STUDY THE EFFECT OF OMENTUM PATCH IN PEPTIC ULCER HEALING IN DOGS

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ABSTRACT

Eighteen adult local dogs of both sexes were used, the dog divided in to three groups 1st, 2nd, and 3rd of six dogs each a peptic ulcer size 7×7 cm (49cm²) Were made after anesthetizing the dog with xylazin 15 mg/Kg.BW and ketamine 20 mg/Kg.BW. The dog kept on dorsal recompensy. 10 inch long incision was made from xyphoid to umbilicus, stomach were identified and brought up above the level of the incision. Four stay sutures one in every corner were fixed to identify the area of ulcer. incision were made on three side to make a flap mucosa ,sub mucosal layers were scratched out to make an ulcer pedicelflap of omentum was drown over the opened area ,and sutured to the edge of the stomach wound, the flap then return back and sutured with continual suture. Abdominal wall and skin closed as usual .the animal kept on normal saline and glucose for 2 days then switched, to simple diet and milk. Suture removed after 8-9days .dogs were reopened to take spa cement from ulcerated area and suture line to compare it with normal tissue of the stomach. The histopathological study shows new epithelial cell and recovery from ulcer reaching its complete recovery after 30 day comparing it with normal. The aim of this study is the peptic ulcer can be treated with omental plug as a flap and to study the role of omentum in peptic ulcer healing

KEYWORDS :- Ulcer, Dog, Stomach, Omentum

INTRODUCTION

The omentum is acknowledged to have diverse functions in the pathophysiology of intra-abdominal disease, it’s antigenic properties act as a natural defense mechanism in peritonitis and intra-abdominal sepsis with advancing technology, the omentum is revealing it's self as a new player in the field of molecular surgery with special reference to cancer obesity and tissue reconstruction, it has been identified as source of adult stem cells which may have future prospects in the field of tissue in surgery particularly in gastrointestinal. Omentum is used to safeguard colonic astomosis in the management of perforated duodenal and gastric ulcer[1].
With the development of abdominal surgery and from the experimental studies made on the momentum has established a more scientific comprehension of the functions and these peculiar membranes. The omentum tissue consists of loose irregularly arranged connective tissue, which contains a wide verity of cells. Preparation of the peptic ulcer is a potentially fatal surgical emergency that remains health burden worldwide [2].

More commonly ulcers may drug induced with combination, NSAID and glucocorticoid therapy and bacterial infection, F.B[3]. Surgical treatment for stomach ulcers is an alternative when the medicine treatment failed.

This study was conducted to evaluate big the peptic ulcer can be treated with great omentum flap, the ulcer area mucosal layer formation after covering it with omentum, compares the normal mucous membrane of stomach with that of newly formed and Being the omentum has a power of adhering and rinsing of damage tissue we tried to study such powers of the stomach ulcerated lesion in dogs.

**Materials and methods**

Eighteen adult dogs of both sexes were used in this study, in this study a Surgically induced peptic ulcer measuring 7×7cm (49cm²) and treated with plug of great omentum.

The dogs kept on fast for 24 hrs. prior to operation, normal saline infusion and systemic antibiotic animal were given a preoperative systemic antibiotic (pink stripe) at a dose rate (0.5-4ml/20kg)(pen. 200 000 IU, strep.200ml)with antihistamine (with dose rat 5mg) at 12hrs before the operation the dogs were divided in to three groups of six dogs each first group were re-opened after seven days post operatively, second group were re-opened after 12days, while the third one re opened after 30days post operatively. The normal tissue of stomach adjacent to the created ulcer consider as a control group, therefore spacment from all the groups were taken from the site of the created ulcer, suture line and normal tissue and kept in 10%formalin and sent for tissue cutting.

The site of operation were shaved cleaned and disinfected with providing (iodine 10%).then combination of xylazine (5mg /kg B.w) , and the ketamine (15mg /kg.B.W) where give to induce general anesthesia. The dog was kept on dorsal recompense covering the operation area with sterilized drapes. 10 cm long incision were made from xyphoidcaudally to the umbilicus. The stomach taken out of the abdominal cavity above the incision line and 4 stay suture were given just to hold the selected area for inducing peptic ulcer as in (Fig-1&2).
Fig. 1. Show four stay suture at the angles of proposed peptic ulcer.

An area of 49cm² (7×7 cm) were determine and an incision was made from 3 sides to make a flap from stomach wall as in .(Fig -3)

Fig. 2. Showing the length of created ulcer.

Fig. 3. Show open stomach showing the flap.

Fig. 4. Show mucous membrane of the stomach with the bled to make an ulcer.

