Preparation : AHMAD GOMAA

Colibacillosis

Colibacillosis

- Definition :

Infectious disease of man and animals.

- Cause :
- *E.coli.*

Colibacillosis

- Pathogenesis :

The organism produce the disease by 5 mechanisms :

Enterocyte-adherent Colibacillosis

Enterotoxic colibacillosis

Enterotoxaemic colibacillosis

Enteroinvasive colibacillosis

Septicemic colibacillosis

Colibacillosis

- Pathogenesis :
- *1-Enterocyte-adherent Colibacillosis*

E.coli colonizing the surface of enterocytes without producing toxins.

Colibacillosis

- Pathogenesis

- *2-Enterotoxic colibacillosis*

  E.coli colonizing the mucosa

  producing enterotoxines

  causing → diarrhea

Colibacillosis

- Pathogenesis

3-Enterotoxaemic colibacillosis

- E.coli colonizing small intestine Produce toxins has a pathogenic effect in ts. Increase permeability of blood vessels

  (edema disease of swine)

Colibacillosis

- Pathogenesis

- *4-Enteroinvasive colibacillosis*

E.coli invade intestinal epithelium

→ Acute exudative enteritis

→ Endotoxaemia.

Colibacillosis

- Pathogenesi

- *5-Septicemic colibacillosis*

E.coli produce bacteraemia, endotoxaemia and localization in different organs.

i.Enterotoxic colibacillosis

- Definition:
- The major cause of neonatal diarrhea in *calves , pigs and lambs*.

  Also cause diarrhea in man.

* It occurs in the 1st. 2-3 days of life as the older resist the adhesion of coli by antibodies in milk

i.Enterotoxic colibacillosis

i.Enterotoxic colibacillosis

- Pathogenesis :

- The organism adheres to the surface of enterocytes → enterotoxines

→ hyper secretion of sodium chloride and water from crypt Absorption by villi

→ Secretory diarrhea occurs.

i.Enterotoxic colibacillosis

- Macro: Non specific
- Microscopic appearance :

1) Degeneration of enterocytes in (jejunum & ileum) ⟶ villous atrophy (Enterocytes become cuboidal).
2) Fusion of intestinal villi.
3) Neutrophils in intestinal lumen.

i.Enterotoxic colibacillosis

- Diagnosis:
- Bacterial isolation for L.N & other organs.
- Presence of gm –ve bacilli in smear of ileal scraping.
- Electron microscopy.
- Flurescent Ab test for frozen tissue specimens.

ii.Enteroinvasive colibacillosis

- Pathogenesis :

- Affect Age < 2w
- E.coli invade the enterocytes of the lower small and large intestine producing acute exudative enteritis and endotoxemia.

ii.Enteroinvasive colibacillosis

- Post Mortem lesions :

1. Congestion of lower parts of S.I & caecum.
2. Mucosal erosions and ulcers.
3. Fluid content of intestine
   tinged with blood.

ii.Enteroinvasive colibacillosis

ii.Enteroinvasive colibacillosis

ii.Enteroinvasive colibacillosis

- Microscopic appearance :
- Enterocytes become cuboidal or flattened (villous atrophy).
- Congestion and edema of lamina propria with neutrophilic infiltration.
- Thrombosis of proprial capillaries and submucosal lymphatics.

iii.Septicemic colibacillosis

- Definition:
- Generalized Systemic infection with E.coli mainly occurs in calves either as peracute ,acute, or subacute.

- Route of infection :

(a) Navel in neonates

(b) Upper respiratory tract and nasopharynx.

iii.Septicemic colibacillosis

- P.M. lesions :

(i) Omphalitis.

(ii) Pneumonic lung.

(iii) Firm spleen.

iii.Septicemic colibacillosis

- Microscopic appearance

(i) *Per (more) acute cases.*

(ii) *Acute cases.*

(iii)*Subacute and chronic cases.*

iii.Septicemic colibacillosis

- Microscopic appearance :

- *Per(more) acute cases*
- due to endotoxemia——vascular permeability——hemorrhage & thrombosis
- P/M lesions:

  1- Picture of septicemia. 2- Abomasal ulcers.
- Micro:

  Edema, Congestion & Thrombosis in lung and other tissue

Microscopic appearance:

- *Acute cases*

1- Interstitial pneumonia with fibrinous exudate and Neutrophils in alveoli.

2- Neutrophils in the hepatic sinusoids and lungs.

3-Fibrinous thrombi in hepatic sinusoids, glomeruli and pulmonary capillaries.

4- Focal interstitial nephritis *(white spotted kidney).*

Microscopic appearance:

- *Subacute and chronic cases*

1- Fibrinous Pleuritis, Peritonitis, and Pericarditis.

2- Mucopurulent to hemorrhagic sinusitis in lambs.

3- Fibrinopurulent arthritis & meningitis.