CORRELATION BETWEEN CLINICAL PICTURE, OPERATIVE FINDINGS AND PATHOLOGICAL EXAMINATION IN CASES OF ACUTE APPENDICITIS

THESIS SUBMITTED FOR THE PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE MASTER DEGREE OF SURGERY

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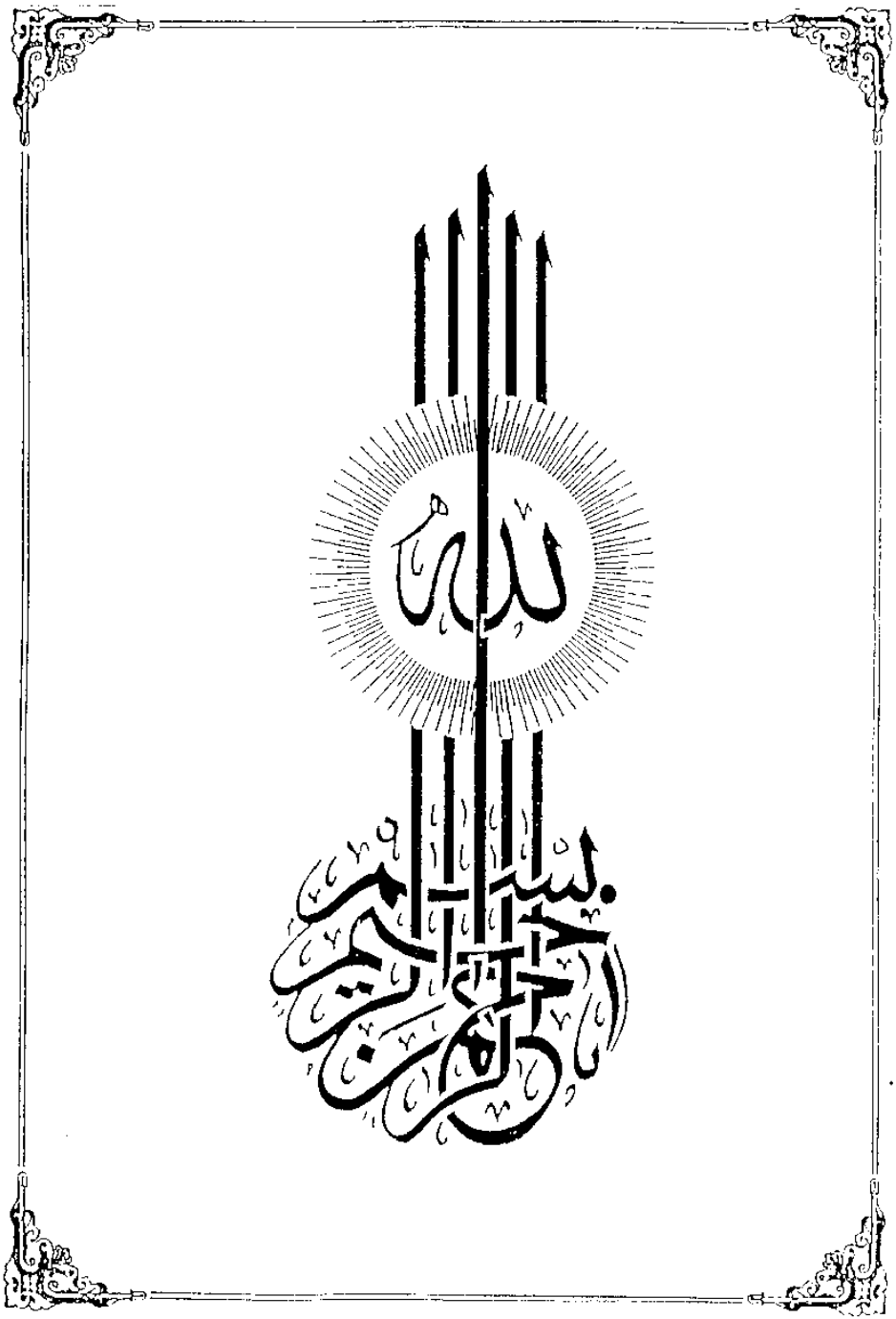
1985

ACKNOWLEDGEMENT

It is a great pleasure for me to take the opportunity to record my sincere thanks and deep gratitude to Proffessor Dr. Abdel Magid El Shenawy Professor of Surgery, Faculty of Medicine, Ain Shams University who gave me much of his golden time, his unlimited knowledge, and experience together with his continuous guidance, advice, encouragement and supervision throughout the preparation and fulfillment of this work. I am truely indebted to him.

A feeling of gratitude is expressed to Dr. Osama Hassan, Lecturer of Pathology, Military Medical Academy, who supervised this work to the very fine details with his very valuable advise.

Last, but not least, I wish to thank every one who contributed with help in this work.



