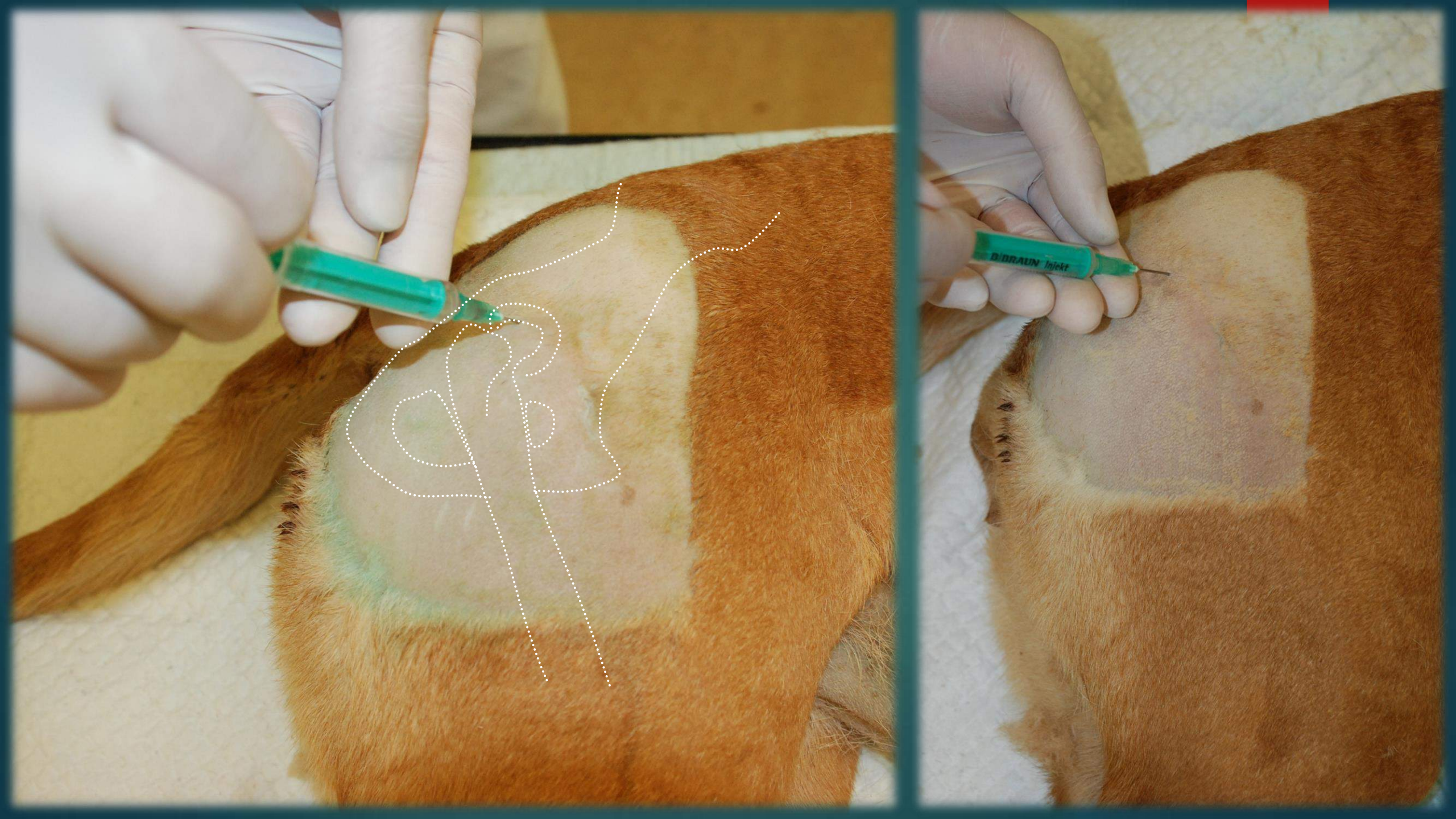
Method:

1. Lateral recumbency
2. Trimming of the hip area
3. Preparation of arthrocentesis area
4. Limb in neutral position



Method:

1. External rotation of femur
2. Palpation of greater trochanter
3. Injection craniodorsally in front of greater trochanter
4. Aspiration


B/BRAUN Injekt

Complictions

Problem	Solution
None or little fluid in joint	none
Soft tissue in the needle	Use new or different needele – i.e. spinal needle
Joint is too shallow	Try different needele – i.e. spinal needle – short beveled needle
Excessive synovial villi or fat tissue	Twist the needle 90° and reaspirate / inject the needle deeper
Needle not in the joint	Reinsert the needle

Synovial evaluation

Fluid Type	Fluid Color	Cell Count (WBC/µL)	Neutrophils (%)	Mononuclear Cells (%)
Normal	Clear pale yellow	<3000	<1.4	>98.6
DJD, trauma, hemarthrosis	Clear orange	3000–5000	<10	≥90
Immune-mediated arthritis	Cloudy yellow-white	4000–370 000	>90	≤10
Bacterial arthritis	Cloudy yellow-white	15 000–267 000	77–95	5–23

DeNicola D, McWilliams P, Wamsley H. Introduction to Cytology of the Dog and Cat. *WSAVA Proceedings*, 2002; Granada.