INFLAMMATION IN THE CENTRAL NERVOUS SYSTEM

Encephalitis= Inflammation of the brain

L*eukoencephalitis* / *Polioencephalitis*

Myelitis= Inflammation of the spinal cord

Encephalomyelitis = Inflammation of the brain and spinal cord

INFLAMMATION IN THE CENTRAL NERVOUS SYSTEM

Ependymitis = Inflammation of the ependyma

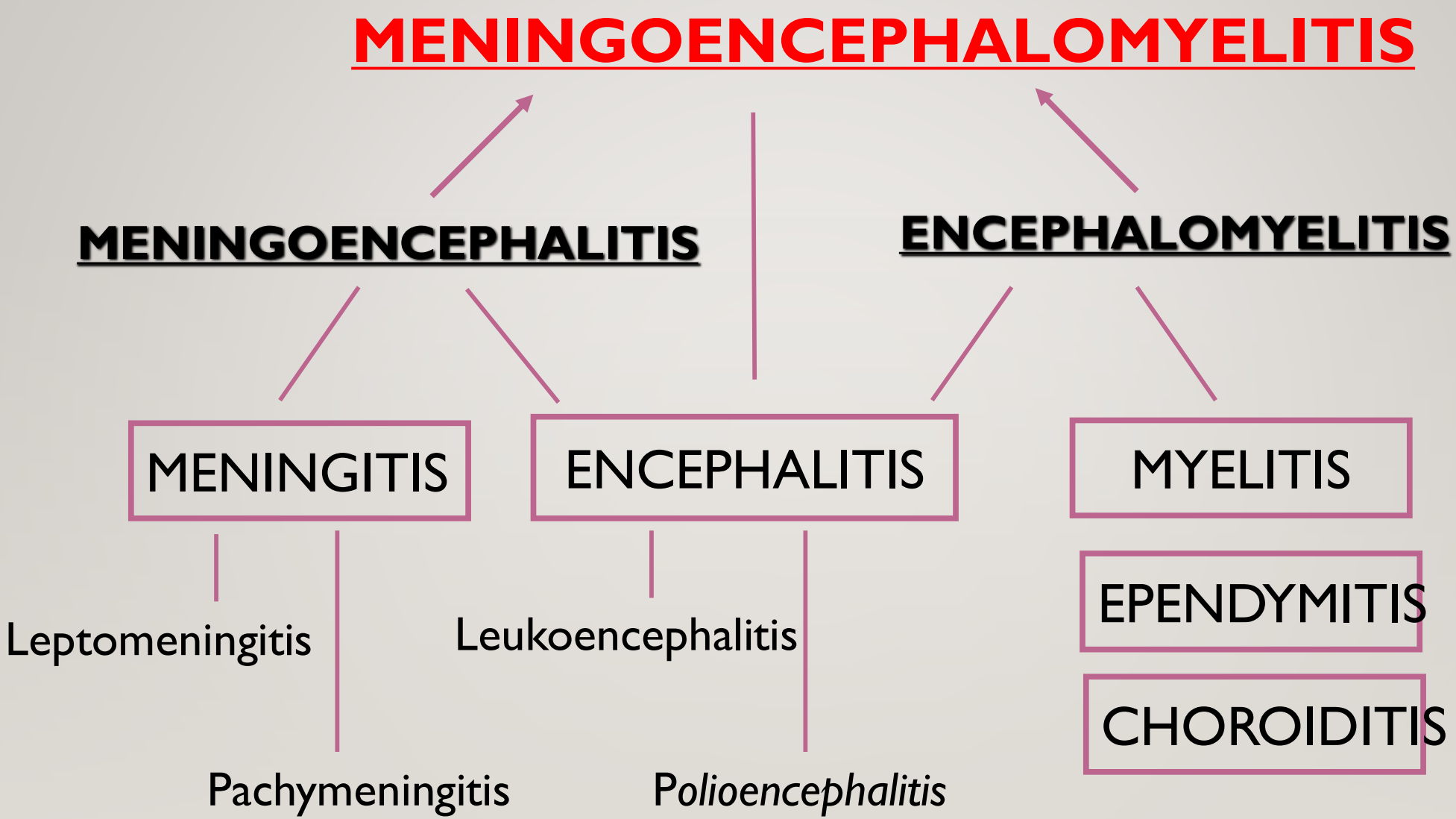
Choroiditis =Inflammation of the choroid plexus

