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بعض الدراسات من الحوصلة المرارية بعد قطع العصب الحائر

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تم اجراء قطع كلي وجزئي للعصب الحائر لعدد ست عشر كلبا . فحصت هذه الحيوانات بالأشعة على فترات تصل الى ستة أشهر . واتضح من الدراسة أنه بعد القطع الكلي للعصب الحائر فان الحوصلة المرارية تمددت ولم تتأثر بالانقباض بعد وجبه دهنه . أما في الحالات التي تم فيها قطع العصب الحائر جزئيا فقد وجد أنها تقوم بوظيفتها بصورة طبيعیه .

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SOME STUDIES ON THE GALL BLADDER FOLLOWING VAGOTOMY (With 4 Figures)

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SUMMARY

Sixteen dogs were subjected to both trunkal and selective vagotomy. The animals were radiologically examined for a period of six months. The study revealed that following trunkal vagotomy, the gall bladder was dilated and contraction of it did not respond to the fatty meal. In the contrary, the gall bladder functioned normally following the selective procedure.

INTRODUCTION

Vagotomy is one of the main lines of surgical treatment for duodenal ulcer, and both hypermotility and hypersecretion of the stomach. On the contrary, vagotomy carries many side effects including biliary tract dysfunction (EL-GENDI, 1974). JOHNSON and BOYDEN (1952) reported that the gall bladder (G.B.) doubled its size within a year after vagotomy. COX and KERR (1957) noted that after vagotomy, contraction of the G.B. in response to a fatty meal is delayed and incomplete.

For vagotomy to achieve its purpose, it should be complete and should only affect the stomach secretory and motor motilities. Therefore, the aim of this study is to compare experimentally between trunkal and selective vagotomy in dogs. The comparison was depending on cholecystography before and after fatty meal for six months post-operatively.

MATERIAL and METHODS

The present study was carried out on 16 clinically healthy native breed dogs varying in weight from 7 - 19 Kg., and in age from 1 - 7 years. They were under clinical observation before and after operation. The animals were divided into two equal groups according to the method adopted for vagotomy. The first group were subjected to trunkal vagotomy, while for the second group, selective vagotomy was performed. All the animals were subjected to Heinecke-Mikuliez pyloroplasty to avoid gastric stasis which usually follow.

SURGICAL PROCEDURE:

The animals were anaesthetized with i.v. thiopental sodium (Nesdonal, Specia), ten minutes after i.m. tranquillization with Combelen (Bayer) in dose of 0.05 ml/kg. b.wt. Medial laparotomy incision was performed at the linea alba and extended for about 15 cm. along from the xyphoid cartilage. For trunkal vagotomy (WELCH, 1973) the cardia was exposed and the oesophagus

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is mobilized till the lower three inches were delivered into the abdomen. Mean-while, the vagus nerve palpated as taut, cordlike structure. There was usually only one trunk of each nerve at this level. The upper ends of the nerve were ligated with silk at as high a level as possible. A section of nerve about 4 cm. long including the entire distal nerve down to the point where the terminal branches disappear into the gastric wall, has been removed. The same procedure was then carried on on the opposite nerve.

Selective vagotomy was developed by GRIFFITH and HARKINS (1956). This was accomplished by cutting the anterior nerve just below the hepatic branch and the gastric branches of the posterior nerve as they approach the stomach, while the main trunk of the posterior nerve that goes to the celiac ganglia is left intact.

Thereafter, the drainage pyloroplasty was performed. A longitudinal incision about 2.5 inches long made through all the layers of the pyloro-duodenal segment. The wound was then closed transversely with interrupted silk sutures.

The animals were periodically examined with cholecystography with Biligraphin (Schering, Berlin). An i.v. dose of 0.4 ml/kg. b.wt. was usually injected. Radiographs of the cranial abdomen in the lateral position were produced at approximately 30 minutes and 60 minutes. A small fatty meal was fed and radiographs produced in 15 minutes.

RESULTS

All the animals of both groups has survived for at least six months after operation in good general condition.

Animals of the first group shows gas cramps, bloating and colic. Most of dogs also suffered of slight diarrhea. Cholecystography reveals enlargement in the size of the G.B. (Fig. 1). Contraction of G.B. in response to a fatty meal was delayed and incomplete (Fig. 2). In the second group where the dogs were subjected for total vagal denervation of the stomach, the G.B. was within the normal size (Fig. 3). The response of G.B. to fatty meal was within the average limits (Fig. 4).

