# Hemorrhagic Septicemia

# H. S.

Hemorrhagic septicemia is a highly fatal disease of cattle and water buffalo.

In susceptible animals, the symptoms progress rapidly from dullness and fever to death within hours.

Recovery is rare

# Etiology

- Hemorrhagic septicemia results from infection by two serotypes of :

mannheemia (*Pasteurella) multocida*. Using agar gel immunodiffusion, these serotypes are known as B:2 or E:2.

## Species affected

Epidemics of hemorrhagic septicemia mainly occur in cattle and buffalo; water buffalo are thought to be particularly susceptible.

## Transmission

P. multocida is transmitted by direct contact with infected animals and on fomites. Cattle and buffalo become infected when they ingest or inhale the causative organism, which probably originates in the nasopharynx of infected animals

## Incubation period

In experimental infections with lethal doses, cattle or buffalo develop clinical signs within a few hours and die within 18 to 30 hours.

In natural infections, the incubation period is usually 1–3 days but some animals can carry the organism for varying periods without symptoms.

# Clinical signs

Most cases in cattle and buffalo are acute or peracute.

A fever, dullness, and reluctance to move are the first symptoms.

Salivation and a serous nasal discharge develop, and edematous swellings become apparent in the pharyngeal region.

These swellings spread to the ventral cervical region and brisket.The mucous membranes are congested.

Respiratory distress occurs, and the animal usually collapses and dies 6 to 24 hours after the first symptoms were seen. Either sudden death or a protracted course up to 5 days arealso possible.

Animals with clinical signs, particularly buffalo,rarely recover. Chronic cases do not seem to occur

# Post mortem lesions

- Widespread haemorrhages, oedema, and hyperaemia, consistent with severe sepsis
- Oedema consists of a coagulated serofibrinous mass with straw-coloured or bloodstained fluid
- Swelling of the head, neck, and brisket occurs in nearly all cases
- Similar swellings can also be found in the musculature
- Subserosal petechial haemorrhages may occur throughout the body, and the thoracic and abdominal cavities often contain blood-tinged fluid
- Scattered petechiae may be visible in the tissues and lymph nodes, particularly the pharyngeal and cervical nodes; these nodes are often swollen and hemorrhagic
- Pneumonia or gastroenteritis occasionally occurs, but usually is not extensive
- Atypical cases, with no throat swelling and extensive pneumonia, are sometimes seen
- There are no microscopic features that are specific for hemorrhagic septicaemia – all lesions are consistent with severe endotoxic shock and massive capillary damage

# Differential Diagnosis

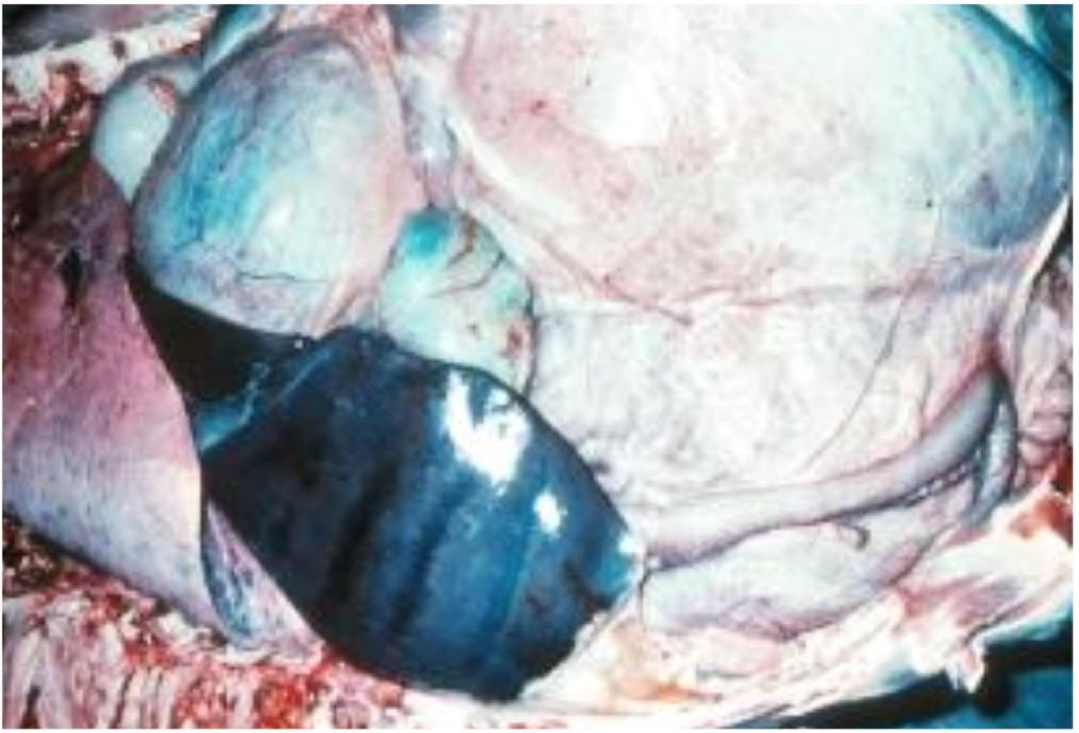
- The differential diagnosis includes other causes of sudden death such as lightning strikes,snakebite,blackleg rinderpest.

