PAINLESS LABOUR

ESSAY

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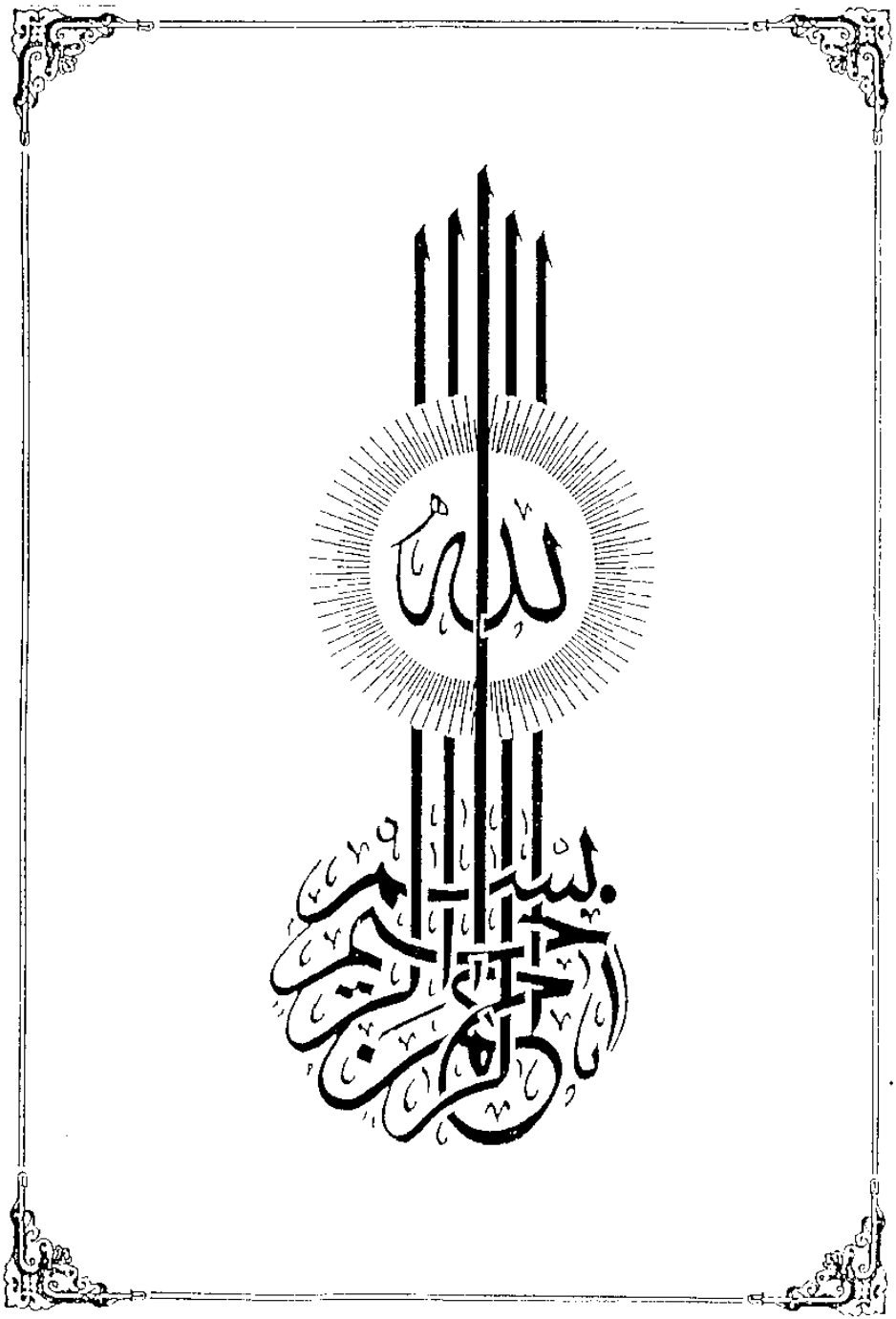

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INTRODUCTION

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Pain relief in labour has now become accepted as the right of all mothers. Anaesthetists, especially, have become interested in the provision of improved analgesia (Davies, I98I).

Thirty years ago, the anaesthetist attended the obstetric department for emergency anaesthetics only.

Things are very different today. In many centers, a regular obstetric pain relief service has been established, and the anaesthetic department may be responsible for pain relief for over 70% of cases in addition to emergencies.

