Malignant Catarrhal Fever Symptoms

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Host Range

- The disease can occur in cattle, domesticated buffaloes, a wide range of captive antelopes and deer, and free-living deer.

Host Range

- Under natural conditions only domestic cattle and deer develop clinical signs
- MCF has never been reported in free-living wild animals in Africa

Host Range

- In zoological collections a wide variety of ruminant species have been reported to develop clinical signs
- Rabbits can be infected experimentally

Host Range

- It was recently confirmed in pigs in Scandinavia

Reservoir ruminant species

- Blue wildebeest
- Black wildebeest
- Domestic sheep
- Goats

Blue Wildebeest

Black Wildebeest

Transmission

Neonatal and adolescent wildebeest shed virus

Transmission from reservoir animals to domestic cattle, deer

contact with calving wildebeest

contact with lambing sheep

Cattle are more susceptible to
Wildebeest derived MCF
than to the sheep or goat MCF

Congenital Transmission

Cow will die then later calf will die

Malignant Catarrhal Fever: Clinical Signs

- In some cases MCF presents as chronic alopecia and weight loss as with deer infected with the Caprine herpesvirus.
- However, MCF is typically fatal.

Clinical Signs

- There are many factors that affect the duration of the disease in different species
- The severity of the clinical symptoms will depend on those factors. Mortality is usually 100% but some animals face weeks of progressive disease
- For this reasons, once the disease is identified, most elect to euthanized the affected animal.

Clinical Signs

- High fever 106-107°F (41-41.5°C)
- Depression
- In deer - sudden death
- Deer and bison that survive 2-3 days:
  - Hemorrhagic diarrhea
  - Bloody urine
  - Corneal opacity
  - Then death

Clinical Signs

- The longer the animal survives the course of the disease the more severe the signs become.

- For example, animals that die acutely may not develop lymphadenopathy or corneal opacity

As the disease progresses:

- Catarrhal inflammation
- Erosions and exudates in upper respiratory tract, ocular and oral mucosa
- Swollen lymph nodes
- Lameness
- CNS signs (depression, tremors, stupor, hypo-responsive, aggression, convulsions

Clinical Signs

- On average the time to death for European cattle is longer than for deer, bison and water buffalo; usually 7-17 days after the appearance of clinical signs

- In cattle the swollen lymph nodes and severe eye lesions are more frequent

Clinical Signs

- Hemorrhagic enteritis and cystitis are more frequently seen in bison and deer than in cattle
- Skin lesions are common in animals that do not succumb quickly
- Most eventually die, about 5% recover clinically

Clinical signs

- Depressed and VERY SICK
- Stertorous respiration
- Enlarged lymph nodes

Clinical Signs

Animals suffer, are painful and cannot breathe well

Clinical Signs

Secondary bacterial bronchopneumonia may be eventual cause of death if not euthanized first

Clinical Signs

Painful swollen eyes

Clinical Signs

Ocular and
nasal discharge

Clinical Signs

“snotsiekte”

Mucopurulent discharge, crusting occludes the nostril; animal begins open mouth breathing.

