EMERGENCY COLONIC SURGERY

ESSAY

SUBMITTED FOR PARTIAL FULFIMENT

Of

Master Degree in General Surgery

By

Dr. Khaled Abdel-Hamid Metwally

M.B., B.ch.

Supervisors

Prof.Dr. Alaa Aldin Abdalla

Associate Professor of general surgery
Faculty of Medicine, Ain Shams University

Dr. Khaled Zaky Mansour

Lecturer of general surgery
Faculty of Medicine-Ain Shams University

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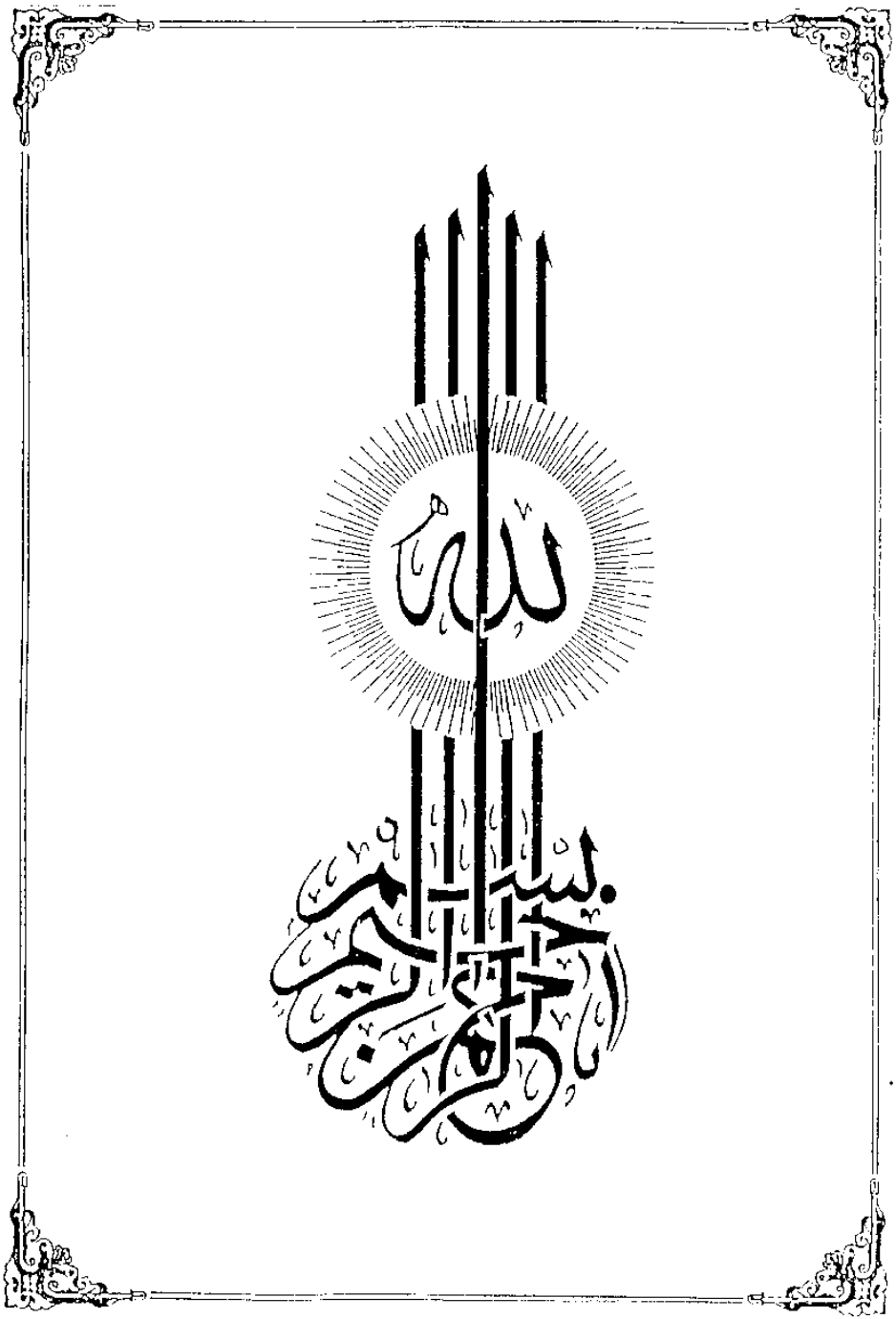