DISCUSSION

Vagotomy is one of the main lines of surgical treatment for duodenal ulcers. The popularity of vagotomy was favoured due to many complications following gastric resections. But, now it has been released that vagotomy carries many side effects including biliary tract dysfunction. therefore, it is important to study the role of the vagus on the G.B.

The anterior hepatic branch of the left vagus supplies the G.B. and its stimulation contracts the organ.

The studies on animals subjected for trunkal vagotomy revealed a pronounced action on the G.B. The main symptoms is the G.B. atonia. Trunkal vagotomy necessarily includes denervation of the gastrointestinal tract and related organs from the cardia to the mid-colon giving rise to a number of syndromes as has been mentioned by EL-GENDI(1974). The author summarised the biliary tract syndroms in atonia, dilatation and stasis in the G.B. Common bile duct reflux, resulting in calculous, cholecystitis and steatorrhea.

In this respect, JOHNSON and BOYDEN (1952) reported that the G.B. doubled its size within a year after vagotomy. COX and KERR (1957) noted that after vagotomy, contraction of the G.B. delayed and incomplete following the fatty meal. In addition, REYNOLDS and

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LARGE (1961) believed that there was increased incidence of gall stones after vagotomy.

The need for the selective vagotomy sprung from two objectives: total vagal denervation of the stomach and at the same time, preservation of the hepatic and celiac branches of the vagi which supply abdominal viscera other than the stomach. EL-GENDI (1974) claimed that by gastric vagotomy the technique is more exact, then the liability to recurrent ulceration is less. The second advantage is by retainment of the nerve supply to the G.B. and the post-vagotomy complications are less.

Selective vagotomy was the operation of choice which it only affect the stomach secretory and motor motilities as well as it is the much more time-consuming procedure. Therefore, many surgeons go to prove that the results have improved by selective vagotomy (ORR and JOHNSON, 1949; FARRIS and SMITH, 1963 and DRAGSTEDT, 1963).

EL-GENDI (1974) believed that after vagotomy and different gastric operations, there is a reduction of bile flow and G.B. dilates, although the G.B. emptying is probably unaltered. In this respect, the author decided that selective vagotomy does not differ from trunkal vagotomy. Despite this theoretical views, the clinical evidence denies this association.

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Fig. (1): Appearance of G.B. following trunkal vagotomy.

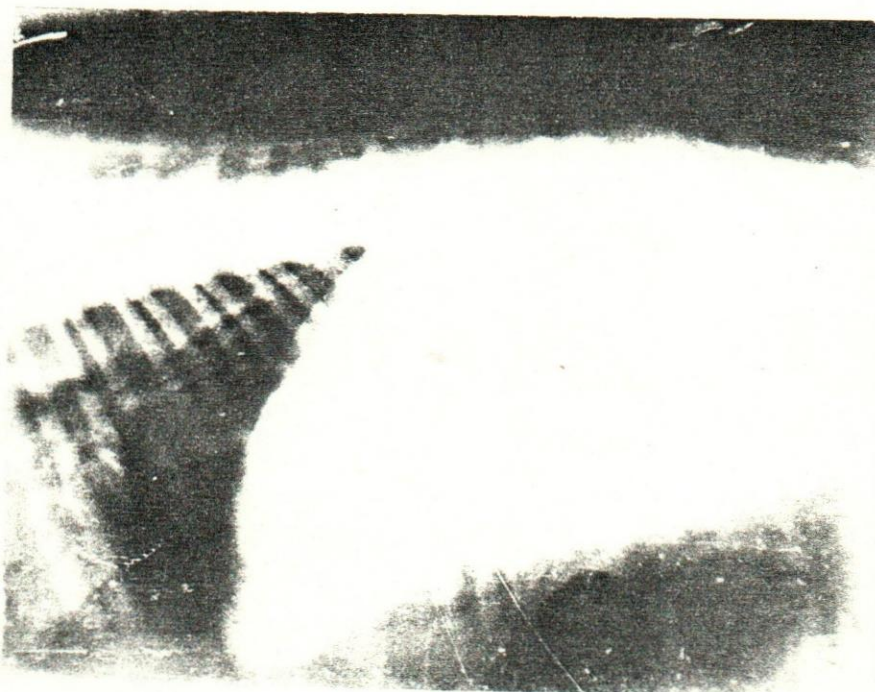


Fig. (2): G.B. following trunkal vagotomy 15 minutes after fatty meal.