Malignant Catarrhal Fever

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Characteristic of MCF

Early corneal opacity begins at the limbus

Progresses to total opacity

Clinical Signs

Severe panophthalmitis, hypopion, corneal erosions are more frequent in cattle

Severe Ocular lesions

Painful Conjunctivitis

Severe Ocular lesions

Progresses to corneal opacity beginning at Limbus

Severe Ocular lesions

Characteristic eye lesions

Severe Ocular lesions

Characteristic eye lesions

Severe Ocular lesions

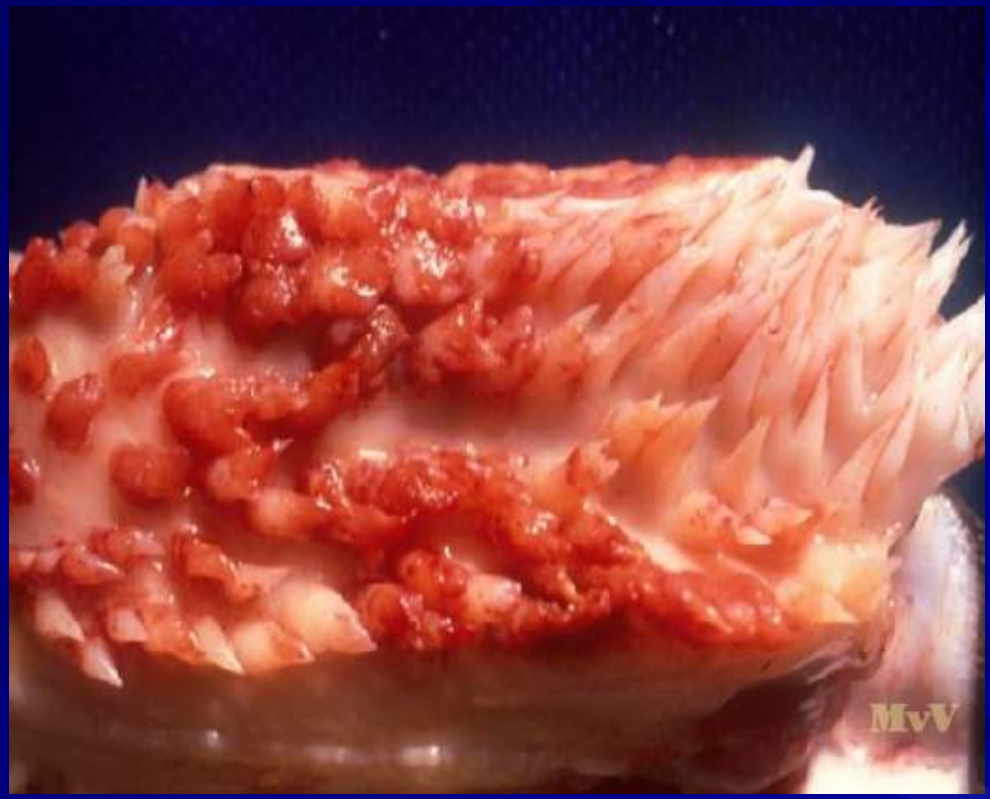
Oral Lesions

Erosions on gums, dental pad and near teeth

Oral Lesions

Erosions near the teeth

Oral Lesions

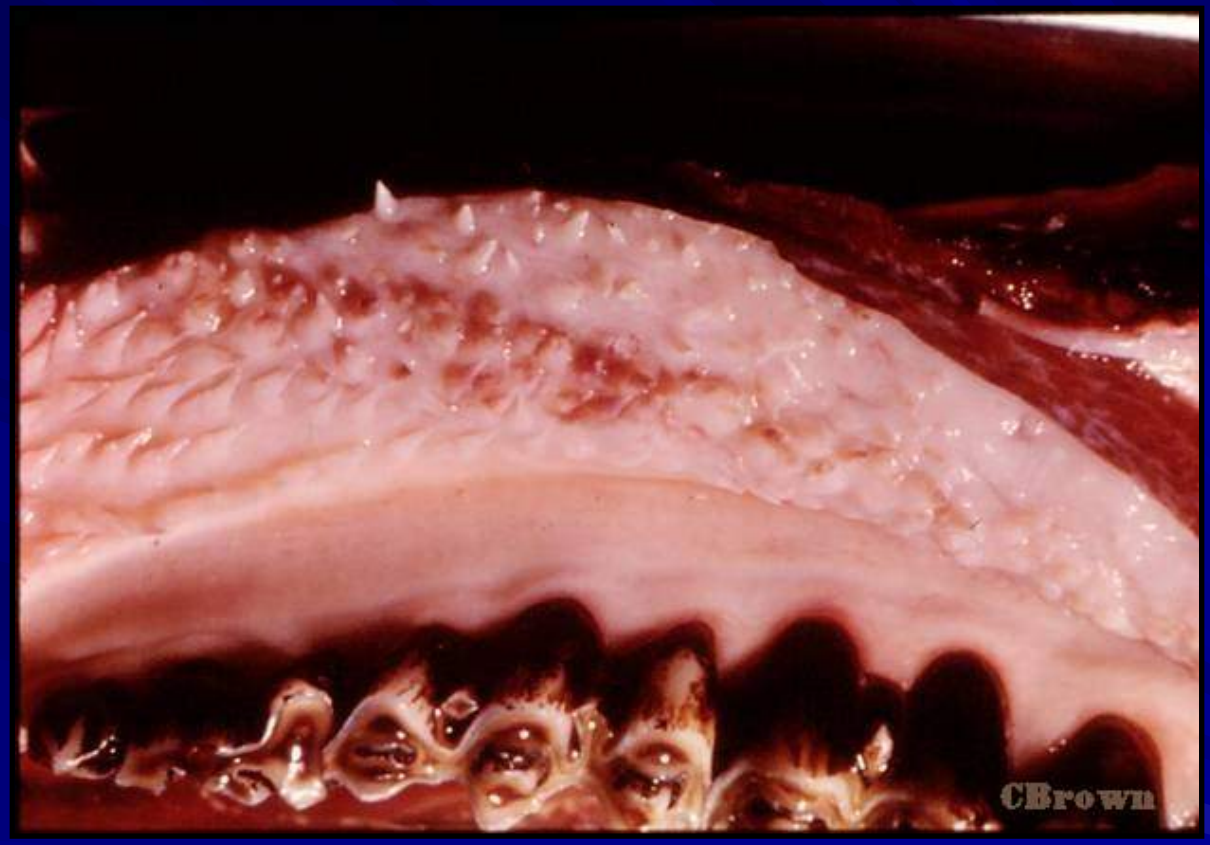


Necrosis of papillae similar to rinderpest

Oral Lesions

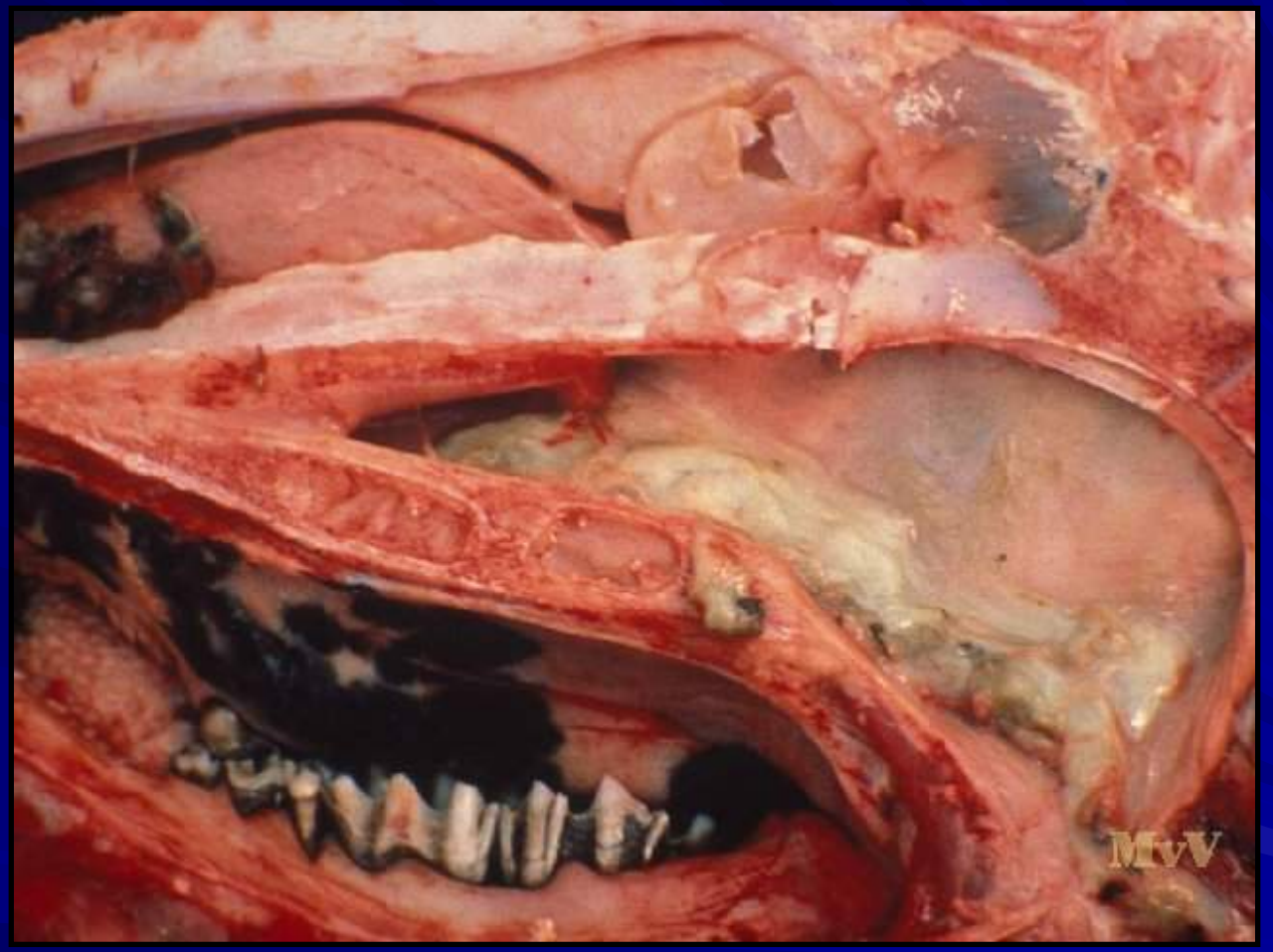
Erosions here are similar to bluetongue in Africa

