

Affections of the Stomach and the Intestines

Cattle

Actinobacillosis in the mouth may occasionally spread via the esophagus to the wall of the fore-stomachs resulting in marked development of fibrous tissue and nodules with a centre of pus.

Judgment: Total condemnation if accompanied by emaciation, otherwise local condemnation of the affected parts.

Enteritis:

Chronic enteritis is very often due to parasitic infestation in the digestive system with parasites as *Haemonchus*, *Trichostrongylus*, *Ostertagia* and *Oesophagostomum*. Chronic enteritis is seen as diffuse hypertrophy of the mucosa of the ileum, caecum, and colon. The mucous membrane is folded into thick transverse folds with hyperemia of the crests. The mesenteric lymph nodes are also enlarged and pale.

Judgment: Total condemnation in acute enteritis with fever or signs of intoxication or Septicemia /chronic enteritis with emaciation or abnormal odour: In other cases, which are not accompanied by systemic affections condemnation of the affected intestines.

Traumatic reticulitis: Presence foreign bodies e.g. nail, broken bottle or pointed objects which may penetrate the wall of the reticulum and affect the surrounding organs.

Judgment: In cases with pyaemia, fever or emaciation: Total condemnation. Old chronic abscesses with formation of fibrous tissue necessitate only local condemnation.

Parasitic disease: Two parasitic infections leave white characteristic lesions in the intestines.

Pimply gut (Nodular intestinal worm disease) caused by a roundworm, *Oesophagostomum radiatum*, which lives in the lumen of both the small and large intestines. A transverse section of the nodules will show a content of caseous matter with a greenish color. In the younger nodules, larvae may be found.

Judgment: Local condemnation of the intestine.

Linguatula serrata They are usually found in the periphery of the mesenteric lymph node. The encapsulated larvae often undergo caseation and calcification. The content can easily be removed from the capsule.

Judgment: Affected nodes should be condemned

Sheep and Goat

Enteritis: As described for cattle

Judgment: Total condemnation in cases accompanied by fever, emaciation and edema.

AFFECTIONS OF THE LIVER

Cattle

The liver is an important indicator of acute infectious diseases being one of the first organs to show macroscopic changes and if the animal survives, it is the last organ to return to normalcy.

1. **Cloudy Swelling:** At Post Mortem (PM) the liver will appear enlarged and so will the portal lymph nodes. The enlargement can be recognized by rounded edges of the organ and the bulging of the cut surface. Furthermore, the color of the organ becomes dull and grayish and the consistency softer than normal. The liver is said to be friable and have a parboiled appearance.

Petechial hemorrhages may at the same time be scattered on the surface of the liver and in the liver tissue itself.

Judgment: Total condemnation, as it is a sign of systemic disease.

2. **Fatty change:**

At PM the liver will be enlarged with a uniform light yellow color and a consistency like soft dough. In case where no pathological factors can explain the fatty change it must be regarded as physiological.

Judgment: Total condemnation in case of pathological fatty change.

3. **Amyloid degeneration:** This condition is secondary to some chronic diseases such as tuberculosis or suppurations. Affected livers are enlarged with rounded edges, pale and heavy with a rubber-like consistency. It is often part of a generalized amyloidosis with Amyloid degeneration also in the kidneys, spleen and mucous membrane of the intestine.

Judgment: Local or total condemnation depending on the general condition of the animal.

4. **Necrosis:** is death of tissue, which is still part of the living body.

Judgment: Total condemnation if the condition is accompanied by systemic changes, otherwise local condemnation.

5. **White nodules on the liver surface**: This may sometimes appear as grey-brownish discoloration and small grey-white foci scattered on the surface of the liver.

Judgment: Local condemnation

6. **Tuberculosis**: The liver may be affected by tuberculosis in three different ways

Judgment: Local condemnation of the liver, if it only effects the liver, otherwise total condemnation of the carcass if the lungs, intestines, and head are also involved

7. **Abscesses/Purulent hepatitis**:

In most cases, the liver abscesses are localized, however, the condition often result in pyaemia.

Judgment: When localized abscesses are present in the liver, without systemic involvement, the liver can be condemned and the carcass passed.

Parasitic diseases:

- a. **Hydatid cyst**: The cysts are usually found in the liver and lungs, but occasionally in other organs. The size of the cysts usually ranges from that of a pea up to the size of a tennis ball. Many of the cysts show degenerative changes in which the fluid disappears and the cavity becomes filled with a yellowish-green caseous material which often undergoes calcification.

Judgment: The liver must be condemned and destroyed in order to break the life cycle of the parasite. The liver and the other organs should be checked for cysts.

- b. *Cysticercous tenuicollis*: The larvae migrating leave a tortuous tract of red soft material. They may also be seen as grayish white tortuous cords in the liver tissue.

Judgment: The liver should be condemned if several cysts and/or tortuous cords are present. .