- Shipping fever is often mistakenly confused for HS, but has a multifactorial aetiology (often Mannheimia haemolytica), is not septicaemic, and does not cause multisystemic petechial haemorrhages
- The peracute nature of the disease and the extensive oedema and haemorrhage make it difficult to differentiate from blackleg and anthrax

- Acute salmonellosis, mycoplasmosis, and pneumonic pasteurellosis should also be considered

hemorrhagic septicemia clinical case . swelling of the face .

Bovine, submandibular region. There is severe subcutaneous/fascial edema and multifocal hemorrhage. The parotid gland exhibits interlobular edema.



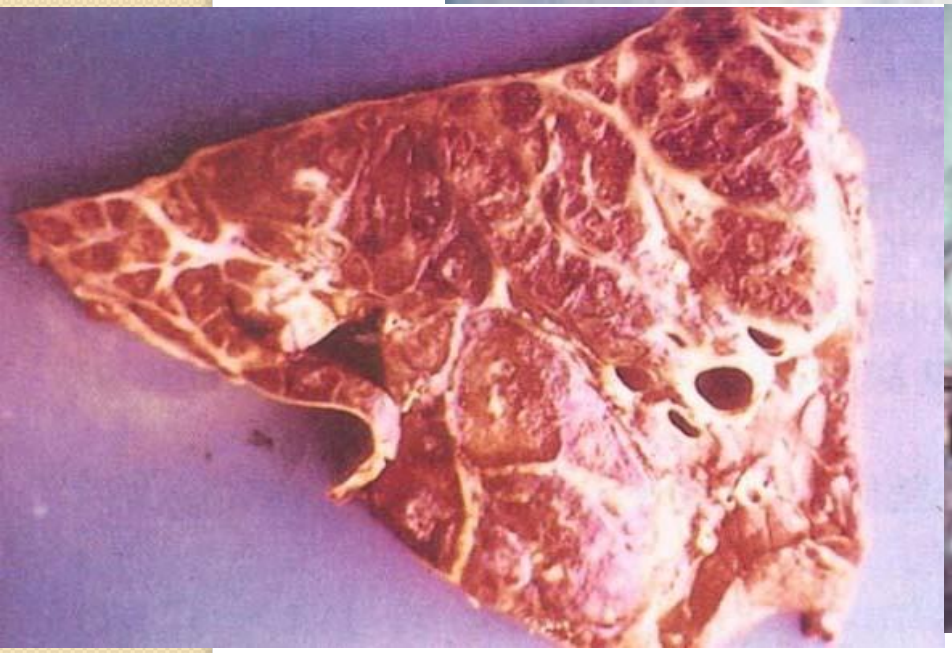
hemorrhagic septecemia . hemorrhages over the serosal surfaces .