The stomach flap scratched to remove mucosal, sub mucosal membrane in aim to making an ulcer.(Fig-4)

Then the flap of great omentum was drawn to cover the opened area of the stomach as shown in Fig (Fig.5 A &B).

Fig. 5. A-Show flap of omentum.

Fig. 5. B-Show flap of omentum
Then the flap were sutured with 3.0 Dixon suture to the edge of created opening in simple continuous method as in( Fig.6).

Fig. 6. Show the opening of the stomach covered with omentum flap
Fig.7 Show the stomach flap return back & sutured on the omentum flap

The flap then return back to cover the opening and suturing the each of stomach incision with double layers that is Cushing and schmedin.(Fig.7).

peritoneum and abdominal wall sutured with simple continuous using cut gat no 1 , skin closed with silk suture by simple interrupted.

post-operative care including a systematic antibiotic, normal saline and local dressing daily fore 7 day.

Milk and simple diet, started after day 7,suture remove after 8-9days post operatively.

The specimens were collected from the anastomotic site of the tendon and slightly above and lower to the site after a period of 30 and 60 days postoperatively for three groups were immediately fixed in 10% buffered formalin, routinely processed, sectioned and stained with Hematoxylin and Eosin (H&E) as well as Van gieson stain [4]. A professional pathologist +microscopically evaluated the vascularization, cellularity, collagen fibers alignment, inflammatory cells and granulation tissues.

Results & Discussion

After creating required size of peptic ulcer (same in all animals) the operated dogs return to normal diet, physical and physiological activities by seventh day of operation . the dogs in first group were opened on 7th day ,dogs in group two on 12 day, while the group third were re opened after 30 days post operatively .however from external appearance to the stomach of first group, second group and third high rate of success were noted and there were no leakages, no abscess, no ischemia- and no gross inflammation. This finding was
similar to the finding [5,6 &7]. When they said that all the animal survived the surgery shows no growth inflammation or ischemia, no abscess, no leakage or stricture formation. This finding support our result of complete healing and recovery particularly after finding the stamps off stay sutures. At every corner of the ulcer lesion. The ulcer lesion re opened and spacemen for histopath from ulcer site, shows depressed epithelial with eruption (Fig-8&9). The presence of epithelial cells eruption after 7 days. On ulcerated area and also presence of gastric mucosa and new epithelial growth covering damaged area on suture line of group 1 and 2(7 day, and group 2 after 12 day) (Fig-10&11).It also absorbed that by 30 days it has reach its normality as in (Fig-12&13) aascomparing that with normal tissue of control (Fig-14) denote to that the great Omentum flap dissolved to help the formation of epithelial growth of ulcer and suture line thus it help in healing process. That exactly what metopic and colleagues investigated the healing mechanism of perforated gastric ulcer in rat after plugging with great omentum reported that omental patch accelerated ulcer healing and inhibited ulcer recurrence to presence of growth factor. However slide no 16 shows normal mucosal epithelial with omental tissue in lumen a great with finding of [5], when he reported that great omentum was integrated in the vesicle wall and covered with normal mucosa.

Fig. 8. Shows the ulcerated area with depressed epithelial with eruption. (H &E.10x) damaged

Fig. 9. Show suture line after 7 day. Gastric mucosa note new epithelial growth covering area with depression (H&E .10x)
Fig. 10. Shows ulcer lesion after 12 days where the gastric mucosa depressed mucosa with new growth. (H &E.10x)

Fig. 11. Shows suture line after 12 days post operatively in which gastric mucosa epithelium with vaculation. (H &E.40x)

Fig. 12. Shows ulcer area after 30 days post operation in which gastric mucosa showing normal growth. (H &E.10x)

Fig. 13. Shows normal mucosal epithelium omental tissue in the lumen. (H &E.10x)

Fig. 14. Shows untreated gastric mucosa as control. (H &E.40x)
From the result our conclusion that the omental plug. Could repair peptic ulcer without complication and side effect. The stomach return to normal structure by 12 and 30th day, the dog appear histologically and physiologically normal.

The peptic ulcer treat with omentum patch repair is very benefit due high vascularization of omentum to increase healing of ulcer and discount in time of healing and rapidly recover with less sever complication that is agree with [6&7]. The scar tissue are minimal in size and resolve the aesthetic concerns, we belive that the omental patch closure with suturing and knotting is a highly reliable method, and very applicable with a wide techniques. The surgical closure is the useful approach with omental flap lead to decreased complications that is agree with [8,9,10 &11].

The operated dog should remain in door for longer period to which for any changes in behavior and activities. The advance of any operation to treated the peptic ulcer in some time needed the medical treatment of peptic ulcer have dramatically reduce number elective procedure performed for this disease [12,13 & 14].

Reference