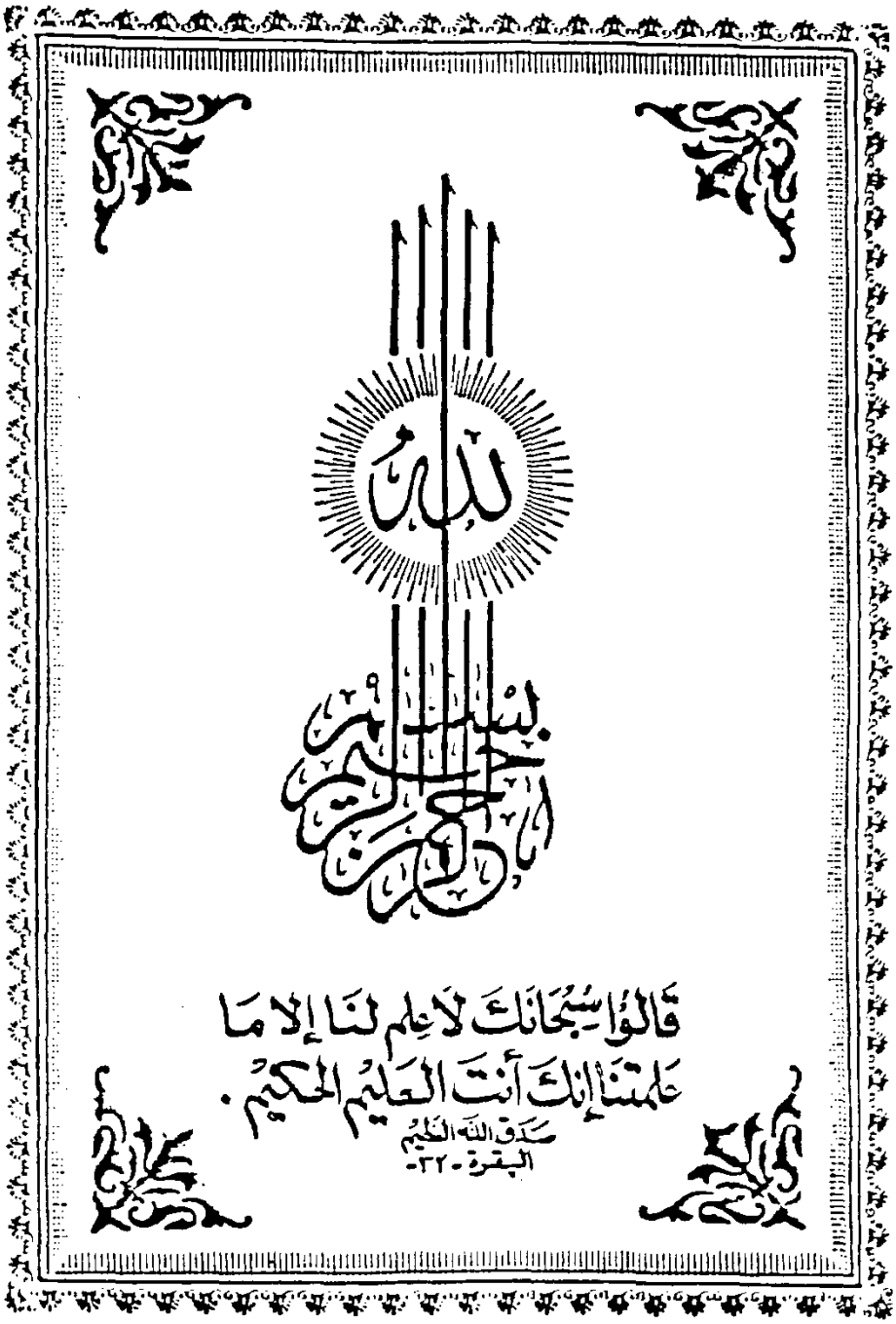

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A surgical emergency is an acute illness that traditionally has been treated by a surgeon. Emergency operation may or may not be a part of the initial or even definitive care of such an emergency, because the scope of surgery has progressed far beyond the operating room. Emergency surgery, therefore, encompasses a wide variety of conditions for which operative treatment may be unnecessary, although the possibility that operation may be needed as part of the definitive treatment requires early involvement by a surgeon in the decision and the plan of action for a successful end result.

Recent war time experience has pointed out the increased survival and lowered morbidity that are seen when prompt and vigorous resuscitation and treatment have been instituted for acute trauma. Improvement in the rapid transportation of acutely ill patients in civilian circumstances, as well as the increasing availability of well equiped emergency departments manned by full-time physicians should provide a similar decrease in civilian morbidity and mortality.

Emergency in colonic surgery includes perforation, obstruction, haemorrhage and trauma. These emergencies require well trained surgeons with many of recent investigations as ultrasonography, C.T. scan, angiography, radionuclides, and colonoscopy to face the problem and manage it properly *(Shaftan and Gardener, 1986)*.

The aim of this work is to discuss the different clinical pictures of these colonic emergencies and the different methods of management.

