Large animal hernias

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Definitions

\( \Rightarrow \) = displacement of an internal organ or part of organ through a natural or acquired space without contacting the outside world

\( \Rightarrow \) Prolapse = displacement of an internal organ or part of organ through acquired space to the outside world

Division of hernias

- Outside and inside hernias
- Indirect and direct hernias
- Reducible and nonreducible

Location
- Abdominal (outside)
- Inguinal hernias
- Internal hernias

Parts of hernias

- Hernial ring
- Hernial sac
- Hernial content
- Hernial wall

1. Abdominal hernias
   1. Umbilical hernias
   2. Traumatic
   3. Postoperative
   4. Prepubic tendon rupture

2. Inguinal hernias
   1. Congenital (scrotal)
   2. Acquired
      1. Indirect
      2. Direct

3. Internal hernias
   1. Diaphragmatic, mesenteric, omental,
   2. Nephrosplenic, epiploic,
   3. Discus hernia, intracranial hernias

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**Special types**
- Richter hernia
- Adhesion, or even incarceration
- But just one side of the wall
- Littre hernia
- Meckel diverticulum incarcerated
  - = embryonic remnant of the omphalomesenteric duct.

**Body wall**

**Abdominal hernias 1. Umbilical hernias in large animals**
- Occurrence frequency
  - dog > cat > pig > horse > cattle
- Congenital (or acquired: seldom: umbilical injury at birth, excessive straining etc.)
  - filly > colt
- Hernial sac: peritoneum + skin = real (indirect) hernia
- Hernial content: omentum, small intestine, (caecum, colon, su: abscess!)

**Symptoms**
- **Reponable**
  - softly elastic
  - compressible, reducible
- **Irreponable**
  - Adhesions (~ accreta)
  - ~ Incarcerated elastica (in 10% of umbilical hernias: predisposing small ring, large sac
    - Incarceratio elastica
    - Incarceratio steccoralis

**Incarceratio**

**Diagnosis**
- Anamnesis
- Visual examination,
- Palpation

**Therapy 1.**
- Reducible umbilical hernia: conservative treatment
  - < 5 cm = spontaneous closure, if not after 6 months surgery
  - > 5-10 cm = surgery

**Conservative treatment:**
- Frequent reposition of the content, bandage (more effective in calves)
- Hernia clamps at 4-6 months (<5 cm)
**Therapy 2.**
redducible umbilical hernia: surgical treatment

General anaesthesia, dorsal recumbency
- Anblock excision of hernial sac – opened technique
- Closed technique:
  - Extraction of the inner tube, closure of the hernial ring
  - Biological plugging of the hernial ring

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**Therapy 3.**
Incarcerated umbilical hernia

- Immediate surgery!
  - Predisposition: small ring large sac
- Course of surgery:
  - 1. Open the hernial sac
  - 2. Resection of the sac
  - 3. Reposition or resection of the content
  - 3. Closure of the hernial ring and surg. wound

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**Abdominal hernias 2.**
traumatic origin

**Clinical signs**

- Large hernial ring:
  - Not susceptible to incarceration, but do susc. to adhesions
- Small hernial ring:
  - Susceptible to incarceration–ileus

**Most common location:**

- Aponeurosis of the int. and transv. abd. or ext. and transv. abdom. muscle
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Internal hernias

Abdominal hernias 3.
Postop abdominal hernia

Following abdominal (colic) surgery at the previous surgical site

Possible causes:
- Surgical technical error, failure of suture material
- Wound infection
- Extra abdominal pressure, foal under the mare
- Too early training

Predisposing factors:
- “Belly horse”, large wound, long operating time,
- Peritonitis at the time of surgery

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**Prepubic tendon rupture**

- **Associated with:** hydroallantois, twins, trauma,
  - Excessive edema of the ventral abdom. wall
- **Clinical signs:** sudden onset
  - Progressive enlargement, edema
  - Mild to moderate discomfort
  - Stiff gait, prefer not to lie down, reluctant to move

**Diagnosis:**
- Anamnesis, visual exam., palpation,
- Rect. exam. US exam.

**Differential-diagnosis:**
- Haematome, abscess, tumor
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   2. Acquired indirect form (stallions)

3. Internal hernias

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**Inguinal hernias**

**Congenital**

**Definition:**
Inguinal hernia: abdominal organ slips into the inguinal channel
Scrotal hernia: hernial content in the vaginal tunic

**Occurrence:**
- Large an. → small an.
- Boar, stallion, gelding (bulb: bull, male dog)

**Cause:** Congenital predisposing factor

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**Symptoms**

- **Congenital indirect form (foals)**
  - Usually no colic symptoms
  - Palpable intestines in the scrotum, soft fluctuend swelling
  - Not painful

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**Treatment**

- **Congenital inguinal hernias in foals** (without colic signs)
  - Continuous control
  - Can grow out of the problem until 3-6 months
  - Immediate surgery if colic signs are also present
  - If direct: surgical treatment necessary!

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**Clinical symptoms**

**Aquired indirect form (stallions)**

- Hard, painful palpational finding, good visible, enlargement is not remarkable, not palpable!!!
- Early stage: rectal palpation of the involved structures is painful, indolent stage: not painful palpation finding (suspicion: necrosis)
Diagnosis

- Anamnesis, clinical signs
- Visual exam., palpation
- Rectal exam., (adults)

Differential diagnosis

- Twisted testicle (rare)
- Thrombosis of the testicular artery (rare)
- Seroma (hydrocele), hematoma (hematokele)
- Pyocele (pus in the vaginal tunic)
- Orchitis
- Teratomas of the testicle or scrotum

Treatment of acquired incarcerated inguinal hernias in stallions

Peracute stage: pull out rectally continue with castration

Surgery: gen. anesth. dors. rec.

- hemiotomy; gut resection if needed
- decompress prestenotic intestines
- castration, closure of the ext. ing. ring
- Collateral castration? – ask owner
- Laparoscopy?

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Aquired scrotal, direct hernias

Clinical signs

- Mild to moderate colic!
- Adhesions and or inflammation of intestines

Prognosis

- Guarded to good

Treatment

- Do not wait long!
- Closure of hernial ring
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3. Internal hernias
   (see colic surg. lecture)

   Displacement of an abdominal organ through a
   physiological or abnormally originating space

   • Diaphragmatic hernia
   • For. epiploicum Winslowi
   • Rent in the mesenterium or omentum
   • Nephrosplenic space
   • Adhesions, wholes made by fibrous growth

• Some interesting examples for thinking