

# **MALIGNANT CATARRHAL FEVER (MCF)**

- ❖ **It is a worldwide sporadic, fatal, multisystemic disease of domestic cattle and wild ruminants (deer, buffalo, antelopes) that is caused by a gammaherpesvirus**
- ❖ **characterized by lymphoproliferation, vasculitis, and erosive-ulcerative mucosal and cutaneous lesions predominantly affecting the respiratory and gastrointestinal systems.**

# MALIGNANT CATARRHAL FEVER (MCF)

## Cause:

caused by closely related **rhadinoviruses** (**γ-herpesviruses**) ; **Alcelaphine herpesvirus 1** (Wildebeest associated) or **Ovine herpesvirus 2** (Sheep associated)

# Clinical Findings

- Fever, nasal/ocular discharge, edema of eyelids and palpebral conjunctivae, corneal opacity, diarrhea, lymphadenopathy, dermatitis, oral erosions and CNS signs



# Clinical Findings

## • Four clinical forms:

- 1. **Peracute**: 1-3 day course with fever and possible hemorrhagic diarrhea
- 2. **Intestinal**: 4-9 day course with fever, lymphadenopathy, diarrhea
- 3. **Head and eye**: **Typical form**, longer duration than above with depression, high fever, profuse mucopurulent nasal discharge, dyspnea, ocular discharge, blepharospasm
- 4. **Mild**: In experimental cases that recover

# Gross Findings

- **Lymph nodes:** Enlarged, edematous; characteristic lesion
- **Mucosal surfaces:** Hyperemia and edema, erosions and ulcerations.
- **Gastrointestinal tract:** Extensive mucosal erosions from oral cavity to rectum (especially in deer), edema, hemorrhage.
- **Respiratory:** Serous to mucopurulent nasal discharge, crusted muzzle, edematous lungs, gray-yellow pseudomembranes that cover laryngeal and pharyngeal erosions



# Gross Findings

- **Eye:** Corneal edema, conjunctivitis, corneal opacity (edema), ocular mucopurulent discharge, +/- corneal ulceration, blepharedema, chemosis and hypopyon
- **Kidney:** infarcts or multiple raised 2-4mm white necrotic lesions, ecchymotic hemorrhages, renomegaly
- **Liver:** Slightly enlarged and mottled
- **Spleen:** Enlarged with prominent lymphoid follicles
- **Skin:** (base of horns and hooves, loins and perineum): Hyperemia to exanthema with crust formation and shedding of hoof wall
- **CNS:** Meninges wet, possibly with petechial hemorrhages

# Microscopic Findings

- **Vessels (Necrotizing vasculitis):** Perivascular and intramural infiltrates of lymphocytes and lymphoblasts; fibrinoid necrotizing vasculitis in all tissues
- **Lymphocytic infiltrate:** in kidneys, liver (periportal), GI mucosa, dermis, meninges, heart, etc.
- **Kidney:** Infarcts, foci of nonsuppurative (lymphocytic) interstitial nephritis.
- **Lymph node:** Active proliferation of lymphoblasts, especially in T cell-dependent areas of interfollicular and paracortical zones; Severe edema, ectatic lymphatics, lymphocytic and reticuloendothelial cell proliferation
- **eye:** Lymphocytic uveitis and ophthalmitis; corneal edema, secondary to vasculitis, is responsible initially for the opacity



# Microscopic Findings

- **Spleen:** Variation between lymphoid cell hyperplasia in the periarteriolar sheaths to atrophy and depletion of lymphocytes
- **CNS:** Perivascular edema, nonsuppurative meningoencephalomyelitis, lymphocytic perivascular cuffing
- **GI:** Edema, congestion, mucosal erosions, abomasal ulcers and submucosal eosinophilic inflammation
- **Oral and pharyngeal mucosa:** Epithelial necrosis, lymphocytic stomatitis and pharyngitis
- **Skin:** Exudative lymphocytic dermatitis, edema, epithelial necrosis