Meningitis = Inflammation of the meninges

Leptomeningitis
when it involves the pia-arachnoid

Pachymeningitis
when it involves the dura mater

Gross image of suppurative meningiti


MENINGOENCEPHALOMYELITIS
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ENCEPHALITIS
MYELITIS
Leptomeningitis
Pachymeningitis
Leukoencephalitis
Polioencephalitis
EPENDYMITIS
CHOROIDITIS

Ensefalitis

Purulent ensefalitisler

Makroskobik bulgular

- İrinli eksudat birikimi

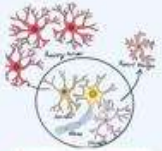
- Beyin ödemi: beyin dokusu normalden hacimlidir

- Apse oluşumu

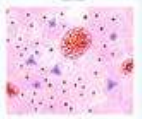
- Likuefaksiyon nekrozu: Nötrofil enzimleri nedeniyle

Mikroskobik bulgular

- Gliozis



- Damarlarda hiperemi



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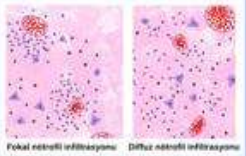
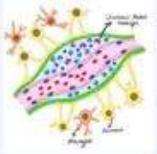


- Perivasküler hücre infiltrasyonu



- Vaskülitis ve Tromboz

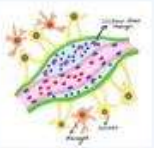
Nonpurulent ensefalitisler

Makroskobik bulgular

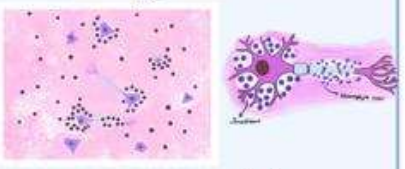
- Hiperemi
- Serebral ödem
- Hemoraji
- Malasi
- Meninkslerde opaklaşma

Mikroskobik bulgular

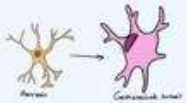
- Perivasküler mononüklear hücre infiltrasyonu



Gliosis:
- Fokal/Diffuz
- Nöron dejenerasyon ve nekrozu
- Nöronofajik nodül oluşumu, satellitosis



- Gemisitositik astrositler
(Distemper, astrositler hacimce artmış)



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- Demiyelinizasyon (Distemper, Lentivirus): oligodendrosit hasarı sonucu oluşur.

İnklüzyon cisimleri:
İntrasitoplazmik: Negri (kuduz)
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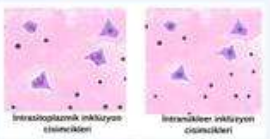

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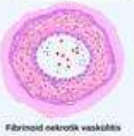
(Fibrinoid nekrotik vaskülitis-Koriza gangrenoza bovum, Domuz kolerası)



Sayın Doktora Öğrencisi Veteriner Hekim Asiye Kılıç tarafından resmedilmiştir.

