HISTO-PATHOLOGICAL EXAMINATION OF PLACENTA, CORD AND MEMBRANES IN CASES OF STILL BIRTHS

A THESIS submitted by

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M.B., B. ch - M.S.

In Partial Fulfillment of the M.D. Degree

(Obstetrics and Gynaecology)

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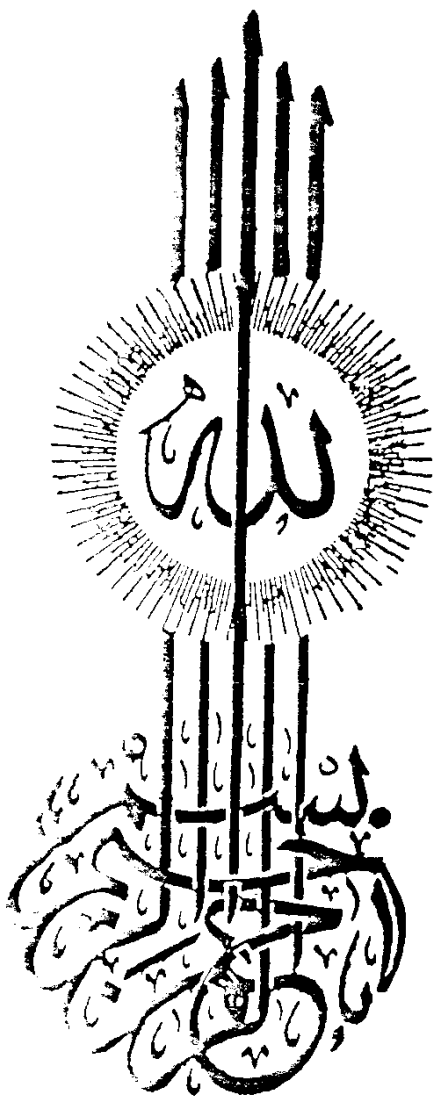