REVIEW OF LITERATURE

BLOOD SUPPLY OF THE COLON

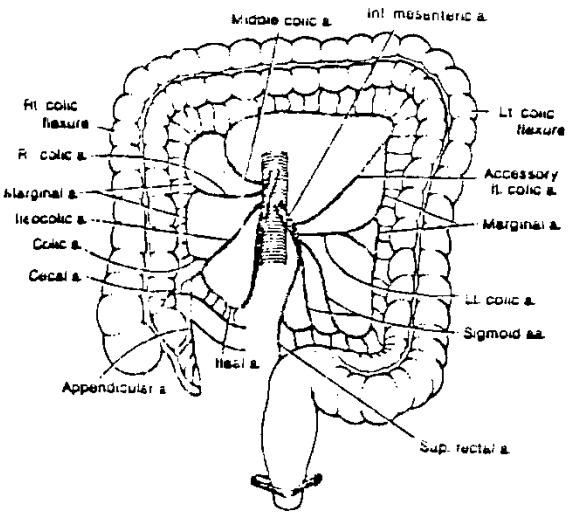
Arterial Blood Supply:

The arterial supply of the right colon that is , the caecum, asecnding colon, hepatic flexure and right third or half of the transverse colon - is derived from the superior mesenteric artery, through its ileocolic, right colic, and middle colic branches. The blood supply of the left colon is from the inferior mesenteric artery by means of its left colic and sigmoid branches *(Goligher, 1954)*.

As the main colic arteries proceed to the colon they bifurcate and the resulting branches of neighbouring vessels unite to form arcades 2 cm or so from the mesenteric border of the bowel. By means of these various arcades, some long, some short, a continuous chain of communicating vessels is formed, this is the marginal artery *(Goligher, 1954)*. The marginal artery is responsible for bringing the area of supply of the superior mesenteric artery into communication with that of the inferior mesenteric artery by connecting the descending branch of the middle colic with the ascending branch of the left colic by means of the long anastomosis of Riolan *(Goligher, 1954)* (Figure 1). From it the ultimate the

branches of supply to the colon, the vasa recti, are distributed. As the vasa recti reach the surface of the colon, they divide into short and long branches, the former serving the medial or mesenteric side of the colon and the latter serving the lateral and the antimesenteric side. The long branches send twigs into the epiploic appendages *(Skandalakis et al., 1983)*.