Purulent ensefalitisler

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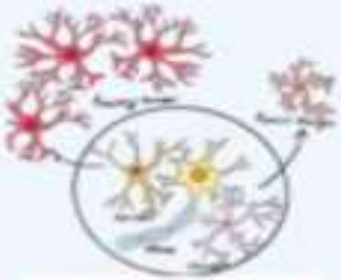

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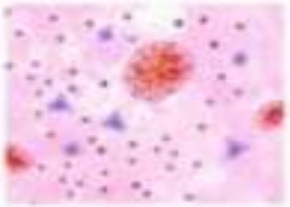

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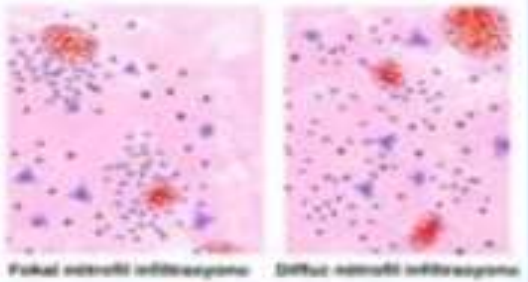

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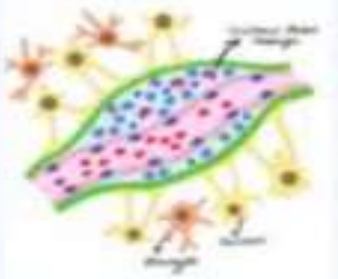

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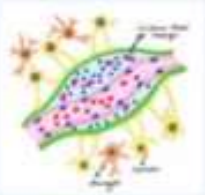

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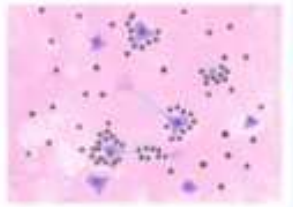

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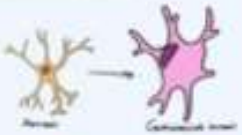

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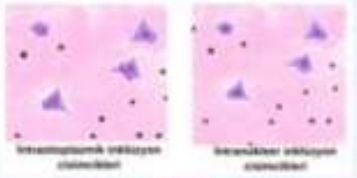

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Sayın Doktora Öğrencisi Veteriner Hekim Asiye Kılıç tarafından resmedilmiştir.

INFECTION ROUTE

Infectious agents can reach the central nervous system by,

- Peripheral nerves
- Direct implantation
- Invasion from an adjacent tissue
- Hematogenic route

BACTERIAL AND PYOGENIC INFECTIONS

- **Epidural/subdural abscess and empyema**
- **Leptomeningitis**
  - ✓ Purulent
  - ✓ Serocellular
  - ✓ Hemorrhagic
  - ✓ Fibrinous
  - ✓ Granulomatous
- **Septicemic lesions, septic embolism, and cerebral absces**

SEPTICEMIC LESIONS, SEPTIC EMBOLISM, AND CEREBRAL ABSCESS

- ✓ **Septic embolism**
- ✓ **Septic thromboemboli** and **bacterial emboli**
- ✓ **Cerebral abscesses**
- ✓ **Abscesses of hematogenous origin**
- ✓ **Abscesses arising by direct invasion**
- ✓ **Frontal abscesses**
- ✓ **Cerebellopontine abscesses**
- ✓ **Otic infections**

LISTERIOSIS

- Bacterial disease with particular affinity for the **CNS**
- Seen mainly in **domestic ruminants**
- ***L. monocytogenes*** ,

Facultative intracellular Gram-positive bacteria

- **Listeriosis;**

I. **Infection of the pregnant uterus with abortion**

II. **Septicemia with military visceral abscesses**

III. **Encephalitis.**

- Additional syndromes of clinical significance in ruminants include **conjunctivitis, endocarditis**, and **mastitis.**

I. Infection of the pregnant uterus with abortion

- ✓ Hematogenous uterine infection
- ✓ Tiny pinpoint yellow foci in the fetal liver

II. Septicemia with military visceral abscesses

- ✓ Occurs in neonates and young animals
- ✓ Characterized by multifocal multisystemic areas of coagulative necrosis or microabscess formation.
- ✓ Very numerous in the liver, but much less numerous in the heart and other viscera

III. **Encephalitis**

- ✓ Occurs in adult ruminants
- ✓ **Associated with heavy feeding of silage**
- ✓ After invading the oral mucosa, the bacteria invade the trigeminal nerves and infected centripetally via axons to the brain
- ✓ Most severe lesions **in the medulla oblangata and pons**

III. **Encephalitis**

- ✓ Clinical signs:

Neurologic signs ;

Mental confusion and depression;
head pressing, paralysis of one or more medullary centers.

