University of Baghdad

College of Veterinary Medicine

Dept. of Vet. Public Health/ Meat Hygiene Division

Meat Hygiene Course/ 5th. Year

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Theory Lecture #: 7 2nd.Semester

**CARCASS PATHOLOGICAL DISORDERSP (2)**

**Abnormal odours**

* Abnormal odours may result from the ingestion of:
1. certain feedstuff,
2. drugs,
3. various pathological conditions,
4. absorption of odours from strong smelling substances
5. and sexual odour from some male animals.
* Drugs which may cause absorption of odours include turpentine, linseed oil, carbolic acid, chloroform, ether, aromatic spirits of ammonia etc.
* In cows affected with ketosis, the sweetish odour of acetone may be present in the muscles.
* If treatment was not successful in dairy cows affected with milk fever, the odour of acetone may be noted in the connective tissue, kidney fat and musculature.
* The flesh of bloated and constipated animals may give off a faecal odour.
* If the meat is kept in a room which was recently painted, the odour may pass on to the carcass. The odour is most noted in a carcass right after slaughter.

**Judgement:**

* The carcass having fish meal odour has **inferior meat**. Viscera and organs are also inferior.
* **Generalized drug treatment** requires condemnation of the carcass.
* If local treatment and withholding periods are observed, the carcass and viscera are approved.
* Sexual odour in a carcass can have a limited distribution according to the consumers taste.
* Extremely strong sexual odour requires **condemnation of the carcass.**
* A carcass which gives off a pronounced odour of medicinal, chemical or other foreign substances shall be **condemned.**
* If the odour can be removed by **trimming or chilling**, the carcass may be passed for human food after the removal of affected parts or dissipation of the condition.
* Carcasses affected with sexual odour should be held in the cooler and re-tested periodically. If the odour disappears the carcass is approved. If the sexual odour is present after 48 hours, the carcass shall be **condemned.**
* If abnormal odour is suspected the smell will be enhanced by placing a piece of muscle or tissue in **cold water and bringing to the boil**.

**Immaturity**

* Immaturity occurs mainly in **calves**. In many countries, the slaughter of calves younger than **two weeks** of age is **prohibited.**
* The muscle of immature animals is **moist, pale, flabby and poorly developed**. It is low in **protein, high in water content and contains a high proportion of bone.**
* **Immature animals should not be slaughtered for human consumption.**

**Antemortem and postmortem findings:**

1.Presence of the umbilical cord

2.Bluish and not completely retracted gums

4.Dark red kidney and edematous kidney capsule

**Judgement** : **Carcass and offal of immature animals are condemned**

**Calcification**

* Calcification is the deposition of calcium salts in **dead and degenerating tissue**.
* It may be regarded as a body reaction to immobilize some foreign agents.
* It may occur in any tissue or organ.
* In dairy cows, calcification is noted in the heart (endocardium) and is caused by excessive dietary supplementation with **Vitamin D.**
* Calcification is also seen in parasitic infections and in many chronic infections such as **tuberculosis.**
* If calcium particles are removed from the surrounding tissue, they appear **white or grey, irregularly rounded and frequently honeycombed.**
* Calcification is detected on postmortem examination by a **gritty** sound upon incision with a knife.

**Judgement:**

* Carcass and viscera affected with presternal calcification are approved. Affected brisket is condemned.
* Calcified parasitic organs and heart in **dairy cows** are also condemned.

**Edema**

* Edema is the accumulation **of excess fluid** in the intercellular (interstitial) tissue compartments, including body cavities.
* There are two types of edema:

 1.Inflammatory edema (exudate)

 2.Non-inflammatory (transudate)

* Inflammatory edema shows yellow, white or greenish clear or cloudy fluid in the area of inflammation.
* Non-inflammatory edema is an accumulation of fluid in **subcutaneous tissue, submucosae, lungs and brain.**

**Localized edema is noted after**:

1. The swelling of a leg of a cow in prolonged **decubitus**. This swelling is caused by obstruction of the venous outflow.
2. Interference with the **lymph circulation** of an organ or area by proliferation of tumours in or around **bile ducts**.
3. Inflammation or an **allergic reaction**
* **Systemic or generalized** edema may occur secondary to **congestive heart failure** or is caused by **low protein** levels in the blood. .
* The latter may be associated with:
1. severe malnutrition
2. gastrointestinal parasitic infestation
3. chronic liver disease
4. damage to the vascular endothelium by toxins and infectious agents
* **Anasarca** is a form of edema of the subcutaneous tissues.
* Anasarca may be caused by toxaemic infection.
* **Ascites** is an accumulation of fluid in the peritoneal cavity.
* **Hydrothorax** is an accumulation of fluid in the pleural cavity.
* Hydrothorax may accompany **traumatic pericarditis**, **ascites, cirrhosis of the liver and round worm infestation in sheep.**