The role of anaesthetist in obstetrics is now increasing and must be carefully assessed, organised and accepted with responsibility. The anaesthetic department should ideally aim to support their obstetric colleagues by providing a complete pain relief service for women in labour; it is often to the anaesthetist that the mother turns for solace and reassurance as well as for pain relief.

Careful organisation and planning are required to provide adequate trained anaesthetist for this large commitment which will undoubtedly continue to grow. Public opinion rightly considers midwifery to be an area where no maternal mortality or morbidity can be allowed, and very high standards and well trained staff are therefore required (Loder, I982).

It must always be kept in mind, that millions of women have delivered children without pain relief. While it is certainly desirable that the mother be comfortable and happy, it may not be always appropriate to administer anaesthetics if the foetus must pay the price. Certainly, no anaesthesia is preferable to improperly administered anaesthesia (DeVore, I983).

Some 15 to 20 years ago, paediatricians decided to be responsible for resuscitation of the baby, if required. Pain relief methods are not without complications, and that may involve the newborn, anaesthetist should be at responsibility with paediatrician especially cases in need of intubation and

ventilation, the pivot around which the safety of the life or the future cerebral status of the baby may depend (Loder, I982).

Obstetric and anaesthetic departments should meet frequently to establish policies for analgesia. As no one method of providing pain relief is universally applicable to the needs of all women in labour, all methods must be studied and used effectively when they are indicated.

An obstetric anaesthetic outpatient clinic provides an opportunity for the anaesthetists to get to know and reassure the expectant mother, and to discuss the methods of pain relief that are available. An assessment can also be made of the patient's temperament and her suitability for local analgesics or other methods of pain relief can be considered. She can also be physically examined and her status as a general anaesthetic subject determined in case obstetrical surgery is required (Loder, I982).

The ideal procedure of pain relief in obstetrics should:

- Produce effective analgesia without loss of

consciousness and good co-operation from the mother.

- Not depress the respiration of the foetus.
- Not depress the uterus; causing prolonged labour.
- Be non toxic.
- Be safe for mother and child.

No agent or technique at present in use, fulfils all these conditions. Safe and pain-free childbirth is a dream of the future rather than a reality today. However, analgesia by drugs is not necessary in every case of labour, and sympathetic explanation, proper preparation and training for childbirth may be all that is required (Atkinson et al., I977).

The subject of pain relief during labour is fully discussed in many textbooks, reviews and references; in this essay, we are going to cover the recent advances, modern policies and current concepts in obstetrical analgesia.

LABOUR PAIN

LABOUR PAIN

STAGES OF LABOUR:

1. First stage (stage of dilatation): From the onset of labour, till full dilatation of the cervix. In primigravidae, it takes about 16 hours while in multigravidae, it takes about 8 hours.

2. Second stage (stage of expulsion): From full dilatation of the cervix, till complete expulsion of the foetus. In primigravidae, it takes about 2 hours, while in multigravidae, it takes 10-15 minutes.

3. Third stage (stage of delivery of the after-birth): From complete expulsion of the foetus, till complete delivery of the after-birth which includes the placenta, umbilical cord and membranes, the average duration of this stage is 10 minutes, but it may take up to 30 minutes.

PHYSIOLOGY OF LABOUR PAIN:

A. Stimulus: As uterine contractions start, the cervical and vaginal tissues begin to be stretched and torn. In addition, the uterus exerts

traction on its suspensory ligaments, and metabolites, such as lactate and kinins, accumulate in the uterus. These stimuli initiate nerve impulses which are interpreted as pain (Naulty, I982).

B. Peripheral pain pathways:

1. Uterine and cervical pain: The pain of the first stage of labour is primarily due to the dilatation of the cervix and lower uterine segments that occurs with uterine contractions. The pain impulses from the uterus and cervix are transmitted via visceral afferent sensory fibers that accompany the sympathetic (efferent) nerves and pass through the paracervical plexus (in tissue near the base of the utero-sacral ligament, alongside the uterine artery), and then through the pelvic, hypogastric and aortic plexuses to the lumbar and lower thoracic sympathetic chain, and then enter the spinal cord through the posterior roots of the 10^{th}, 11^{th} & 12^{th} thoracic and 1^{st} lumbar nerves. Pain is referred to the skin dermatomes supplied by these spinal segments (lower abdomen, lumbar spine and upper sacrum). Pain impulses in the early part of the first stage are transmitted via T_{11} & T_{12}

