Obstetrical practice

edited by

SILVIO ALADJEM

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Foreword

A new text in any branch of medicine requires a rationale for its addition to the existing plethora of journals and books. I believe the justification for the present volume is the editor's attempt to relate its content to the rapidly changing scope of current obstetrical practice.

The discipline of obstetrics is at a critical juncture in its development. The forces acting on it are manifold; and the demands appear, at least superficially, to be mutually incompatible. One segment of the medical community regards obstetrics-gynecology as primary health care for women. Another segment considers the future of obstetrics to be increasing supraspecialization, with further development of perinatology or fetal-maternal medicine. One viewpoint holds that all labors should be monitored in the hospital, inasmuch as they are all potential emergencies. The opposite viewpoint stresses the essential normalcy of the majority of labors and espouses home or homelike deliveries, with minimal medical interference. One faction assigns the highest priority to the science of obstetrics, including electronics, sonography, radiology, and genetics; another emphasizes the psychological aspects of childbirth. Certain authorities stress the importance of analgesia and anesthesia; others praise the benefits of natural childbirth.

Among even academic obstetricians there is wide difference of opinion about the relative efforts that should be expended on the scientific underpinnings of obstetrics—basic reproductive anatomy and physiology—as opposed to research into the delivery of health care. Some seek to extend the contributions of nonmedical personnel to obstetrical care; others minimize the importance of these other health professionals. Similarly one faction sees the need for family practitioners to perform more complicated obstetrics; the opposition regards the assumption of major surgical responsibilities by nonobstetricians as retrogressive. Most leaders in our field consider the survival of obstetrics as a major medical discipline to be dependent on its inseparable relation to gynecology. A few see the future of obstetrics as a return to a closer relation of obstetrics to neonatal pediatrics than to surgical gynecology. Finally, obstetrics, perhaps more than any other branch of medicine, is necessarily involved in legal, political, and ethical issues, particularly with regard to the control of reproduction.

The editor, Silvio Aladjem, a seasoned clinician with obstetrical experience on three continents, is evidently aware of the ever changing and increasing demands on the discipline of obstetrics. Accordingly he has recruited the aid of specialists who represent the various groups to which I have made reference. Clearly the large textbook of obstetrics by one or two authors, with their ex cathedra pronouncements, is anachronistic in the context of modern practice, just as in the case of general surgery, internal medicine, and pediatrics. The alternative is a scholarly collection of individual contributions by a variety of experts who express their views authoritatively but dispassionately. The editor's task is to mold these chapters into a well-balanced and comprehensive volume. Dr. Aladjem has accomplished this formidable undertaking with great skill and understanding.

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Preface

Any attempt at compiling a textbook of obstetrics appears as not only a formidable but also an unnecessary task, in view of the many textbooks available which have served as traditional references to many generations of obstetricians. However, obstetrics has changed from being an "art" to becoming a "science," though perhaps, in the final process of clinical judgment, it is still a very fine line as many seasoned obstetricians can attest. As a result it has become increasingly apparent that a textbook of obstetrics in the traditional sense is far from serving the needs and realities of today's obstetrical practice. The concept of high-risk obstetrics, the introduction of prenatal genetic diagnosis, the sophistication of fetal evaluation methods, the common grounds of obstetrics and neonatology in the form of perinatal medicine, and the roles of immunology, conception control, as well as a score of others have dramatically changed the concept of obstetrical practice. Finally, the emphasis on the quality of adult life as it may relate to the phenomena of birth and the litigational mood surrounding today's medical practice have made obstetricians painfully aware of these realities. Thus it has been our intent to provide the reader not with a standard textbook of obstetrics in the classical acceptance of the word but with a comprehensive overview of today's obstetrical practice; hence the title of this book. To achieve this goal, since no one single individual is an authority in all these areas, we called upon some of the most outstanding specialists in their field, whether obstetricians or not, to share their understanding of the current state of the science and art in their respective fields.

The historical review of obstetrical practice, written in a scholarly manner by Dr. E. Wilbanks, and the short historical perspective of the research that perhaps more than anything else has revolutionized the transition of obstetrics from "art" to "science," i.e., uterine physiology, written by its originator, Professor H. Alvarez, will, I am sure, delight the reader.