CONTENTS

Part I

Part II

INTRODUCTION & AIM OF WORK

Acute appendicitis is the most common acute surgical condition of the abdomen. The disease occurs at all ages but is most frequent in the second and third decades of life.

In most cases it is easily diagnosed and its management in most cases is simple and done by an easy operation. But because the clinical presentation varies greatly and can resemble that of other lesions affecting organs other than the appendix, some cases of acute appendicitis are neglected so that complications may occur. On the other hand, a preoperative diagnosis of acute appendicitis is made and at operation another condition is found, so an unnecessary operation is done to the patient which would have been avoided by a proper and accurate preoperative clinical diagnosis.

The aim of this work is the evaluation of the problem of acute appendicitis. The clinical diagnosis of cases of acute appendicitis was compared by the results of operative findings together with the results of histopathological examination of the specimens removed during appendicectomy operation.

Historical Note

In 1759 Mestivier reported one of the first cases of acute appendicitis . This report is believed to be the first valid description of this disease, although Heister and Fernel might have been discussing appendicitis in their writings in 1581 and 1711 respectively . Also there are isolated reports of appendicectomy from 1736 onwards, when Anyand successfully removed , from a hernial sac , an appendix that had been perforated by a pin.

John Parkinson,in a case report published in 1812, is credited with the first description of a death from peritonitis following perforation of the appendix. Nearly "50" years earlier , de Lomotte described autopsy findings wherein he attributed death to intestinal obstruction secondary to recurring attacks of appendicitis in which its lumen was occluded by " cherry like " stones.

Melier,in 1827, pointed out that perforating appendicitiswas a frequent cause of peritonitis and death in the youngadult, but the value of his observations and those of others were to be opposed by the erroneous conclusions of the more influential Dupuytren

(1835) who attributed the disease process to the caecum rather than the appendix . Melier advised drainage of the appendix abscess and also the possibility of early removal of the acutely inflamed appendix .

Goldbeck wrote his thesis at Hidelberg, expressing and adopting the French view. In 1830, he coined the term" perityphlitis" attributing the disease to inflammation around the caecum (typholon) in spite of the fact that his reports contained also a recognized case of perforated appendicitis from foecal concretion and was associated with peritonitis.

Kromlein 1884, apparently first recognized a case of peritonitis as due to perforating appendicitis and performed the first planned appendicectomy for this disease but the patient died.

Hall, of New York , recorded in June of 1886 the first appendicectomy performed in the United states. His preoperative diagnosis was in error , that of strangulated hernia . Thomas G. Morton of Philadelphia, according to Kelly and Hurdon , appears to have performed

the first successful appendicectomy wherein the preoperative diagnosis was perforated appendicitis , the operation was performed for this disease and the patient recovered .

The recognitiion of appendicitis as a clinical and pathological entity for which the surgical therapy was essential to recovery , was largely the result of efforts of two men :

- Reginald Fitz, professor of Pathologic Anatomy at Harvard (1886) and

- Charles Mc Burney (1889) , a surgeon at St. Luke's Hospital in NewYourk city .

Fitz reported before the first meeting of the American Association of Physicians , held in Washington on Friday 18th , June 1886 , the general problem of perforated appendicitis and its sequelae , peritonitis and abscess formation . He gave a paper entitled " Perforating inflammation of the vermiform Appendix with special reference to its Early Diagnosis and treatment ".
He presented 257 cases of perforated appendicitis diagnosed anatomically and recognized that the treatment which could be expected to give good results was appendicectomy performed early in cases of the disease .

Mc Burney described the clinical findings of acute appendicitis especially the features of early stage, making possible the diagnosis prior to repture. The description included the point of maximal abdominal tenderness and an incision made in the abdominal wall in cases of appendicits. He contributed to the operative considerations of appendicectomy and insisted upon early appendicectomy.

By 1900, the mortality rate had fallen to 35% During the next 3 decades, it was further reduced to 5 % as a result of dissemination of knowledge to the public and the physicians concerning the symptoms and signs of acute appendicitis and the need for early surgical intervention. In the following 25 years, a combination of improved surgical technique, better pre-and post-operative care, advances in anaesthesiology and the development of effective antibacterial agents led to further decline in mortality to a fraction of 1%.

Embryology & Anatomy :

Caecum and vermiform appendix develop from the mid gut. Early in the sixth week of intrauterine life, a small diverticulum appears on the caudal limb of the midgut loop which is conical in shape. The basal part of the conical projection grows more rapidly than its apical portion and forms the caecum, while the apical portion becomes the vermiform appendix. There is , however, no sharp boundary line between the caecum and the appendix, so that the latter appears to be a conical projection from the former.

At birth, the caecum has a conical shape, a smooth external appearance and a well marked curve in its long axis with its concavity directed upward and inward. The vermiform appendix extends from its apex.