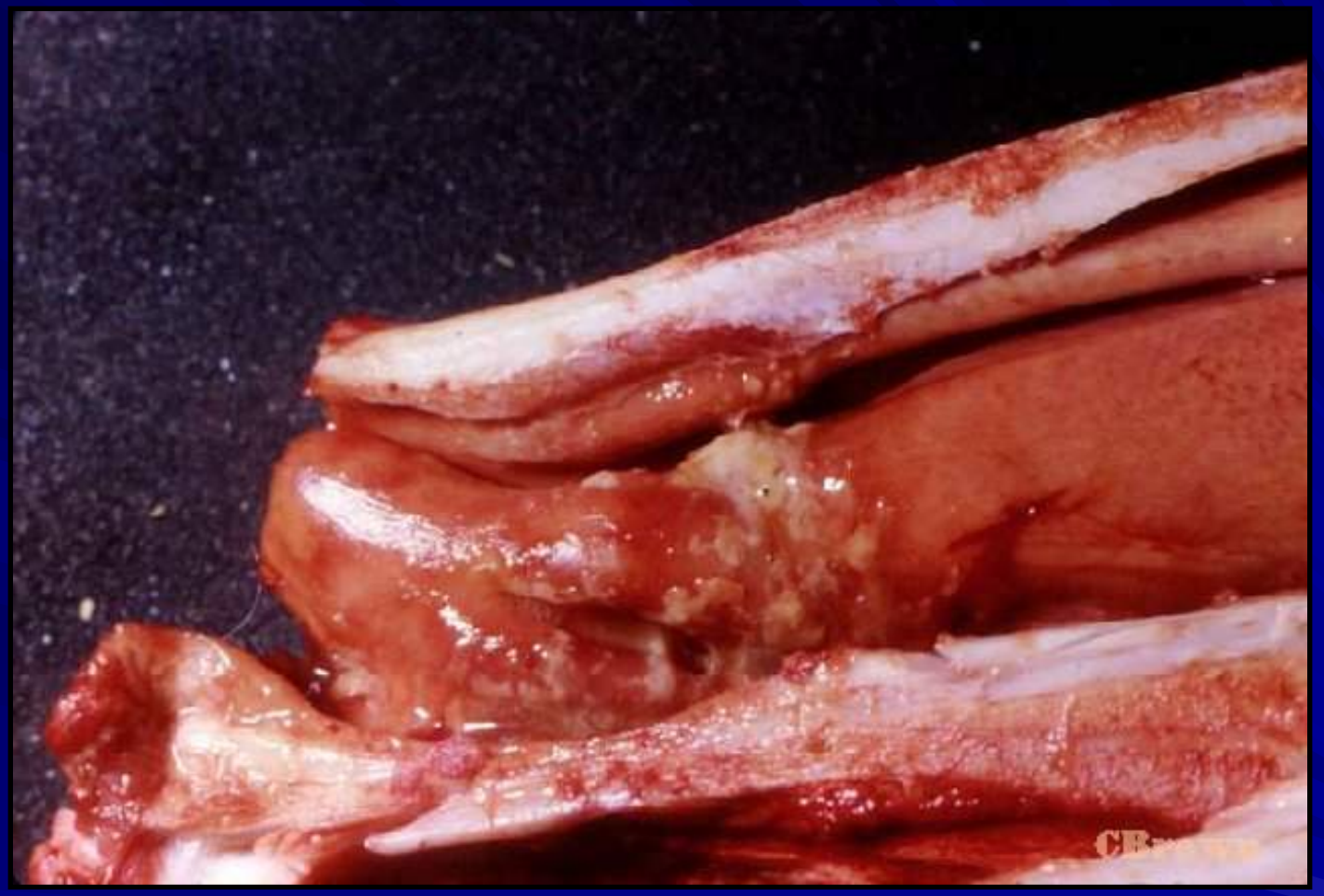
Oral Lesions



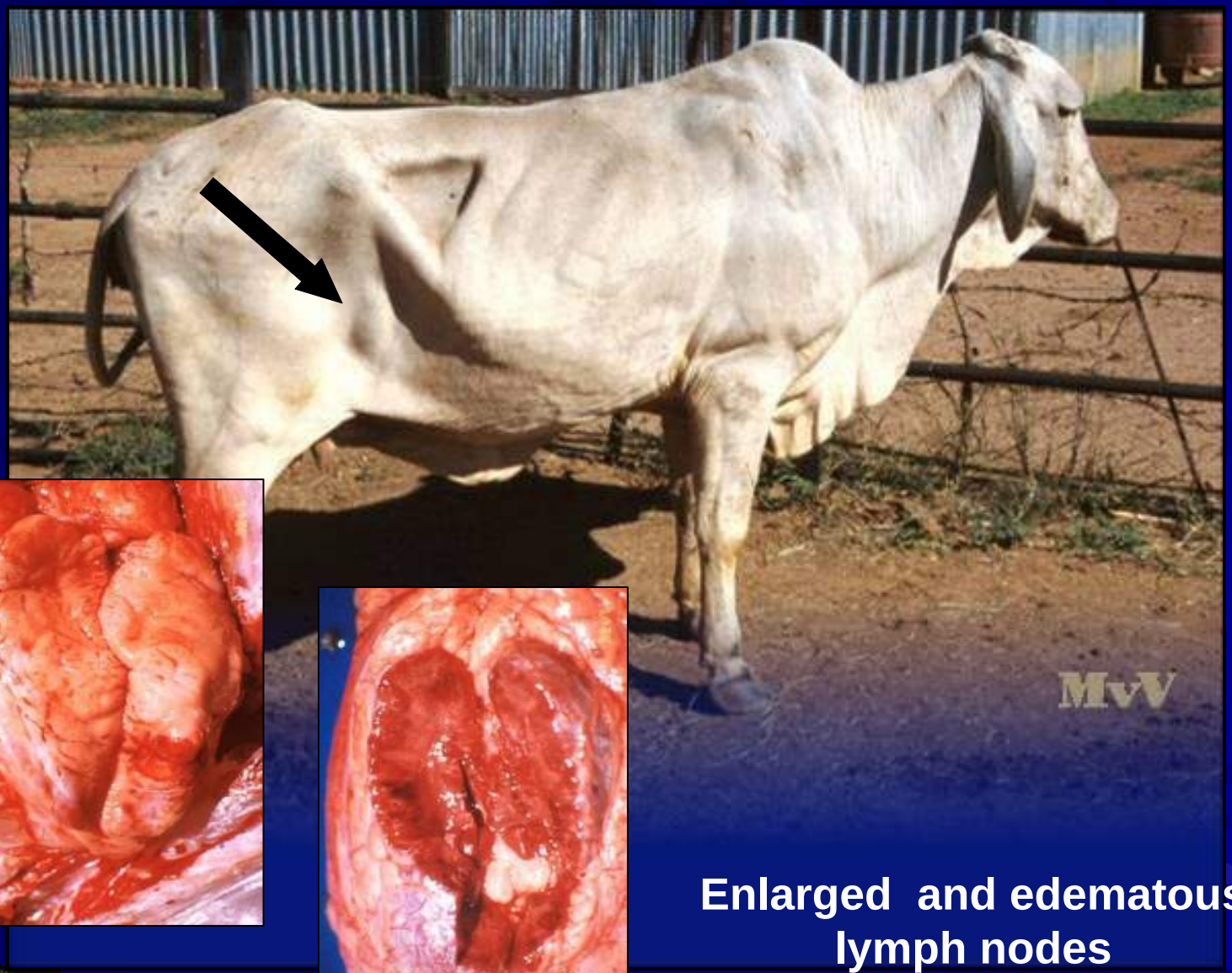
Erosions of papillae

Oral Lesions





Erosions in squamous (anterior) portion of nasal cavity



Enlarged and edematous lymph nodes

Moist necrotic dermatitis with exudation and encrustations

Skin lesions associated with both sheep form and wildebeest derived. Resembles foot-and-mouth disease

Malignant Catarrhal Fever

Mild diarrhea sometimes seen which is black and tarry, but not effusive

In terminal stages CNS symptoms: falling, circling, head pressing, high stepping convulsions, then death

Clinical Signs in Swine

From a case in Norway:

Symptoms reported as: hyperemic conjunctiva, vomiting, restlessness and anorexia. The rectal temperature was 41° C, the respiratory rate was 33 