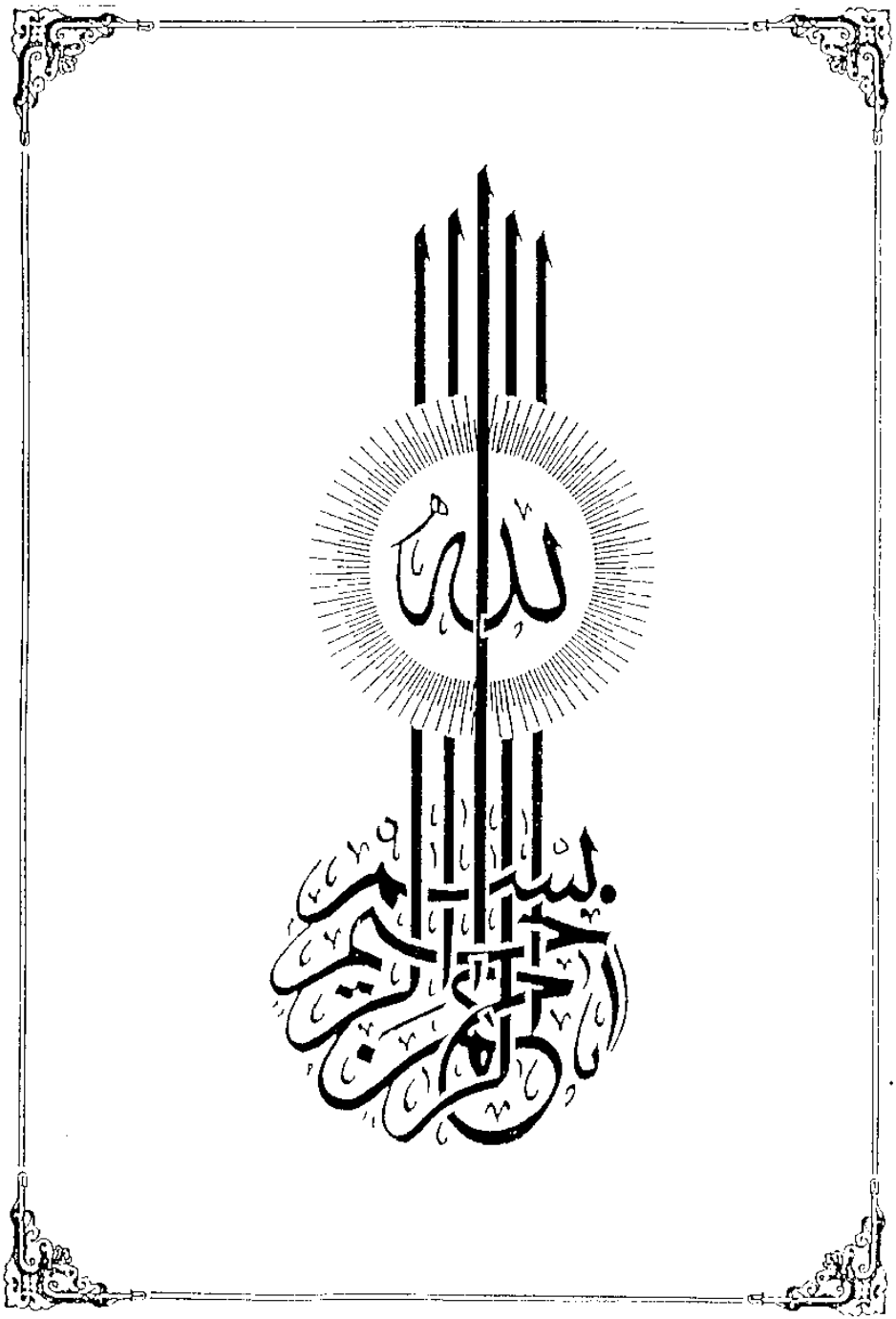

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INTRODUCTION

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A still birth remains an alarming event for both the parents -to be- and the physician.

Fetal death indicates the death of a fetus prior to birth (still birth). Most jurisdictions require the pregnancy to have completed 20 weeks duration and the fetus to have attained a certain length or weight (25 cm crown heel, 500 gram). Pauerstien (1987).

According to Rayburn et al. (1985), routine histological examination of the placenta after a recent fetal death provided helpful information in counselling the parents and in planning any future childbearing.

Examination of the placenta is usually considered to be an integral component of an autopsy of a still born infant. It would, however, be over-optimistic to expect such an examination to yield a causal factor for fetal death in any thing more than a very small minority of cases depending upon lesions inspection e.g. massive infarction, very extensive retro-placental haematoma or huge haemangioma. Fox (1978) stated that one could justifiably hope, however, that histologic examination of the villous parenchyma would be of some value in elucidating the cause of fetal death either by providing evidence of placental ischemia, in the the form of cytotrophoblastic hyperplasia and trophoblastic basement

membrane thickening or changes indicative of an inadequacy of trophoblastic function e.g. delay in villous maturation or deficiency of vasculo-syncytial membranes.

AIM OF THE WORK

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The aim of work in this study is histopathological examination of placenta, cord and fetal membranes in order to find out the answer for patients' question about the cause, the possibility of recurrence of this bad event and if it is preventable or not.

According to Tricomi and Khol (1957), a fetal death was classified as preventable if one or more of the following were present.

1. The mother had had inadequate prenatal care.
2. There had been error in the medical judgement.
3. There had been an error in the medical technique.
4. Any combination of the above.

This work aims also to get more benefit by studying histological examination of the umbilical cord and fetal membranes. Umbilical cord abnormalities may be a causal factor in cases of intrauterine fetal death e.g a single umbilical artery or umbilical artery thrombosis. Histological examination of the fetal membranes may also reveal other unidentified factors such as evidence of inflammation.

REVIEW OF LITERATURE

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Decidua

Implantation, and subsequent development of the human placenta depend on certain changes in the endometrium and formation of the decidua. In the human being, complete conversion of the endometrium or decidua does not occur until several days after nidation. The change first appearing locally around the blood vessels, and later spreading throughout the uterus. During the development of the decidual reaction, the endometrial stromal cells enlarge to form polygonal or rounded decidual cells, the nuclei become round and vesicular, while the cytoplasm becomes clear, slightly basophilic and surrounded by a translucent membrane. The decidua directly beneath the site of implantation form the deciuda basalis. Surrounding the ovum and separating it from the rest of the uterine cavity in the early months of gestation is the decidua capsularis which forms as a result of deep implantation of the human ovum (Hertig, 1941). The remainder of the pregnant uterus is lined by decidua parietales. Since the ovum does not occupy the entire uterine cavity in the early months of pregnancy, there is a space between the capsular and the parietal portion of the decidua. By the fourth month the growing ovum fills the uterine cavity, the decidua capsularis and the

parietales then fuse obliterating the endometrial cavity (Hertig, 1941).

Each of the decidua parietalis and the decidua basalis is composed of three layers namely, a surface layer or zona compacta, middle portion or zona spongiosa with glands and numerous small blood vessels and a zona basalis. The compacta and spongiosa together form the zona functionalis. The basal zona remains after parturition and except at the placental site, gives rise to new endometrium. As pregnancy advances, the epithelium of the decidua parietalis changes from cylinderical to cuboidal or flattened, at times even resembling endothelium. After the fourth month, the decidua parietalis gradually thins from its maximal height of one cm in the first trimester to 1-2 mm by term. In the early months of pregnancy, ducts of the endometrial glands are found in the zona compacta, but they disappear towards term. The spongy layer consists of larger distended glands, which are often hyperplastic and separated by minimal stroma. The glands contribute to nurishment of the ovum during its histotrophic phase of development, before the develpment of a placental circulation (Gruenwald, 1975).

The decidua basalis enters into formation of the placenta itself. If differs from the rest of the decidua in two respects, first, the spongy zone consists mainly of arteries and widely dilated veins, by term, glands have