By the third year, longitudinal bands, or taeniae, with sacculi between them are developed. The sacculus between the anterior and lateral bands develops out of proportion to the others and causes the caecum to assume a globoid form. This large sacculus forms the most dependant part, or fundus, and the greater part of the anterior wall of the caecum. The appendix is attached, then, to the medial and posterior aspects of the caecal segment.

Variations :

Four types are recognised :

1- The normal type which is described above occurs in about 91 % of subjects.

2- A conical infantile form of the caecum occurs in 2% of subjects. In this form, the lower part of the caecum ceases to grow while its upper part increases during development resulting in a conical caecum.

3- A quadrate form occurs in about 3 % of subjects. It is formed as a result of the outgrowth of a saccule on each side of the anterior taenia, the appendix originates between the saccules.

4- In the fourth type, which occurs in about 4 % of subjects, the original apex of the caecum with the appendix lies near the ileo-caecal junction with the anterior taenia running medially to the same point.

Maldevelopment :

1- Duplication of the appendix :

Variations in size and position of the appendix are common, but duplication of the appendix is extremely rare. The incidence of true duplication of the appendix is 0.004 % according to Fallberecht and Hentschel (1969).

Gupta and Kark (1964) disclosed that their search in the literature revealed less than 50 cases. Picoli (1892), reported the first example of the appendix duplex in a female infant who had associated anomalies of duplication of the entire large bowel, two separate unicornuate uteri with two vaginae, ectopia vesicae and exomphalos. Tinchler (1968) recorded a unique case of triple appendix. This case was a male chinese child aged 12 months. His triple appendix was associated with other abnormalities: a complete ectopia vesica, double penis, complete failure of fusion of the symphysis pubis with marked outward rotation of each half of the pelvis .
A.K. Kanna (1983) stated that till now fewer than 100 cases have been reported.

Wallbridge (1963) classified duplication of the appendix as follows :

1- Type 'A': a single caecum and one appendix exhibiting various degrees of partial duplication.

2- Type 'B': a single caecum with two completely separated appendices. This group is further subdivided into two types :

   a) Type 'B_1': which is called "bird-like" type due to the resemblance of the normal arrangement in birds in which there are two appendices symmetrically placed on either side of the ileo-cacecal valve.

b) Type 'B_2' : which is called "taenia coli" type where one appendix arises from the caecum at the usual site and the other, which is usually rudimentary, arises from the caecum almost always along the lines of the taenia at a varying distance from the first.

3- Type 'C' : a double caecum each bearing an appendix. Many theories have attempted by many workers to explain the cause of double appendix :

a) Kelly and Hardon (1905) who described a second transient appendix appearing in 10 mm. embryos, persistance of which into maturity would be manifest as appendicular duplication.

b) Mitchell(1905) who postulated the occurrence of a double appendix as a phylogenetic reversion to paired caecal arrangement found in birds.

c) Jones (1912) behieved that the premammalian caecum was a paired structure which led to obliteration of one caecum in the greater specialization of mammals.

4- Goldschmidt (1930) stated that sometimes there is pseudoduplication which occurs because of the previous inflammation leading to autoamputation, and during

this process the tip of the appendix may get attached to a new location of the caecum .

2- Absence of the appendix:

Many experienced surgeons have never seen an example. Morgagni (1719) was the first to describe and instance of congenital absence of the human appendix. Only 3 cases of appendiceal agenesis have been recorded in the literature of the eighteenth century. The nineteenth century withnessed the addition of eleven instances of appendiceal agenesis to medical literature. The twentieth century has seen the remaining forty-six examples added to the literature. The last was described by Donald C-Collins (1951).

This case can be associated with a normal caecum or a caecal dysgenesis and other congenital anomalies. So a classification of all types of caecal and appendiceal agenesis anomalies was made by collins (1951).

1- Class I: faliure of development of caecal anlage (caecum and appendix are absent) 8 cases: 13 %.

2- Class II: partial development of caecal anlage (rudimentary caecum, no appendix) 3 cases 5 %.

3- Class III: full development of caecal anlage, no development of appendiceal anlage (normal caecum, no appendix) 47 cases 79 %.

4- Class IV: full development of caecal anlage, failure of the appendiceal anlage to become differentiated, its growth keeping up with that of adult caecal portion (greatly enlarged and deformed caccum distal to the ileo-caecal value, no appendix) 2 cases 3 %.

3- Malposition of the appendix :

Occasional examples of acute appendicitis have been described in which the appendix is subhepatic. These are associated with maldescent of the caecum and subsequent malfixation which leads to maldescent of the appendix.

Very rarely, the caccum and appendix are situated in left iliac fossa or in left hypochondrium in cases of situs inversus viscerum (a congenital abnormality where there is complete transposition of thoracic and abdominal viscera, occurs once in 35,000 individuals and is more common in males (Baily and Love 1977).

4- Heterotopias in the appendix :

Heterotopic epithelium is extremely rare in the appendix. There is only one report in which gastric and possible oesophageal tissue were present (Droga 1963).