per minute, and the heart rate was 110 per minute. Despite parenteral antibiotic treatment, the symptoms worsened and the pig died 5 days after onset of disease. Over a short period, three other adult swine in the same herd died after showing similar clinical signs.

Clinical Features Summary

- Incubation period is LONG – weeks to months
- Morbidity LOW
- Clinical illness – weight loss, enlarged lymph nodes, corneal opacity, rhinitis
- Mortality – 100%

Diagnosis at Necropsy

- The disease is systemic and lesions can be found in any organ
- Inflammation and necrosis of the respiratory, alimentary and urinary mucosa
- Generalized lymphoid proliferation and necrosis
- Widespread vasculitis

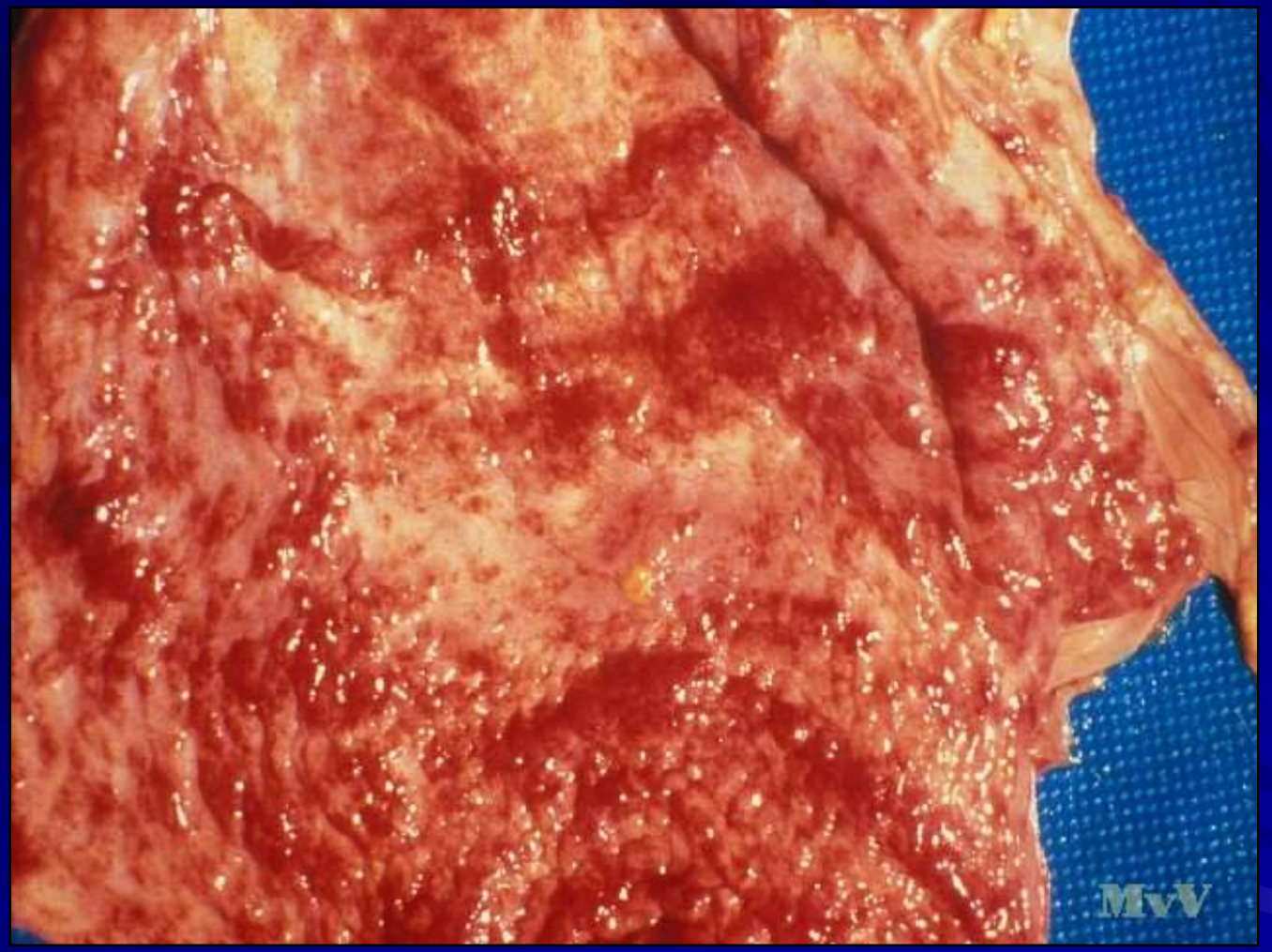
Focally disseminated erosions and ulcerations in the GIT