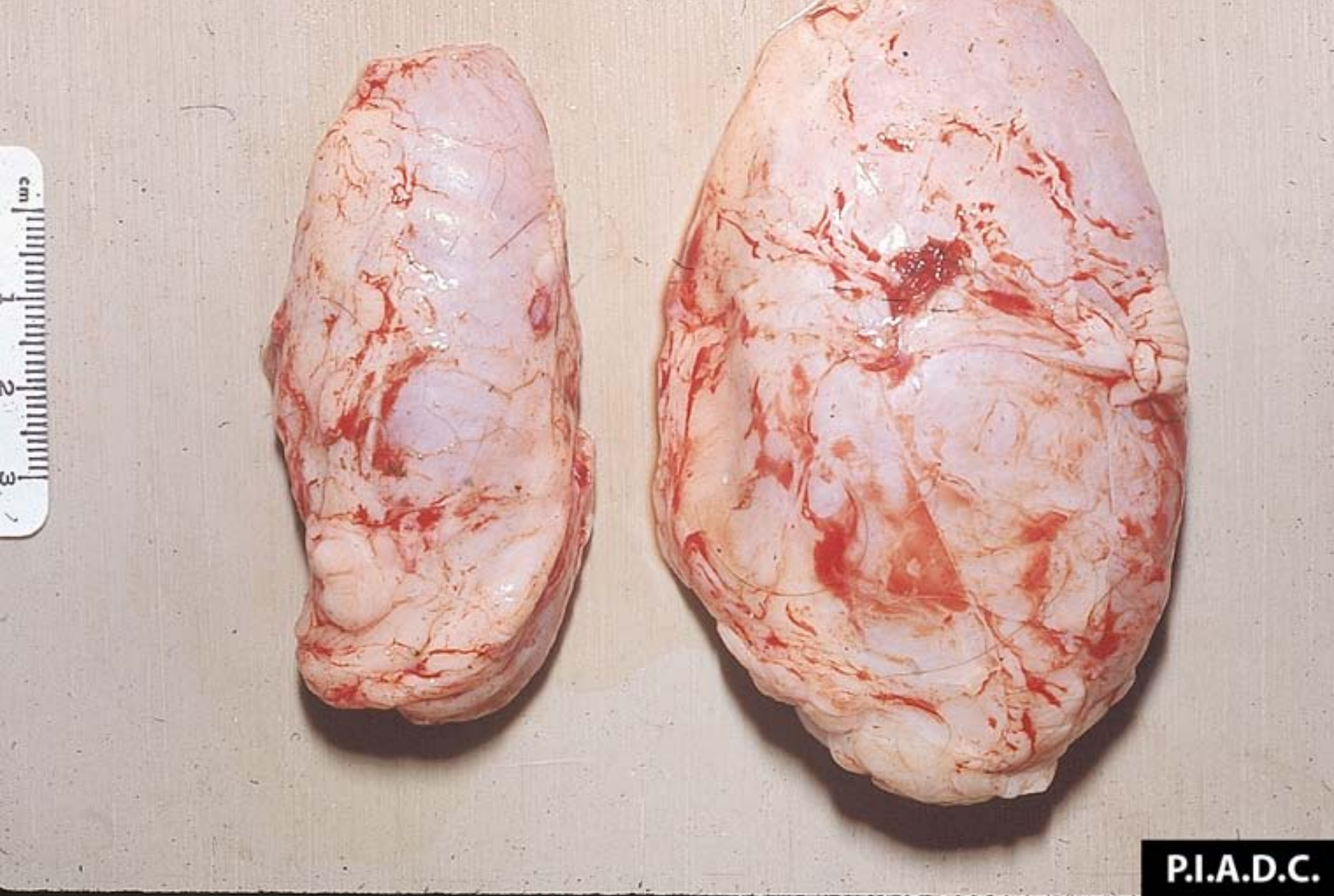




**P.I.A.D.C.**

**Bovine, muzzle. The muzzle is hyperemic, multifocally covered by adherent mucopurulent exudate, and contains many shallow erosions**