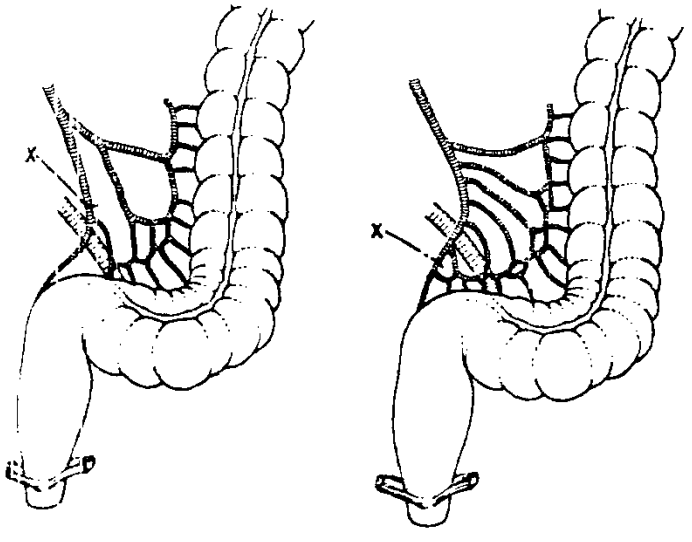
Figure 1: Anatomy of the marginal artery
(Skandalakis et al., 1983)



The Critical Point of Sudeck:

Sudeck in 1907 described a point on the superior rectal artery at which ligation of the artery would not devascularize a long rectosigmoid stump. This point is just above the origin of the last sigmoid artery. Its position varies with the number of such arteries. In about 50 percent of individuals the marginal artery continuous downward to join the superior rectal artery. Sudeck's point would be just proximal to that junction *(Skandalakis et al., 1983)* (Figure 2).

Figure 2 : Two patterns of the sigmoid arteries. The "critical point" of Sudeck is marked with an "X"
(Skandalakis et al., 1983)



The significance of Sudeck's point depends on the surgical procedure to be performed. In 1907, Sudeck was interested in perineal excision of the rectum. Ligation of the superior rectal artery was necessary for mobilization of the rectum. In some cases of left colectomy in which a long sigmoid stump is left, it may be difficult to bring the transverse colon down to the sigmoid stump because of its short transverse mesocolon. This problem could be solved by ligation of the superior rectal artery above Sudeck's point *(Skandalakis et al., 1983)*.

The concept of Sudeck's critical point fails to recognize two other sources of blood to the rectum and colon. One is the intramural network of arteries in the submucosal layer of the wall. The other form the middle and inferior rectal arteries, especially the latter *(Skandalakis et al., 1983)*. *Goligher in 1980* has stated that experience with sphincter-saving resection for carcinomas of the upper rectum and lower sigmoid shows that after division of the inferior mesenteric / superior haemorrhoidal trunks, the middle and inferior haemorrhoidal arteries capable of nourishing a distal rectal stump up to a point at least 8 to 10 cm above the peritoneal reflection.

According to ***Michles et al. (1963)***, other sources of collateral blood supply to the rectum and sigmoid might be:

1- Branches of the inferior vesical artery.

2- Arteries supplying the levator ani muscle.

3- Middle sacral artery.

4- Posterior retroperitoneal plexus uniting parietal and visceral circulation.

The critical point of Sudeck is no longer critical as was once thought. Its location is unimportant in present-day abdominal and abdominoperineal resection ***(Skandalakis et al., 1983)***.

The blood supply to the colon is adequate, but without much margin of safety. Anastomosis between the right colic and ileocolic arteries is absent in 5 percent of subjects ***(Steward and Rankin, 1983)*** said. At the splenic flexure, ***Griffith (1956)*** described a point of circulation weakness. ***Michels (1963)*** found good anastomosis of arteries in 32 percent, and no anastomosis in 7 percent of 200 subjects examined.

The Venous Drainage:

The veins of the colon, rectum and anal canal closely accompany the corresponding arteries. Those from the right

colon open into the superior mesenteric vein and eventually joins the splenic vein to form the portal vein behind the neck of pancreas. From the left colon, the veins drain into the inferior mesenteric vein which lies to the left of the inferior mesenteric artery and continues upward for 5-8 cm above the origin of the latter to end by joining the splenic vein *(Goligher, 1980)*.