Malignant Catarrhal Fever

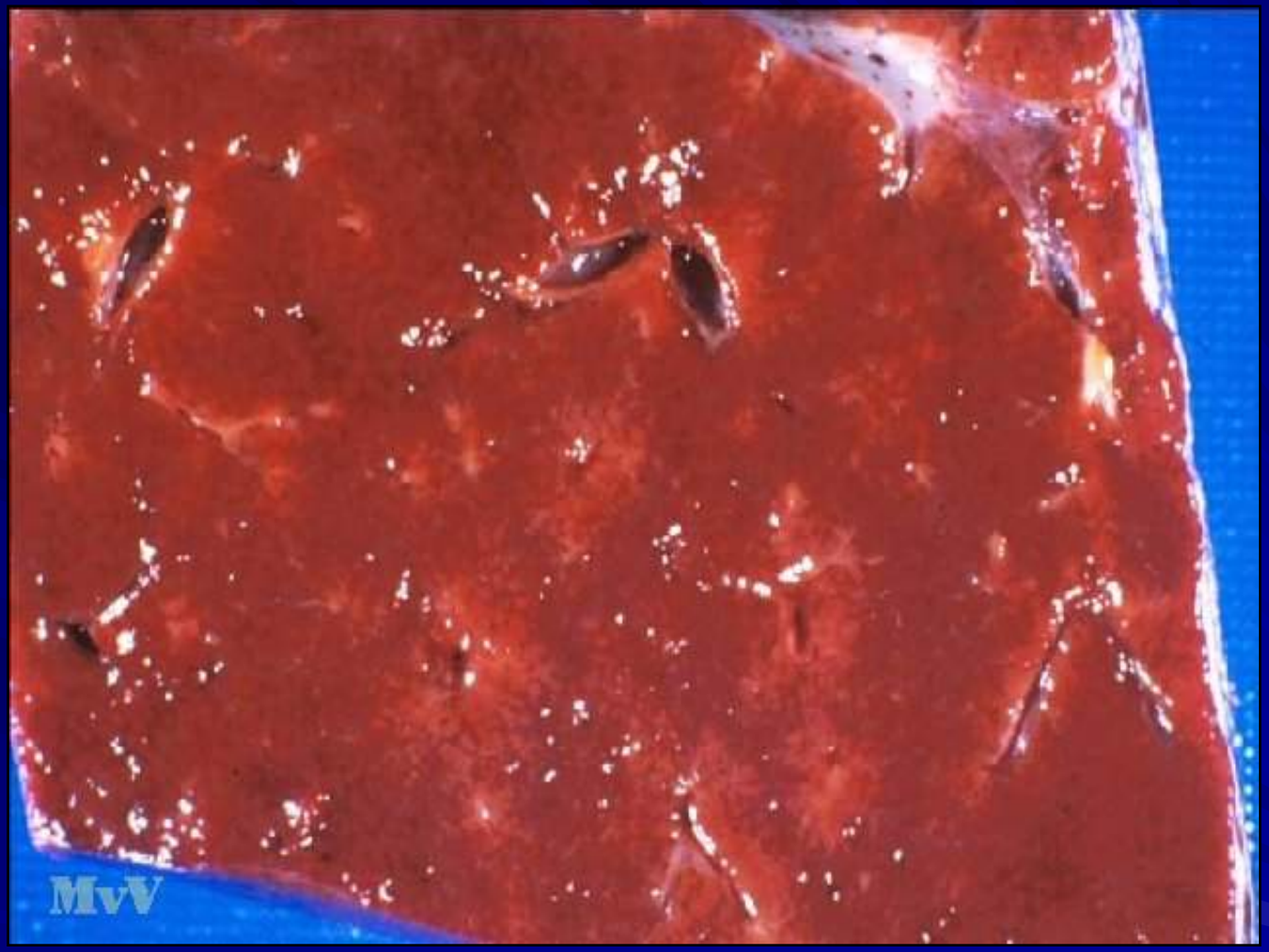
Focally disseminated erosions and ulcerations in the GIT