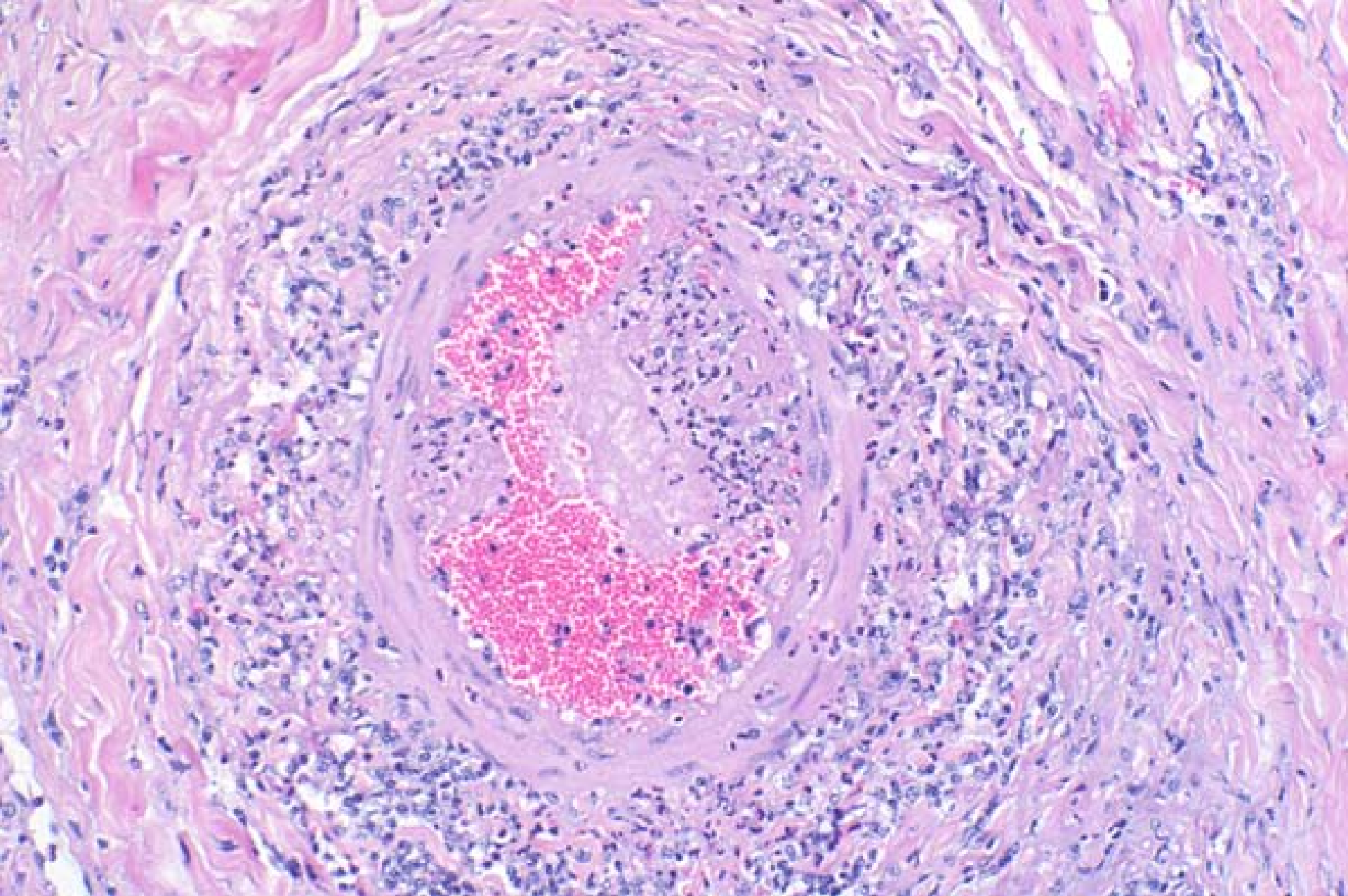
**Bovine, prescapular lymph nodes: Moderately (left) to markedly enlarged (right) due to MCF.**



