NEONATAL PERITONITIS

ESSAY

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Master Degree of General Surgery

By

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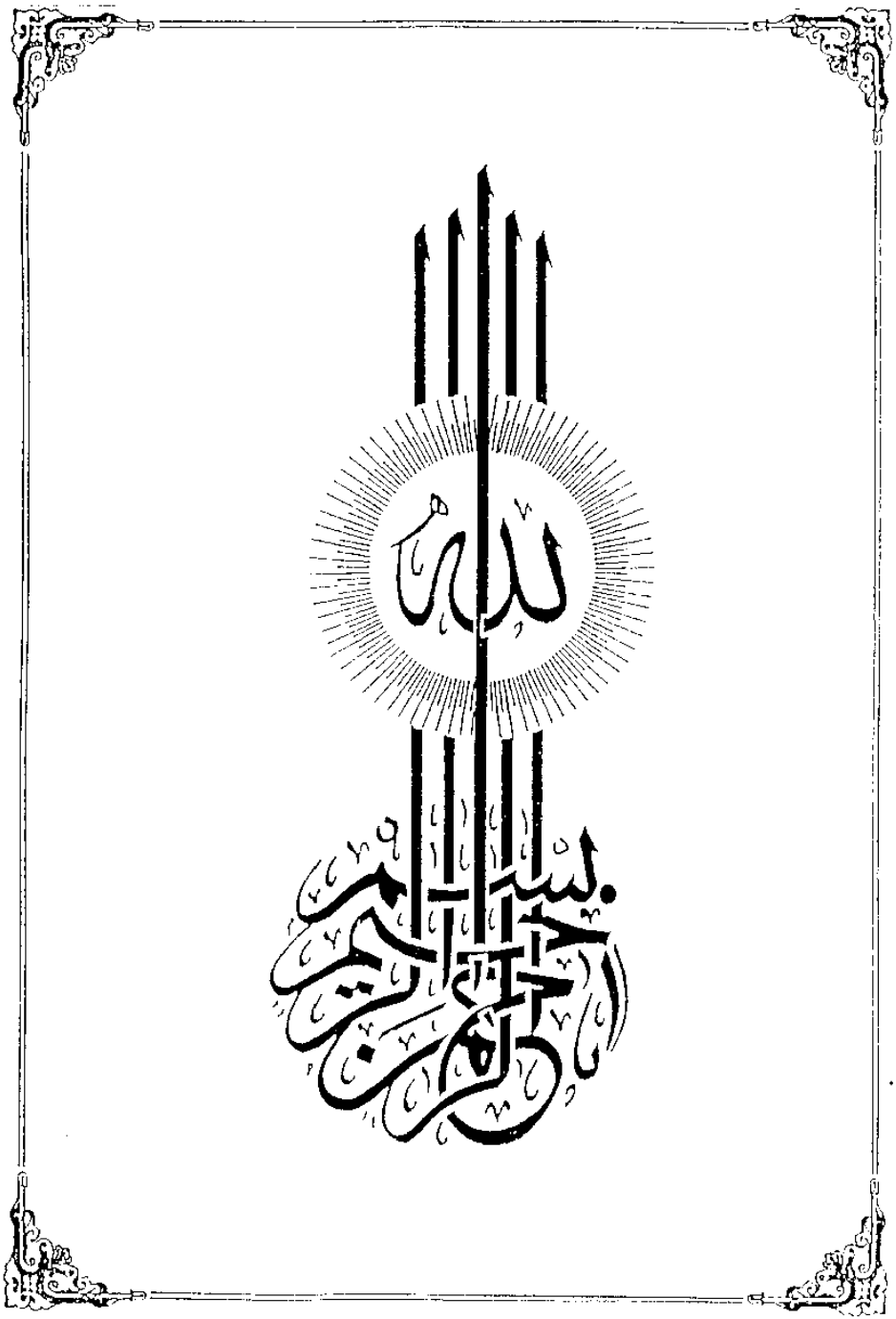

A C K N O W L E D G M E N T

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C O N T E N T S

INTRODUCTION

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Neonatal peritonitis is a serious condition since it threatens the life of neonates particularly in the early hours or first days of life.

The clinical diagnosis of peritonitis in infancy is considerably more difficult to make than in older children (Raffensperger, 1980).

It can be represent either while the foetus is still in utero or soon after birth.

Two main categories of peritonitis are encountered in the neonatal period: chemical (meconium) and bacterial peritonitis (Avery, 1984).

The first accurate description of meconium peritonitis was probably that given by Morgagni in (1761). The condition was universally fatal until 1943 , when Agartz, et al. reported the first surviving case(Lister and Rickham, 1978).

Meconium peritonitis can be converted to a bacterial one within 24 hour of birth, If contamination of meconium occur (Avery, 1984).