- c. *Cysticercus bovis*: Lesions and judgment as above

- d. Fascioliasis: Their presence in the bile ducts leads to an inflammation, which results in a considerable thickening of the walls of the ducts. Calcification of the walls often occurs.

Judgment: Local condemnation of the affected liver

8. Melanosis: In the liver appears as black spots of unequal size scattered on the surface of, and in the liver tissue itself.

Judgment: In cases of extensive discoloration, condemnation of the liver. In cases where only a few spots are present they should be trimmed off and the liver passed.

9. Cirrhosis: The consistency of the liver will become firm due to the fibrous tissue and may appear grayish in color.

Judgment: This depends on the original cause

10. Icterus or Jaundice: Seen as yellowish discoloration of the liver

Judgment: Total condemnation in case of systemic involvement, otherwise local condemnation .

Sheep and goat

Most of the diseases mentioned in connection with liver affections of cattle are found in sheep and goats, with the judgment being the same

Pig

“Milky spot” livers: The migrating larvae of *Ascaris suum* pass the liver where some are caught in the capillaries, characterized by irregular white spots on the liver surface. These spots are known as “milky spots”, and they consist of fibrous tissues.

Judgment: In cases where it is possible, the liver should be trimmed.

AFFECTIONS OF THE KIDNEYS

Cattle

1. Non-purulent nephritis: The common types of chronic nephritis are cases of local intestinal nephritis, where bright yellowish or grey spots are seen protruding out of the surface of the kidneys. On cross-section they appear wedge-shaped.

Judgment: Local condemnation

2. Abscess/Purulent nephritis: When pyogenic bacteria are seeded in the kidneys from the blood stream during pyaemia, small abscesses are formed. The abscesses, which may be few or many, are normally confined to the cortex. Smaller lesions (from a pinhead up to 2-3mm) are greet-yellow foci, which contain a droplet of pus. A zone of

hyperaemia often surrounds them. Larger abscesses are readily visible through the capsule as dirty-white raised nodules, which may rupture, releasing their pus, when the kidneys are decapsulated.

Judgment: Total condemnation.

3. Pyelonephritis: The affected kidney(s) and the pelvis of calyces is normally dilated and filled with a greasy purulent mass containing fibrinous clots. The walls of the pelvis and ureters are opaque, hemorrhagic and often ulcerated. The ureters are greatly thickened (up to 2.5cm in diameter).

Judgment: This depends on the seriousness of the disease. In cases where there are no signs of systemic reaction such as fever or uremia, and where the animal is in good condition, only the kidneys need to be rejected. Fever, pyaemia, uremia, or emaciation results in total condemnation.

Infarcts: This is caused by emboli. The lesions are at first hemorrhagic, but they become pale following the onset of necrosis in the affected area. On the cut surface the infarct appears wedge-shaped, with the base on the surface of the kidney and the apex towards the centre.

Judgment: This will depend on the cause of the embolism.

Tuberculosis in the kidneys: Is always of haematogenous origin and is therefore a sign of generalization. The lesions and judgment are as described in other organs.

Leucosis: The nodular type of leucosis among the organs frequently affects the kidneys.

Judgment: Trimming or local condemnation.

Hydronephrosis: This is an affect

ion of the kidneys characterized by the dilation of the renal pelvis (calyces) associated with progressive atrophy and cystic enlargement of the kidneys.

Judgment: Total condemnation if uremia is present, otherwise local condemnation.

Parasitic affections: These occur rarely in the kidneys, but exceptionally migratory *Fasciola hepatica* and *C. bovis* may be found. A more common parasite in the kidneys is the hydatid cyst, which develops in the same way as in other organs, and they are situated under the capsule or in the cortex.

Judgment: Local condemnation

Sheep and Goat

The lesions and diseases found in the kidneys of small stock resemble those described for cattle.

Pig

Infarcts: The lesions appear on the kidney surface as pale depressed area of irregular shape and different size. Upon incision they appear wedged-shaped.

Judgment: The cause of infarcts should be considered before the final judgment.

Stephanurus dentatus is the kidney worm of the pig. The adult worm is found in the renal area where cysts have been formed containing the worm and some greenish pus.

Judgment: The kidneys affected should be condemned, and the carcass judged on its merits.

AFFECTIONS OF THE HEART

Cattle

1. Fibrinous Pericarditis: The liver will appear enlarged (rounded edges).

Judgment: Total condemnation in cases with systemic reactions. Where the lesions are obviously localized, the heart should be rejected and the rest of the animal may be passed.

2. Purulent Pericarditis: Occurs almost solely in the ox as a result of traumatic perforation by foreign body from the reticulum. There is presence of pus in the liver

Judgment: Total condemnation in cases with fever, large accumulation of exudates, circulatory disturbances, degenerative changes in organs or a normal odour. In the absence of these, the carcass can be released after local condemnation of the affected parts.

Sarcocysts may be found in the heart muscle appearing as small rice grain-like calcified cysts.

Judgment: Condemnation of the heart, and the carcass should be checked for cysts.