**Antemortem findings :**

1.Depressed and drowsy

2.Swelling of the **mandible, dewlap, legs, shoulder, brisket and abdomen**

3.Edematous tissue is **cool upon touch and is of a firm, doughy consistency**.

**Postmortem findings :**

1.Wet, sloppy musculature which pits on pressure.

2.Accumulation of clear or faint yellow fluid in the thorax, abdomen and subcutaneous tissue.

**Judgement:**

* Animals affected with **generalized edema may becondemned on antemortem inspection.**
* In **less severe non-generalized cases**, animals are treated as “**suspects”**
* When making a judgement of a carcass affected with edema, it is important to know the **underlying cause** of the edema and also to know the significance of **all other lesions found in the carcass.**
* The carcass may be **totally or partially** condemned depending on the **extent and cause of the condition.**
* The presence of **localized edema** necessitates removal of the affected area. The carcass is then approved.
* Edema associated with diseased conditions such as traumatic pericarditis, malignant neoplasm or septicemia requires condemnation of the carcass because of the primary condition.
* Edema observed in the mesentery is commonly related to circulation interference in the caudal vena cava due to liver abscess or chronic liver disease.
* Such a carcass may be held in the cooler for re-examination. Dry serous membranes of the abdominal and thoracic walls and a carcass appearing normal after re-examination can be passed for human
* Edema associated with diseased conditions such as traumatic pericarditis, malignant neoplasm or septicemia requires **condemnation of the carcass** because of the primary condition.

**Emaciation**

* Emaciation is a common condition of food animals and is characterized by a loss of **fat and flesh following** the loss of **appetite, starvation** and **cachexia**.
* Cachexia is a clinical term for a **chronic debilitating condition or general physical wasting** caused by **chronic disease.**
* It is **associated with gradual diminution in the size of organs and muscular tissue as well as edema in many cases.**
* The organs and muscular tissue appears **thinner, moist and glossy.**
* **Emaciation** may be associated with **chronic diseases and parasitic conditions** such as:
1. fascioliasis in cattle and sheep,
2. neoplasms,
3. tuberculosis,
4. John's disease,
5. caseous lymphadenitis,
6. and poor teeth and lack of nutrition.

Emaciation is a postmortem descriptive term which should be differentiated from **thinness**

**Antemortem findings :**

1.Wrinkled, dry leathery skin

2.Rough hair coat

3.Prominent bones and sunken eyes

**Postmortem findings :**

1.Serious atrophy of fat in the carcass and organs especially the pericardial and renal fat

2.The fat is watery. Tranluscent or jelly-like and hangs from the intervertebral spaces

3.Edema and anaemia may develop due to starvation and malnutrition due to parasite infestations.

**Judgement :**

* Animals affected with emaciation should be treated as “**suspects” on antemortem inspection**.
* On postmortem examination it is important to assess and differentiate **emaciation from leanness**.
* In case of doubt, the carcass may be held in the refrigerated room and the **general setting** of the carcass should be examined the following day.
* **If the body cavities are relatively dry, edema of muscle tissue is not present and fat is of an acceptable consistency i.e. has “set”, the carcass may be passed for food.**
* If after being in the cooler for 24–48 hours, the fat **resumes** its normal consistency, the carcass is approved. Otherwise, the carcass is **condemned.**
* **The carcass and viscera must be condemned if emaciation is due to chronic infectious disease.**

**Differential diagnosis** : Thinness-leanness, edema and uraemia.

* Leanness (Poorness) is often observed in range bulls on poor quality pasture, high milking cows and young growing animals which have had protein deficient diet.
* The animals are **physiologically normal** and the reduced fat deposits of the animal carcass are normal in colour and consistency.

The reduced muscle tissue is firm and of a normal consistency. The muscle colour is darker than normal, and fat tissue may still be present in the orbit of the eye

Dr. Zuhair Ahmed

 MSc & PhD

Meat Science & Hygiene