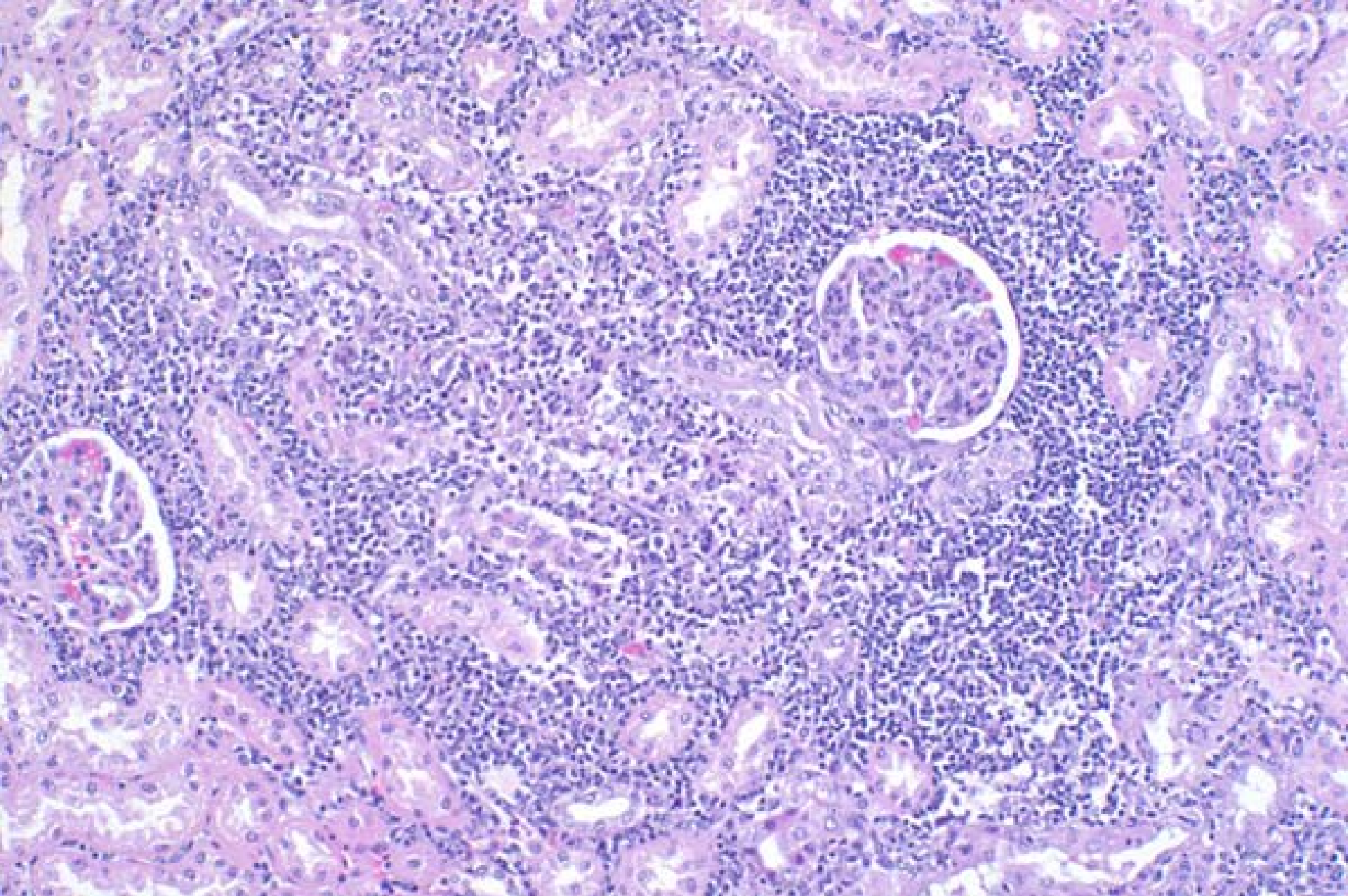


P.I.A.D.C.

**Bovine, prescapular lymph node. There are foci of hemorrhage (and necrosis) in the cortex, and the medulla is edematous.**



**Necrotizing vasculitis** : inflammatory infiltrate markedly expands and disrupts the tunica media and adventitia, admixed with cellular and karyorrhectic necrotic debris



**lymphocytic interstitial nephritis**