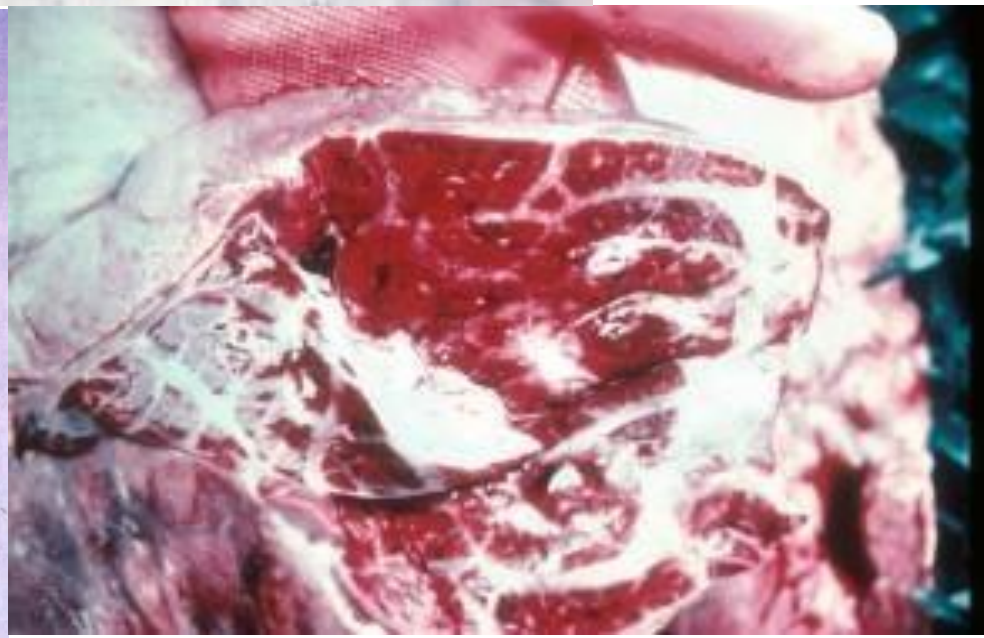
hemorrhagic septicemia . bovine head and neck . marked subcutaneous edema

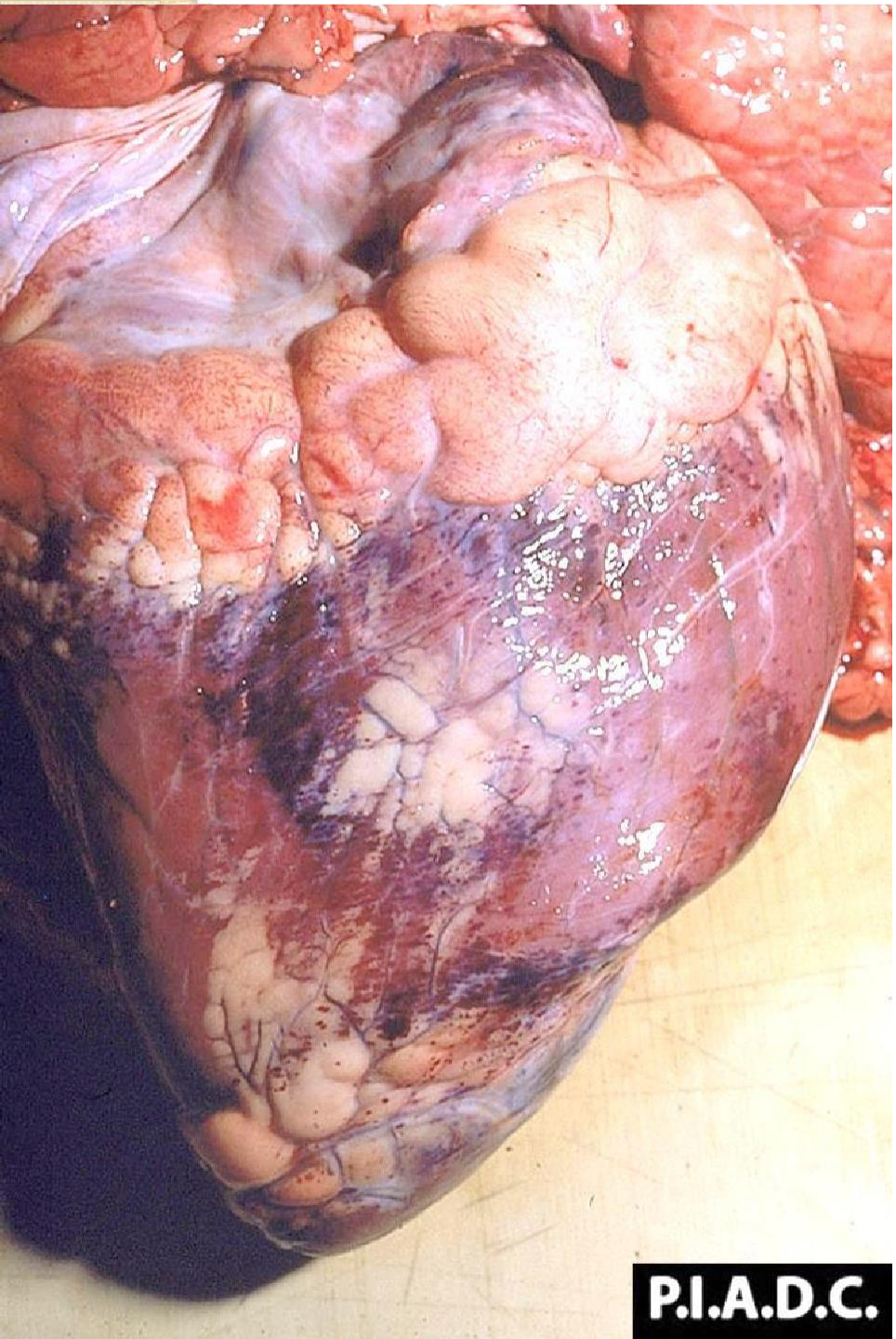
haemorrhagic septicemia . fibrinous bronchopneumonia