Following these two introductory chapters the composition of the book is perhaps unorthodox for a textbook, but then a standard textbook was not our aim. As such, only one chapter is dedicated to labor, delivery, and the puerperium, not because this is an unimportant subject but because we attempted to place it in the total context of obstetrical practice. The reader will find, however, all the essential information here. The sections on physiological survey, pregnancy surveillance, anesthesia and analgesia, the neonate, sexuality, psychosomatics, control of reproduction, and maternal infant bonding are an updated reflection of current obstetrical thinking. The chapter on perinatal statistics will give the reader the necessary background for evaluating outcomes. Primary care in obstetrical practice and legal and ethical issues have been extensively covered. The chapter on the latter subject was written by the late Dr. Andre Hellegers. This is the last manuscript he left before his untimely death. I am sure all of us will find in his writing a depth of thought and warmth, as well as a solid moral guideline needed for our daily practice, regardless of what our moral or religious convictions may be. It is perhaps the universality of his thinking that made Andre so unique, and all of us who knew him will miss him very much.

The nursing profession has evolved into a subspecialization in terms of obstetrical nursing, with subsequent benefit to our patients, thus allowing a closer relationship between obstetrician and nurse. A section on obstetrical nursing care therefore seemed appropriate. I suggest that all nonnurse readers review this material carefully. You will find it informative in regard to better understanding their efforts to improve patient care.

Subsequently the book addresses itself to the pathology that may affect the pregnancy. Simi-

lar to the chapter on labor, delivery, and the puerperium, obstetrical operations are covered in one chapter only. The rationale for this is the same as for the former. Medical, surgical, gynecological, and oncological complications occurring during or preceding but affecting pregnancy are addressed extensively. The final section deals with neonatal emergencies, most of which occur in the labor and delivery area. It was therefore reasonable to expect the obstetrician to be familiar with them and perhaps to be able to deal with some of the more immediate life-threatening situations in the absence of the neonatologist.

When all is said and done, although the editor's name appears on the front page and the book is referred to as the editor's book, the final product is really the result of the efforts of many, some known and some unknown. First and foremost, because of the understanding and cooperation of my collaborators and contributors, my task has been a rewarding one. Thanks to the quality of their contributions, I have learned a lot and I trust so will our readers. To all the contributing authors go my sincerest and deepest gratitude.

My thanks also to Dr. E. Hord, a scholarly and talented medical illustrator, whose vision and understanding of the needs of the various contributors made our task in this area quite painless. Another individual to whom I owe a special debt of gratitude for being instrumental in shaping this book is Judith Lueck, Ph.D. A close friend and collaborator in other research areas, she patiently and critically helped me review the first few outlines of the book when all seemed so impossible.

And finally, to my wife, friends, and even my foes, thanks for the support and/or criticism. It all helped!

Silvio Aladjem

Obstetrical practice

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Introduction

Historical review of obstetrical practice

Evelyn Wilbanks

The history of obstetrics is a traditional beginning for a textbook on the subject. Obstetricians also think historically as they write by reviewing the literature before adding their own contribution to a topic. Charles Meigs in the nineteenth century referred to those leaders in the field of midwifery, William Smellie and William Hunter, who had developed the techniques and theories that Meigs inherited and expanded. William Smellie in 1754 gave the purpose of his introductory history as follows:

> This I have exhibited for the information of those who have not had time or opportunity to peruse the books from which it is collected; that by seeing at once the whole exent of the art, they may be the more able to judge for themselves, and regulate their practice by those authors who have written most judiciously upon the subject. The knowledge of these things will also help to raise a laudable spirit of emulation, that never fails to promote useful inquiries, which often redound to the honour of art as well as to the advantage of society.*

Perhaps twentieth century readers look to history primarily for enjoyment; but the review of a profession may still offer perspective and depth in defining continuing concerns, changing trends, and new concepts.

What follows is an overview of the history of obstetrics in Western civilization. In this limited space it is impossible to be inclusive of names and events or even adequately to describe the most common characteristics of childbearing in all cultures. The summary will include, however, some of the issues, ideas, and roles that men and women saw as important in relation to childbirth as a human event. It will also mark changes that suggest the movement of the art of midwifery toward the science of obstetrics.

