Summary

The present study was carried out on 32 mature Mongrel dogs of both sexes, ages ranged from 1 to 2 years and weights from 14 to 40 k. g. (with an average of 30 k. g.).

I. Anatomical studies of the cecum were applied on 5 dogs and including the followings:

- Measurements of cecum length, diameter and thickness.
- Morphology which including; shape, location and attachment with the surrounding structures.
- Blood supply.
- Macroscopic appearances of cecal folds and lymphoglandular complexes openings.
- Contrast radiography of the cecum and related structures.
- Histological structure.

II. Typhlectomy: typhlectomy was performed on 27 dogs, the animals were divided into three groups according to the type of suture materials used for closure of the colonic stump;

- Group 1: colonic stump was closed by chromic catgut, 3/0.
- Group 2: colonic stump was closed by silk, 3/0.
- Group 3: colonic stump was closed by polyglactin acid 910 (vicryl), 3/0.

III. Post-mortem Examinations (P.M.): Animals of each group was euthanized at 7th, 14th and 21st post operatively days (3 dogs per point time) by intravenous injection of an overdose of thiopental sodium.

Studies on cecum with special reference to typhlectomy in dogs
5%. The examination included; gross examinations and histopathological examination.

A. **Gross examination including:**

1) *Examination of the site of the colonic wound closure at the serosal surface:*

   i. **Colonic wound adhesions.**

      a. Adhesions with omentum.

      b. Adhesions with other tissues.

   ii. **Wound dehiscence and leakage.**

   iii. **Presence of suture materials.**

2) *Examination of the site of the colonic wound closure at the mucosal surface:*

   1. **Ridge formation.**

      a. Height of the ridge formation and time of its disappearance.

      b. Length of the ridge formation.

   2. **Presence of suture materials.**

B. **Histopathological examinations including:**

   1. Examination of the wound healing
   2. Tissue reaction around the suture materials.

C. **Statistical analysis for the result.**

The result of the present study can be summarized in the following points:

Studies on cecum with special reference to typhlectomy in dogs
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I. Anatomical results:

a. The mean length of the cecum at its location was 63.18 mm and detached cecum was 76.46 mm.

b. The mean diameter of the cecum base, body and apex was 23.76 mm, 27.63 mm and 14.75 mm respectively.

c. The mean thickness of the cecum base, body and apex was 1.24 mm, 1.23 mm and 1.15 mm respectively.

d. The morphology of the cecum shape is s-shape, found as a diverticulum originated from the proximal portion of the ascending colon at 9.28 mm from ileocolic sphincter, located to the right of the median plane.

e. Blood supply of the cecum originates in a form of 20-25 cecal branches from the ileocecal artery which also gives 13-17 ileal branches to the ileum.

f. The Cecal folds were ranged from 22 to 33 folds with a mean 28 ± 4. The mean of the lymphoglandular complexes openings was 30.

g. Radiography revealed the shape of cecum as S-shape structure. Also the cecocolic orifice was detected as a constriction between the cecum and the colon.

h. Histology the cecal wall composed of four layers; mucosa, submucosa, muscularis and serosa; the mucosal fold of the cecum is lined by a single layer of tall columnar epithelial cells and mucous-secreting goblet cells. Sub mucosal layer consists of loose connective tissue infiltrated with blood vessels and lymphoid nodules, musculosa which composed of inner circular and outer
longitudinal layer. Serosal layer which composed of a thin layer of mesothelial cells and a subserosal connective tissue.

II. Typhlectomy:
All animals of all groups were survived after typhlectomy and showed normal viability at the second day with normal signs and good appetite until the end of the experiment

III. Post-mortem examination:
A. The Gross examination
   a. The post-mortem examination showed more adhesions with the omentum and other tissues at using chromic catgut followed by silk and ended by vicryl and statistical analysis supported the result.
   b. The presence of the 3 types of suture materials at the serosal surface while absence at the mucosal surface except silk suture materials.
   c. No significant difference between the heights of the ridge formation at the 3 types of suture materials but there was a significant difference in the mean length.

B. Histopathological examination:
Studies on cecum with special reference to typhlectomy in dogs

Summary

Vicryl induced a little tissue reaction, less necrosis of the wound edge and less destruction of muscular layer when compared with the chromic catgut or silk. The present study stated that the vicryl was the most convenient and superior suture material used for typhlectomy to suture colonic stump.