Sheep and Goat

The diseases and pathological conditions which have been described in cattle occur in sheep and goats as well. The only difference is that Cysticercosis is caused by *Cysticercus ovis* instead of *Cysticercus bovis*.

Cysticercus ovis: This is the cystic stage of Taenia which lives in the intestines of dogs. It is frequently found in the myocardium, either as a fresh transparent bladder cyst or as a calcified one.

Judgment: Condemnation of the heart. The carcass should be checked for cysts.

Pig

Pericarditis: Often noticed as the formation of adhesions.

Judgment: In acute cases total condemnation.

Endocarditis: In the chronic form of swine erysipelas the heart valve are often inflamed. It is the vegetative type of affection, where cauliflower-like growth covers the valves. The vegetations consist mainly of masses of fibrin and these are normally soft, friable and yellowish-grey in color.

Judgment: Total condemnation if accompanied by general edema, general congestion, fresh red infarcts in the kidneys or emaciation; otherwise Local condemnation.

BASIC CONSTRUCTION PRINCIPLES OF FUNCTIONAL ABATTOIR

Definitions

Abattoir

- any establishment where specified animals are slaughtered and dressed for human consumption and that which is approved, registered and/or listed by the authority for such purposes.

A competent authority

- the official body charged by the government with the control of meat hygiene,
- including setting and enforcing regulatory meat hygiene requirement.

Lairage

- a place that provides temporary housing for animals prior to slaughter.

Isolation pens

- special pens in which animals can be held, separated from their congeners to facilitate Veterinary inspection or treatment.

Consideration for location of an Abattoir

- Size of the area.
- Range of operations
- target market(s) to be covered by the abattoir
- Other consideration in determining the size of the area is capital (funds available for the project).
- Distance from the cattle and meat markets where purchase of live animals can be made and meat can be sold.
- Availability of electricity.
- Water source/supply.
- Access road
- An abattoir must not be sited close to residential
 - to avoid environmental pollution and the adverse effect on people's health.
 - It also prevents accidents from moving animals
- It must not be close to a latrine
- It must be located away from factories to avoid smoke or dust which can cause contamination of meat and meat products.
- It should have adequate space for lairage, areas for digging pits for condemned meat, for tripe and hide treatment facilities and also for future expansion.
- The whole slaughter facility complex should be fenced

General Principles of Abattoir Design and Construction

The design of abattoir varies from situation to situation. There can be no single blue print for all the situations. The guiding principle should be to provide all related services under hygienic

conditions at lowest cost. In general, the following basic guidelines should receive serious consideration:

There should be provision of an area for the containment of animals prior to slaughter

1. The operational facilities should be so designed and located that a clear demarcation exists between clean and unclean sections. Workrooms, structures and equipment should be designed and constructed to allow for effective cleaning and monitoring of hygienic status.
2. Facilities for personnel should include changing rooms, toilets with hand-washing and drying facilities, showers and a separate room for eating and drinking.
3. Suitable conditions must be provided for the preparation and storage of meat.
4. A maintenance programme must be followed to ensure that facilities and equipment meet the required standards.

The abattoir should have the following essential facilities:

1. Resting place for animals before slaughter
2. Ante-mortem examination
3. Humane slaughter
4. Flaying, dressing and washing of the carcasses.
5. Hanging carcasses and edible offals.
6. Handling by products.
7. Inspection of meat and disposal of condemned carcasses or part thereof.
8. Staff welfare

Lairages

The lairage provides temporary housing for the animals prior to slaughter and it's design should take into account the following needs; animal welfare, maintaining cleanliness and separation of sick or "suspect" animals. It must be designed and constructed to allow the following physical activities:

Animal activities	Human activities
Eating	Ante-mortem inspection
Drinking	Sorting

Lying and resting	Cleaning and disinfection
Comfortable movement	

The key elements in the design of a lairage are:

- Sufficient light for satisfactory ante-mortem inspection.
- Floors that drain easily and do not compromise the cleanliness of animals' coat
- No sharp objects that could injure animals.
- Isolation pen available for the containment of sick or "suspect" animals, with separate drainage.
- Physical separation of lairage (dirty area) from the area where edible products are produced.

Equipment for hygienic and efficient slaughtering

All equipment used in the slaughterhouse should be durable and made from easily sterilized material. Its size should be in relation to the function it performs.

- *Overhead rails with the following accessories:*
 - overhead rollers
 - beef trees sheep carriers
 - pig shackles
 - extension chains for beef quarters
 - hooks for beef quarters
- *Pipe-made dressing rails*

The basic equipment used in the different slaughter procedures are as follows:

- *Hand tools :*
 - stunning pistol,
 - sticking and skinning knives,
 - axe/meat and bone cutting saws/choppers.
- *Floor rings*
- *Skinning cradles*
- *Visceral inspection table and hook rail*

- *Pig scalding vat and dressing equipment*
- *Sanitation equipment*
 - *Sterilizer*
 - *Dirt –removing carts*
- *First-Aid Materials*