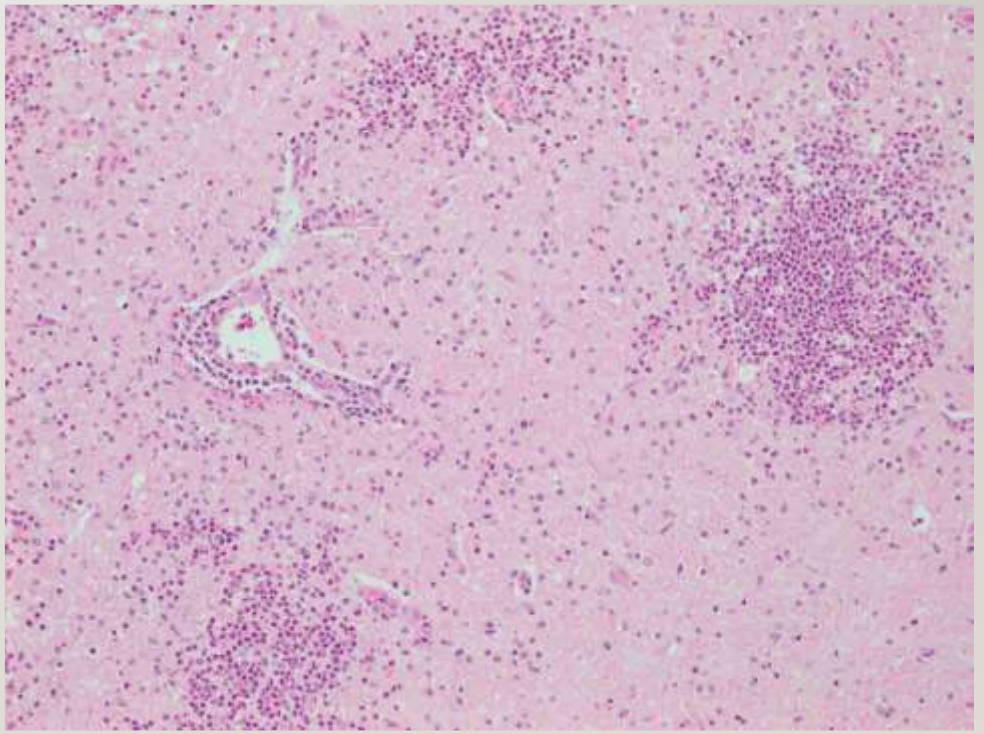
Deviation of the head to
one or other side without rotation of the head;

When such an animal moves, it does so in circles, hence the name *"**circling disease**"*

Gross lesions are usually absent, but

- ✓ leptomeningeal opacity,
- ✓ foci of yellow-brown discoloration,
- ✓ hemorrhage, necrosis in the terminal brainstem,
- ✓ and cloudy Cerebrospinal fluid can all be observed.

Microscopically,
The characteristic parenchymal lesion is foci of microabscesses formed by predominant neutrophilic accumulations admixed with microglial reaction



Listeriosis. Suppurative encephalitis with **microabscessation**.

HISTOPHILUS SOMNI INFECTIONS IN CATTLE

- H. somni, a small **Gram negative bacillus**, causes septicemia in cattle
- It is considered **normal flora** of the male and female bovine genital tract and bovine nasal cavity
- The CNS form of the disease has been termed

Thrombotic Meningoencephalitis

- The bacterium produces profound damage to **endothelial cells** then **thrombosis** occurs, and tissues undergo **infarction and necrosis**.