The growth of the profession of obstetrics is characterized by an accumulation of facts about the anatomy of women, the physiological process of conception, generation, and birth of human life, and the roles of those connected with childbearing. The history involves a struggle for power among those who would take the role of assistants to women and disputes about the kind of theoretical knowledge and practical techniques necessary for a woman to bear and deliver a healthy child. However, all the activities of acquiring facts and controlling power are part of the larger process of human beings' coming to a consciousness of their own nature and their creation as well as a recognition of factors involved in their development. In their written records men and women have moved from seeing all the multiple aspects of childbirth as additive events toward evaluating these events as part of a total process of personal relationships that human beings have sought to control with ever increasing precision.

The history of obstetrics has its roots in the earliest myths, folklore, and artifacts of human beings. The phenomena of birth and new life were a central event in the lives of ancient primitive people, and women probably were as-

*From Smellie, W.: Smellie's treatise on the theory and practice of midwifery (edited by Alfred H. McClintock), London, 1876, Sydenham Society, vol. 1, p. 25.

sociated with the total cosmic power of fertility. Those who participated in or attended the event of birth partook of the power of life and death, and they were essential to the balance of health in the community as well as the individual.

Earliest records of obstetrical interest may be the "Venus" figurines of the Upper Paleolithic period, female figures with accentuated breasts and thighs, carved in stone or ivory between 40,000 and 20,000 BC. Archeologists and historians have suggested various theories concerning the meaning of these objects to the sculptors who carved them. They may have been symbols connected with a ritual to encourage fertility. However, with such few artifacts available we can only speculate that because of women's role of childbearing humans associated women in a diffuse kind of semiconsciousness with human-animal-vegetal fertility and with all movement in the universe. The desire for fertility varied with the abundance of food, the kind of food sources available (some large animals requiring a higher density of population to hunt and kill than smaller game), the climate, and the nature of competing species.

Among prehistoric groups the routine delivery of infants was probably attended primarily by female midwives. Many of the earliest extant records show some degree of specialization in social roles. Midwives probably had considerable power since the beginning of human life was guarded by ritual and taboo. Their practical experience gave them a body of technical knowledge that they passed on to their successors. Men probably assisted women at the time of childbirth in two ways. Records of some contemporary primitive tribes show that the father took an active role in assisting the mother in a routine delivery of her infant. Such could have been the case in prehistoric groups with strong familial bonds. The male shaman or priest was probably called upon in difficult deliveries to communicate with the gods, and he would also have been consulted in the problems of fertility.

Records of the ancient cultures of Mesopotamia indicate that a medical corpus including obstetrics was followed by priests, physicians, and surgeons. A Sumerian cylinder seal from Lagash (ca. 3000 BC) shows a male priest beside an inscription to a god of fertility. Despite the fragmentary condition of the written records, it is possible to suggest that Babylonian obstetrics was practiced as an integral part of a culture in which people were highly skilled at observing natural phenomena and considered all seen and unseen aspects of life as part of a cosmic unity.

According to Assyrian laws and the Code of Hammurabi, women had a large measure of legal protection during pregnancy, and the laws implied a knowledge of obstetrical trauma. The expectant mother also had help to ward off the many evil spirits that could endanger birth. Since ill health was supposed to occur as a result of fate, sin, or contagion, the *âshipu*, or exorcist of demons, prepared special incantations to invoke the gods or goddesses (such as Ishtar, who could protect the delivery of a healthy child). Men's interest in women's pregnancy may have been inspired by the desire for offspring, but there is a positive sense of universal well-being in the reference to childbearing women found in the letter of Adad-shum-usur to his king Ashurbanipal (seventh century BC). In defining the good life, the king's servant described generous gods, a powerful king, a reverent people, and a world where

> old men dance, young men play music, women and maidens gladly perform the task of womanhood, procreation is common, sons and daughters are brought forth, childbirth is exceeding satisfactory.*

This image of the ideal life reflects the expectations that a human being held possible for human existence. Even if the rational elements of obstetrics were mixed with what to twentieth century medicine are irrational ideas, the expectation was to support women so that childbearing would be "exceeding satisfactory."