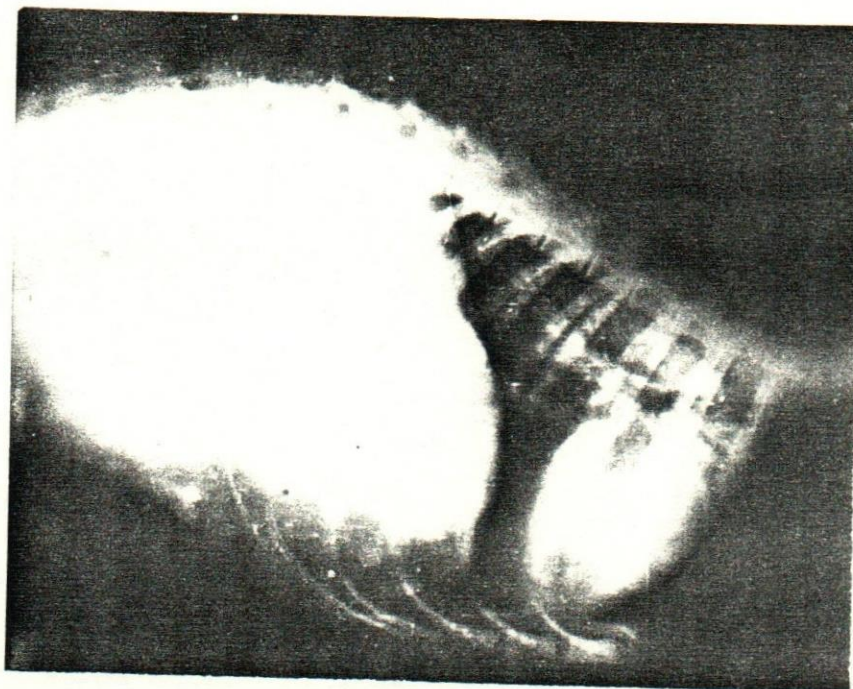


Fig. (3): Appearance of G.B. following selective vagotomy.

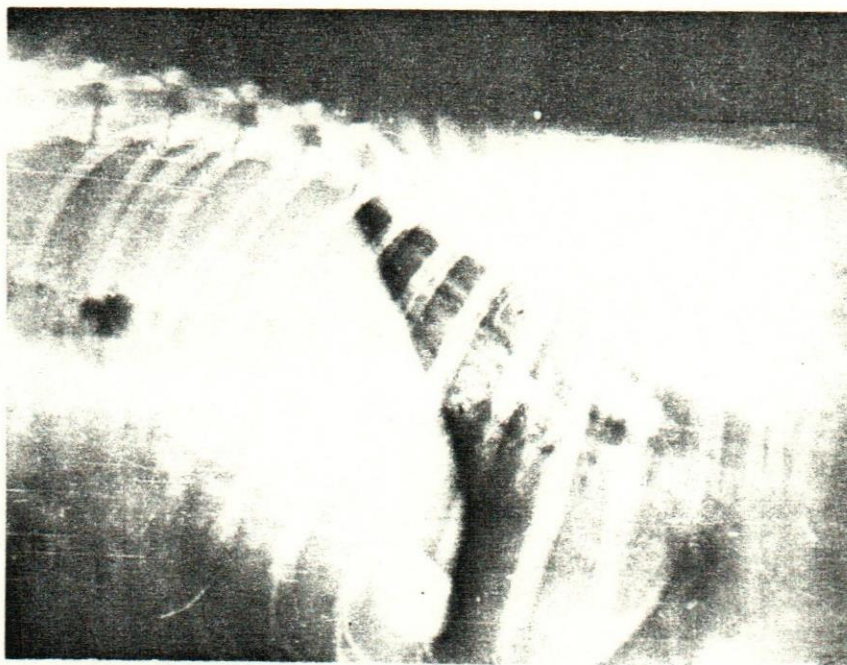


Fig. (4): G.B. following selective vagotomy 15 minutes after fatty meal.

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