hemorrhagic septecemia . lungs congested and oedematus . the inter lobular septa are enlarged d

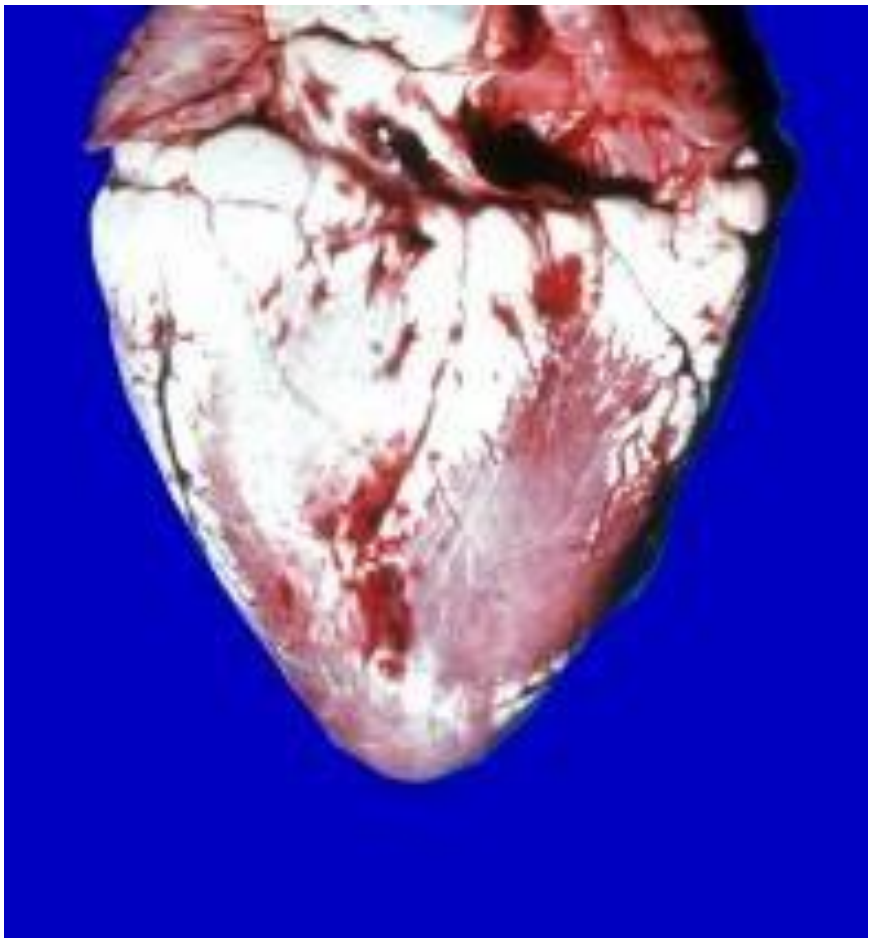
fibrinous exudate





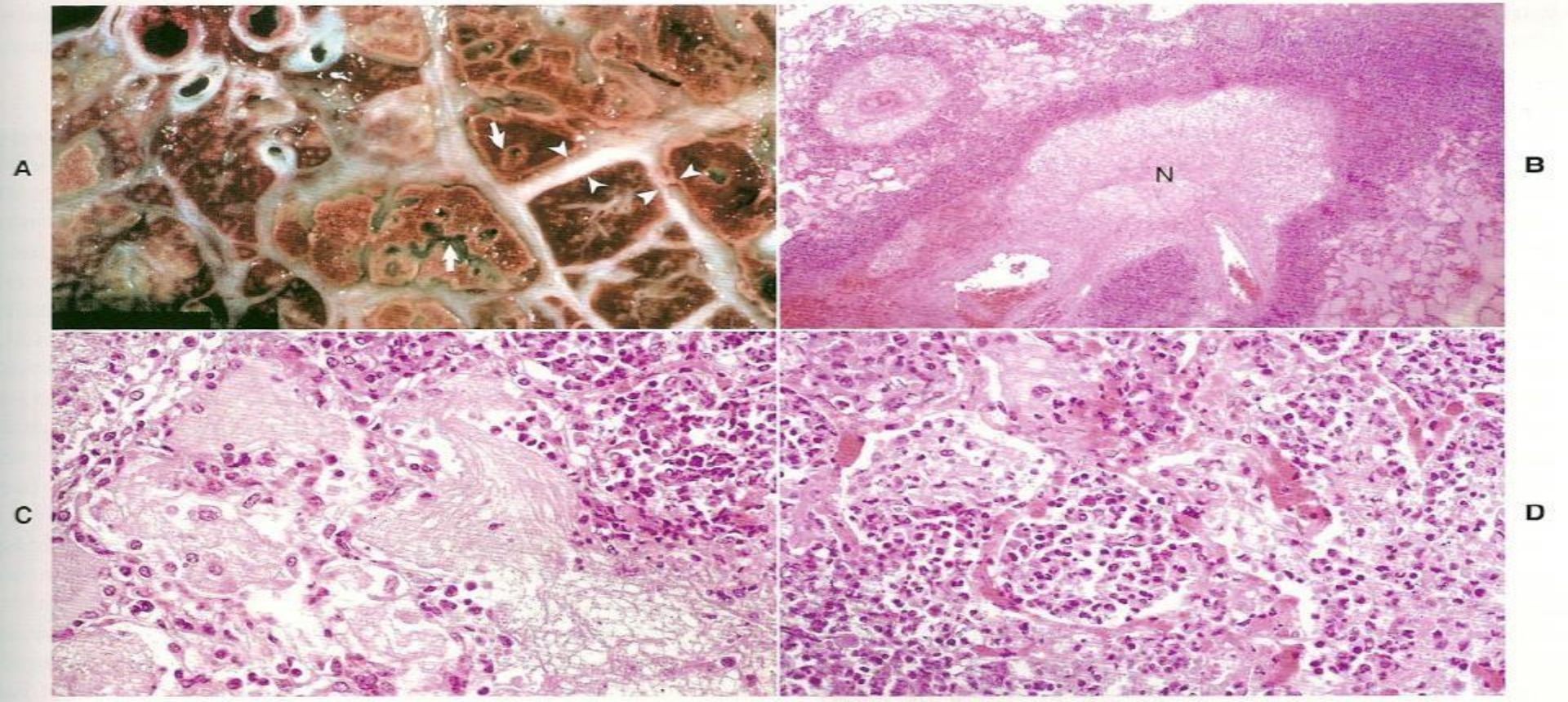



hemorrhagic septicemia . bovine heart . there are numerous often coalescing petechiae on the epicardium



**hemorrhagic septicemia . eccymoses and petechiae seen on the pericardium .**

# HS- Petechial on the Heart and Lung




Pneumonic mannheimiosis lung,

**A**, Cut surface. Interlobular septa (arrowheads) are notably distended by edema and fibrin. In the lung parenchyma are irregular areas of coagulative necrosis (arrows) surrounded by a rim of inflammatory cells.

**B**, Note a large area of necrosis (N) of the pulmonary parenchyma. Typically these necrotic areas are surrounded by an outer dense layer of inflammatory cells. Alveoli in the bottom right corner are edematous; those in the top left corner are relatively normal. H&Estain.

**C**, Note alveoli filled with fibrin (center) and with neutrophils and macrophages (top ri8ht). H&E stain.

**D**, Mannheimia produces leukotoxin (cytotoxic for ruminant leukocytes) and lipopolysaccharide. Note the accumulation of cells, chiefly neutrophils, in the alveoli. Also note the active hyperemia of acute inflammation of the alveolar capillaries. H&E stain