Malignant Catarrhal Fever

“button ulcers” 5-10 cm erosions



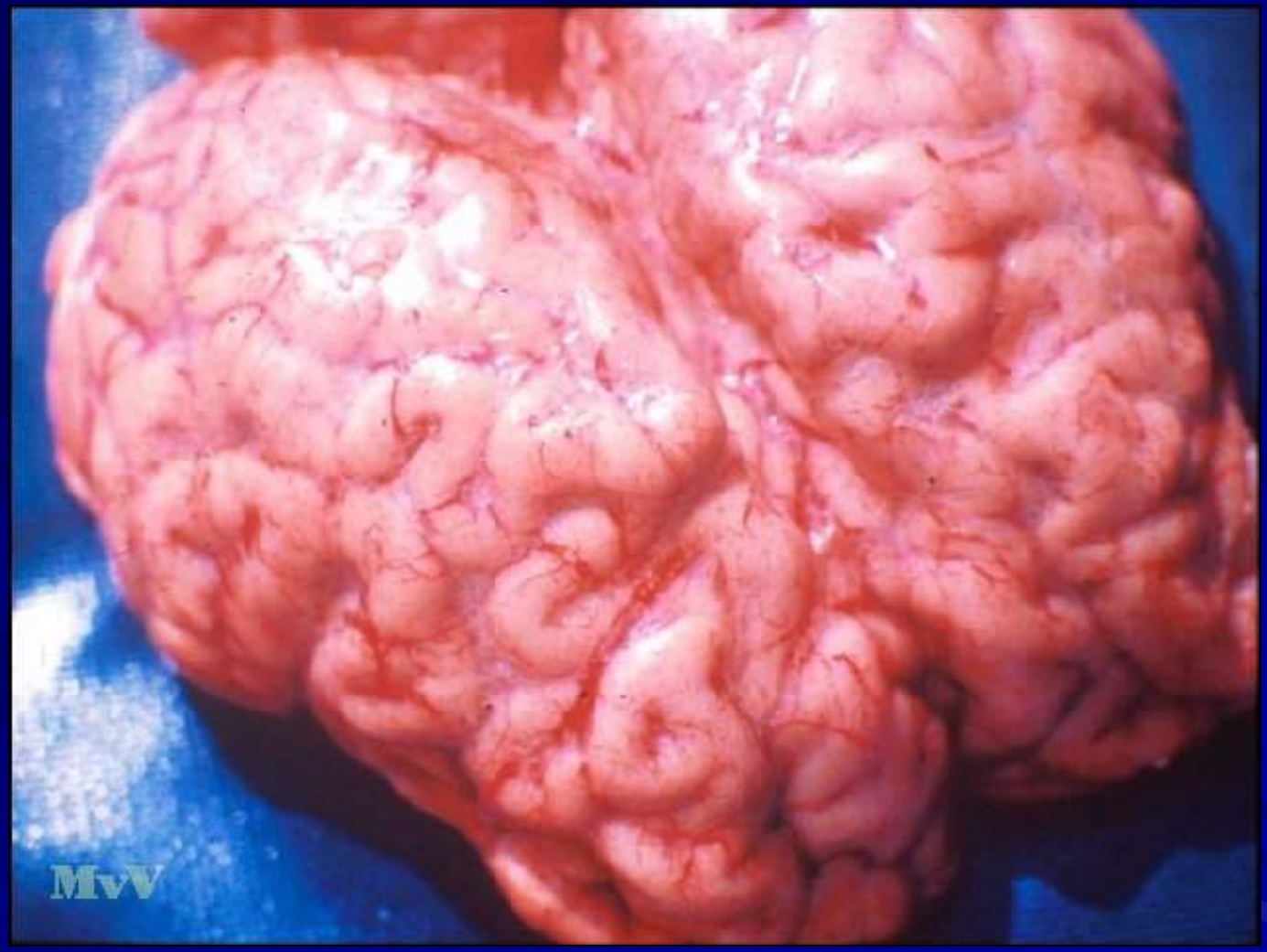
Frequently see erosions in the bladder mucosa



Lymphoid infiltration

Multifocal lymphoid infiltration

Multifocal lymphoid infiltration



Malignant Catarrhal Fever

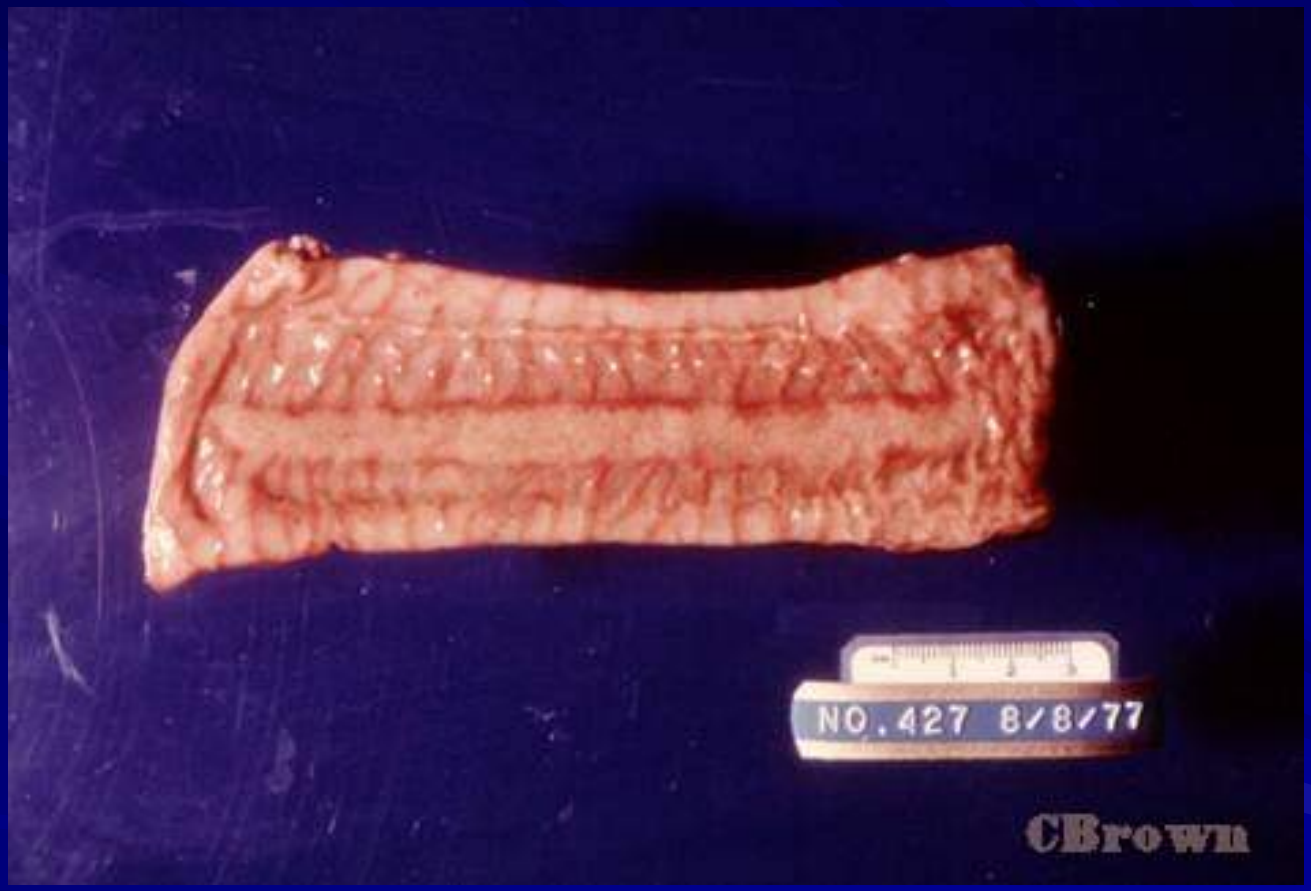
Enlarged lymphoid tissue – everywhere – looks like lymphoma