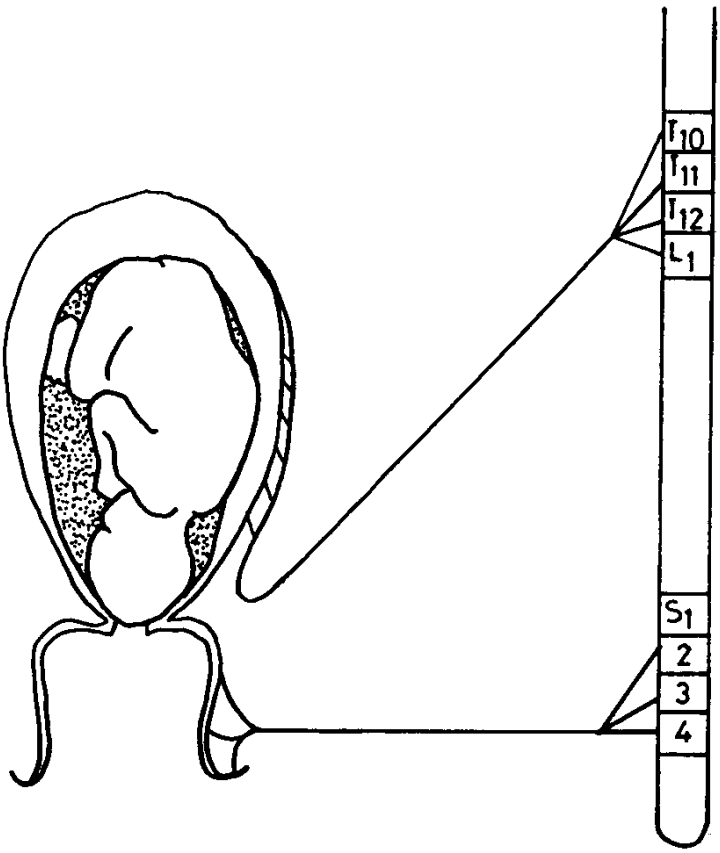

Fig. 1 SENSORY SUPPLY OF BIRTH CANAL.

whereas the severe pain of the late first stage spreads also to T_{10} & L_1, with pain referred to the umbilical region and upper thighs and mid-sacral areas.

2. Perineal pain: Additional pain during the very late stage one and the expulsion stage of labour is provoked by distension and tearing of fascia in the pelvis, perineum and vulva. Pain from pelvic structures reaches the spinal cord through lower lumbar and upper sacral nerves. The pudendal nerves via 2^{nd}, 3^{rd} & 4^{th} sacral segments, transmit pain impulses from the perineum. Small areas of perineal and vulval skin are supplied by the ilioinguinal, genito-femoral and posterior femoral cutaneous nerves, and cutaneous branches of the second, third and fourth sacral nerves. Pain in the late first stage and second stage is accompanied by intense desire to bear down due to a local pelvic reflex.

C. Central pain pathways:

After entering the C.N.S., these impulses undergo modulation in the posterior form of the spinal cord, decussate and ascend to the brain stem through spinal

Table 1

Pain in labour: Pathways & mechanisms.

(After Crawford, I982).

Site of origin	Mechanism	Pathway	Site of pain
Uterus & cervix	Distortion, stretching, tearing of fibres.	i) Afferents which accompany sympathetic pathway to T10, T11, T12 & L1.	Upper abdomen and groin.
		ii) Dorsal rami T10-L1 referred to cutaneous branches of posterior divisions.	Mid-back.
Peri-uterine tissues	Pressure often in association with foetal malposition or platypelloid pelvis	Lumbosacral plexus L5,S1 (? pelvic splanchnic nerves).	Low-back, thigh.
Lumbosacral region			
Bladder, urethra, rectum	Pressure by presenting part	S 2,3,4.	Referred to perineum & sacral area.
Vagina	Distension, tearing	Somatic S2,3,4.	Not referred.
Perineum	Distension, tearing	Pudendal(S2,3,4) Genito-femoral(L1,2) Ileoinguinal L1 Posterior cutaneous nerve of thigh,S2,3.	Not referred.