Bacterial peritonitis in the newborn secondary to perforation of gastro-intestinal tract was first described by Siebold in (1825). Peritonitis appears to have been a common cause of neonatal death during the last century (Lister and Rickham, 1978).

Nowadays due to ultrasonography and effective new members of Antibiotics make the conditions easier in diagnosis and safer in treatment;

An efficient pediatrician can discover the case early and send it to the pediatric surgeon who can deals with the condition efficiently after good assessment.

A E T I O L O G Y

AETIOLOGY OF NEONATAL PERITONITIS.

Neonatal peritonitis includes a broad range of conditions of varying aetiology. An inclusive classification is therefore offered (Bell, 1985).

Rickham in (1955) had suggests a classification of neonatal peritonitis and it is somewhat modified:-

I- Meconium Peritonitis:

Group I (With Intestinal Obstruction):

1) In the lumen of the gut (Meconium ileus).

2) In the wall of the gut (Hirschsprung's disease).

3) Outside the gut (volvulus, hernia , band ...etc.).

Group II (Without Intestinal Obstruction):

1) Defect in muscularis.

2) Vascular accident.

II-Bacterial Peritonitis:

1) Perforation of a hollow viscus.

2) Acute appendicitis.

3) Gangrenous bowel.

4) Trauma.

5) Septicemia.

6) Transmural infection from gastroenteritis(toxic enterocolitis).

III-Bile Peritonitis

I- Meconium Peritonitis:

* Definition:

Meconium peritonitis is a sterile, chemical and foreign body reaction resulting from leakage of bowel content into the peritoneal cavity during late intra-uterine or early neonatal period (within 24 hour after birth) (Avery, 1984).

* Incidence:

The incidence of meconium peritonitis is one in 1500-2000 livebirths . It may be inferred that most cases are not diagnosed before birth (Lawrence and Chrispin, 1984).

* Patho-physiology:

Meconium formation begins about the third month of gestation. Meconium composed of swallowed amniotic fluid containing water, desquamated squamous cells of the skin surface, bile salts, bile pigments, pancreatic and intestinal enzymatic secretions, mucus, cholesterol, uric acid, inorganic salts which are present are particularly irritating and can give rise to an intense chemical peritonitis with fat necrosis upon exposure to peritoneal cavity (a process not unlike acute pancreatitis) (Forouhar, 1982).

Santulli in (1980) stated that the chemical studies of the meconium reveal the presence of abnormal protein. This material is precipitated on the addition of 10 per cent trichloro acetic acid to an aqueous extract of the meconium.

Meconium reaches the ileocaecal junction during the fourth month and reaches the rectum at the fifth

month of gestation (Lister and Rickham, 1978).

The extrusion of meconium into the peritoneal cavity, However, requires peristalsis which does not start until after the fifth month (Forouhar, 1982). But the peritonitis may occur as early as the fourth month of intra-uterine life, at which time meconium reaches the ileo-caecal area (Santulli, 1980).

* Aetiology:

Group I (With Intestinal Obstruction):

1) Meconium ileus.

2) Hirschsprung's disease .

1- Meconium Ileus

* History:

Meconium ileus was first described by Landsteiner in (1905). Rickham in (1965) described some cases of meconium ileus in absence of cystic fibrosis, although Olsen in (1982) stated that early reports described

meconium ileus was always associated with cystic fibrosis. The term cystic fibrosis was suggested after the association of pancreatic insufficiency and chronic pulmonary disease was observed in (1936). The disease complex has been recognized as a distinct entity since 1938. The widespread defect in mucus secretion throughout the body has led to the term mucoviscidosis.

* Definition:

Meconium ileus is an intraluminal obstruction seen during the newborn period that is caused by inspissated meconium blocking the intestine. The term is usually applied to infants with cystic fibrosis . In rare instances, the same morphologic feature of obstruction may be seen in patients without cystic fibrosis. Sometimes there was stenosis of pancreatic ducts (Santulli, 1980).

* Incidence:

Meconium ileus is a relatively frequent cause

of intestinal obstruction among the white population rarely in Negroes and is virtually absent in Mongolians (Donnison et al., 1966).

The disease is inherited as an autosomal recessive trait, occurring in one of four pregnancies in affected families. The heterozygote incidence is approximately one in twenty five, and it represents the most common potentially lethal genetic disease in the Caucasian race (Santulli, 1980).

Meconium ileus has also been reported in infants who had normal sweat electrolytes and who demonstrated no subsequent signs of cystic fibrosis.

* Patho-physiology and Pathogenesis:

Usually from 50 to 250 gram of meconium are passed during the first 24 hour of life. Abnormally thick, viscid, inspissated meconium is packed in the distal