Lymph nodes – TOO BIG

Tonsils bulge

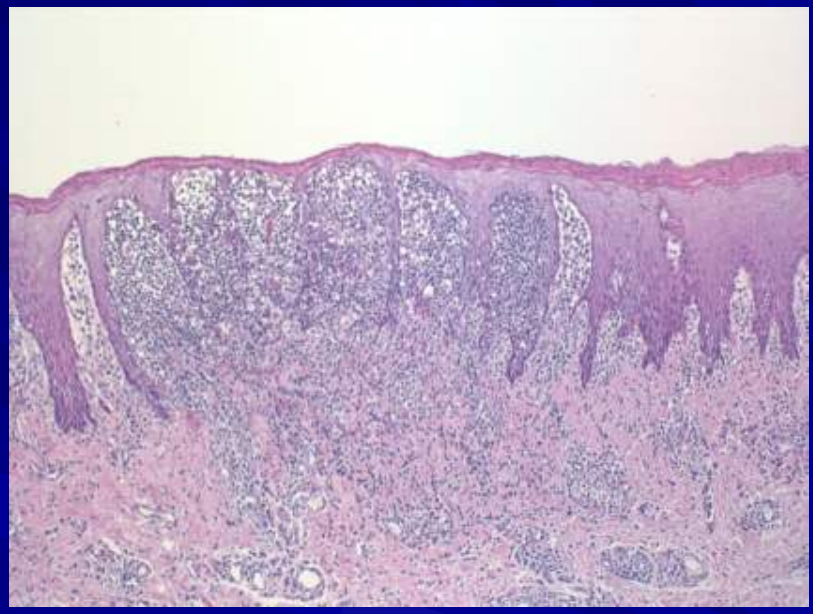
Hemal nodes are prominent

Spleen infiltrated

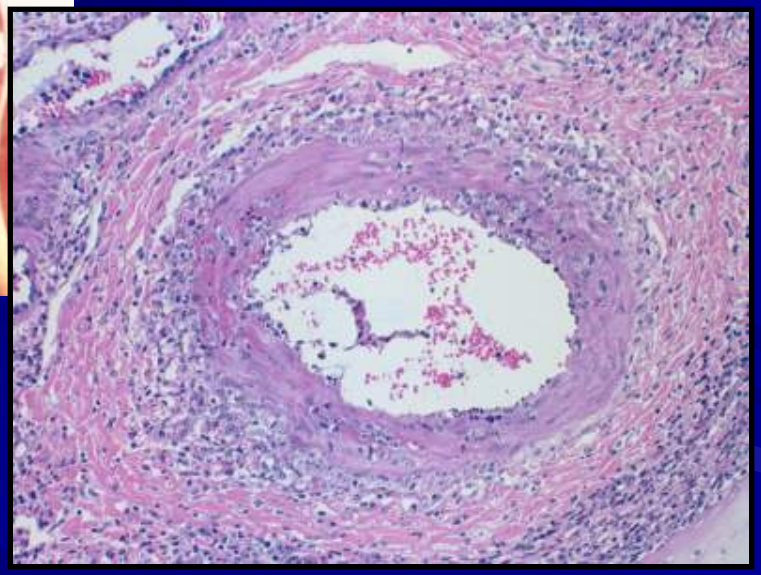


Peyer's patches stand out

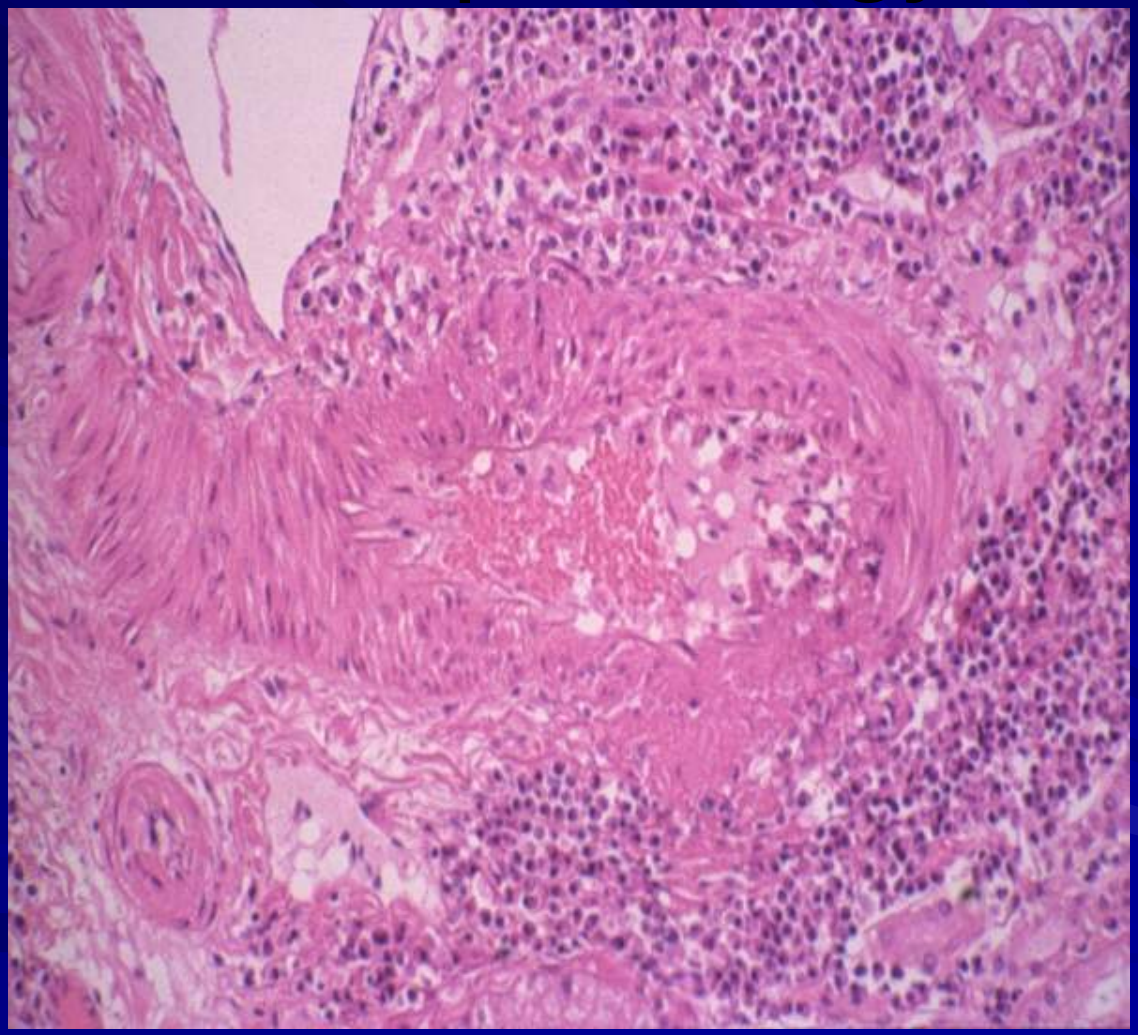
Diagnosis



Diagnosis

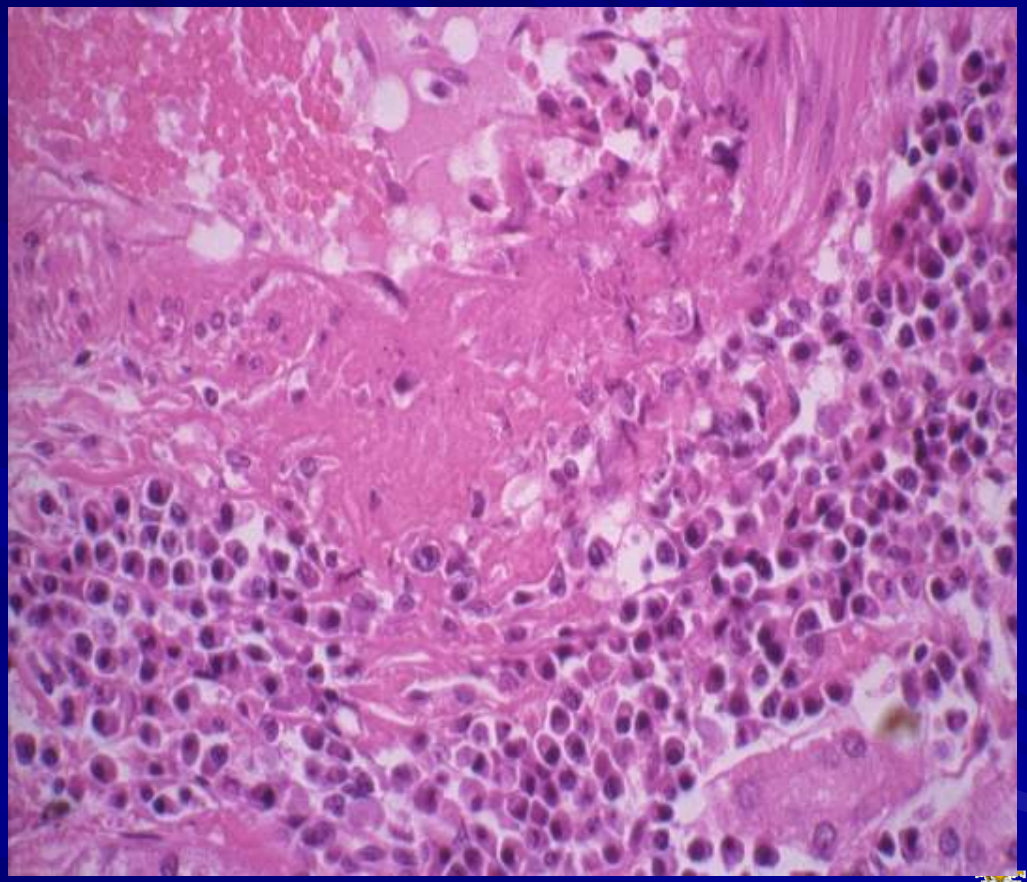


Histopathology



T lymphocyte hyperplasia, cell necrosis

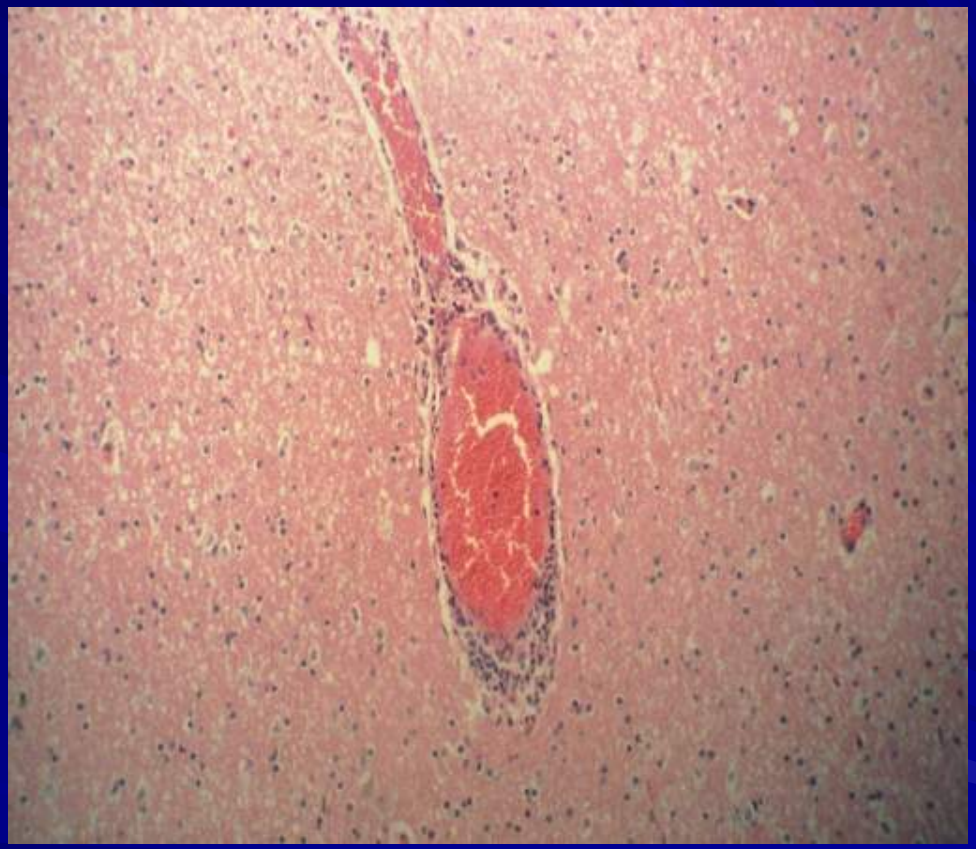
Histopathology



Severe necrotizing vasculitis

Perivascular lymphoid infiltration

Histopathology



Perivascular lymphoid infiltration of arterioles

Summary

Think Malignant Catarrhal fever when:

- Only a few cattle are affected and they die
- Cattle have been exposed to sheep during lambing season
- Cattle have severe respiratory symptoms and conjunctivitis with cornel opacity
- Lesions are on the ventral side of the tongue

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This presentation is a collaborative effort