Egyptian medicine developed simultaneously with much of Mesopotamian-Assyrian medicine, and the two cultures are known to have shared many points of exchange. The midwife probably continued to have the dominant role in obstetrics in Egyptian society, and one critic suggested that the midwives taught the priest-physicians. This practical lore is reflected in the obstetrical formulas of the Kahun Papyrus, dating to around 1950 BC, the oldest known papyrus. In spite of its fragmentary condition, it indicates that the physician not only recommended ways to encourage fertility but also advised methods to prevent conception and to di-

*From Sigerist, H. E.: A history of medicine. Vol. 1. Primitive and archaic medicine, Oxford, 1951, Oxford University Press, p. 407.

agnose pregnancy and the sex of the unborn child. In this document and in the Ebers papyrus (ca. 1600 BC), the prescriptions and instructions were based on perceptive observations of female anatomy, such as the condition of the breasts, face, and eyes in a pregnant woman.

Ancient Egyptian literary documents indicate that the authors understood the male role in conception, and one story even suggests that special remedies were sometimes given for male sterility. The literary materials also indicate the Egyptians' understanding of gestation as a specific length of time although it is unclear how many days the "months of pregnancy" included. Probably one of the clearest descriptions of normal delivery in Egyptian literature is "The Birth of the Royal Children" from the *Papyrus Westcar* (1650-1550 BC, a tale probably dating to ca. 2000 BC). The three midwives clearly prevent any male intervention. With the comment "We understand childbirth," they lock the door in the face of the father.

On the walls of the temple *mammisi* (rooms for the birth of a divinity or pharaoh) reliefs give a visual idea of the method of delivery (Fig. 1). Sometimes the parturient woman was shown kneeling, sometimes sitting on her heels or on two bricks with a space between them. One midwife supported her from behind, and one midwife received the child.

The Ebers Papyrus included twenty remedies for assisting labor. Among the methods were vaginal injections or suppositories, manual massage, and oral potions. Iversen was convinced that the fragmentary prescriptions found in Egyptian papyri on obstetrics derived from a large corpus on gynecology; he also cited Clement of Alexandria, who wrote in the second century that one of the six books of Egyptian medicine was devoted entirely to the care of women. Whatever the nature of the methods and remedies, the visual and verbal records of the Egyptians show a society of human beings who were observant of women, who valued women's role of childbirth, and who felt fairly competent in being able to assist women in conception, pregnancy, and childbirth.

The Old Testament (Genesis 35:17) reflects the dominant role of female midwives in the Hebrew culture. Although the propagation of the race was divinely ordained, methods of managing women's pregnancy, labor, and delivery were traditional and derived from Egyptian and Mesopotamian cultures. However, the Jewish laws of sanitation were more highly developed than those of any preceding culture. The twelfth chapter of Leviticus emphasizes the principle of cleanliness in relation to childbearing. The law required a woman to be separated from all ritual activities for a period of purification after her delivery as well as during her menstruation. The rule combined the religious idea of healing as a gift of the divine and the moral obligation of the individual to consider the total needs of the community in preventing disease or contamination. The religious act was inseparable from the physical process. Thus the concept of purification and cleanliness was instilled in the minds and habits of the Jewish people and greatly influenced Western civilization in almost all its cultural manifestations, including the development of obstetrics.

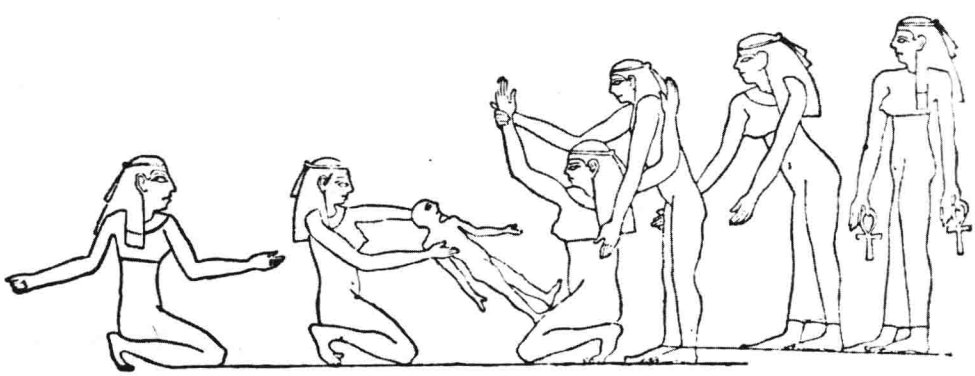

Fig. 1. Relief from temple at Esnau of Queen Cleopatra in childbirth. (From G. J. Witkowski, *Histoire des Accouchements Chez Tous les Peuples,* 1887, Fig. 218, p. 344.)

The Greeks inherited much of their medical tradition from the Egyptians. J. B. Saunders has studied specific birth prognoses that passed from the Egyptian to the Greek corpus of obstetrics. He also hypothesized a strong rational element in Egyptian medicine that influenced Greek thinkers.

In this rational tradition of studying human beings, Alcmaeon, Empedocles, and Democritus, early sixth and fifth century BC natural philosophers of Ionia, speculated about reproduction and embryology. Later physicians included many of their theories about generation in the Hippocratic corpus. In the idea of pangenesis, the Hippocratics claimed that seed came from all parts of the body. Both sexes were described as having male and female seed, and the sex of the child was determined by the strength of the combination of seeds. Although they were limited by the extent of their anatomical knowledge, the Greek theorists indicated a careful study of the phenomena of generation and birth that could be observed without a microscope.

The practical aspects of obstetrics found in the Hippocratic corpus were developed by members of both the Cnidian and the Coan schools of physicians and are represented in the early fourth century Hippocratic books: *The Nature of Woman, The Seven Months' Child, The Eight Months' Child, Generation, Seed, Diseases of Women I* and *II, Sterile Women,* and *Superfoetation*. Most of the clinical material deals with gynecological disorders since midwives dealt with routine obstetrics. Despite the physicians' increased emphasis on a rational approach to medicine found in these books, childbearing women often depended on the prayers and ministrations of the Aesculapian temple priests. Votive plaques in the shape of a uterus are found on temple walls and testify to the popularity of the priests.

One of the important points made by Hippocrates, the author of *Diseases of Women I,* was his concern that physicians should treat women differently from men. Eustace D. Phillips (1973) wrote of this early consciousness of the distinctions between male and female disorders: "This passage may be called a demand for gynaecology as a special branch of medicine. In fact the gynaecological books of the Corpus go far to meet this requirement." This awareness of the physical nature of women increased in Roman culture, and physicians became further involved in obstetrical complications to prevent them.

The problems of pregnancy dealt with by the authors of the Hippocratic corpus included methods of encouraging and countering conception and the various disorders of pregnancy. The physicians suggested remedies for irregular presentations of the infant at birth, menstruation continuing during pregnancy, removal of dead infants, and difficult delivery of the afterbirth. They also included warnings concerning prenatal trauma that might harm or kill an infant in utero. Despite these details the range of obstetrical material is limited, a fact that reflects not only our restricted access to the total corpus of Greek medicine but also probably the fact that the Greek physicians' knowledge of women in childbirth was limited in comparison to that of the more experienced midwives. The importance of the midwives' practical learning is reflected in the fact that they were required to have borne children.

In the late fourth and early third centuries BC, Greek medicine experienced an efflorescence in Alexandria at the Museum, or Academy, established by Ptolemy I. The philosophical and cultural climate permitted human dissection which enabled men to describe human anatomy more accurately than they had previously been able to do.

One of the most important physicians of this period, Herophilus, was renowned not only for his anatomical studies of the nervous system but also for his interests in obstetrics. Although most of his works are lost, we know some of his ideas and accomplishments from Soranus and Galen. In anatomy Herophilus described the ovaries and fallopian tubes and made comparative notations to the male seminal vessels and to the genital anatomy of mares. Only fragments of his *Midwifery* remain, and these refer to complications of deliveries.

Physicians of the late Hellenistic and Roman cultures developed the use of instruments in medicine as a result of their skill in metallurgy as well as a change in medical practice. In obstetrics, physicians used some of the instruments to destroy the infant in traumatic deliveries and others in operative procedures. The Romans may have been the first to legislate obstetrical surgery, directing physicians to operate on a dead mother to remove a live infant. The *lex regia* established by Numa Pompilius (715-673 BC) later became known as the *lex caesarea*