

Evolution to Revolution

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Conceptual criteria of the living was instinctive from the beginning of creation.

The female of the species was superior to the male as only they could bear foetus and give birth to them.

Despite this, even in the most advanced of the living species, ie humans, it was accepted that in the process of pregnancy and labour, some babies or some mothers, or both, might die.

This is not an analysis of the care of the pregnant or the parturient in different civilisations. The care of the parturient to help the safe delivery of the mother and baby was left to nature. Ways to actually help her were not known - thus was born the definition of Obstetrics - "ob" meaning before and "stare" meaning to watch. Literally therefore, Obstetrics means "to stand before".

Some knowledge of anatomy and physiology with observations of problems of labour - appreciation of the cause of difficulties during labour and the results of application of some methods to help the mother, gradually

brought the idea of offering a specific type of help for specific problems. Thus evolved the "Art of Obstetrics".

In the beginning it was trial and error for safe delivery at labour, from a mere "stand before" to active help during labour.

With evolution of the science in general, there was a far reaching effect on medical science. In our profession it resulted in appreciation of maternal health during pregnancy, of foetal health too, and a new awareness of ways to predict the foetal and maternal complications at labour, the time to terminate, the method of terminating pregnancy and labour if needed.

Thus evolved the "Science of Obstetrics". This evolution was gradual and took a long time to be standardised and be universally accepted. This Evolution, for both the diagnostic and therapeutic processes, was limited originally to the eyes, ears and tactile sensations of the hands. The differentiation of one condition from the other depended on the analysis of these clinical findings of the accoucheur and the success of the outcome depended on the judgement, experience and skill of the attending physician.

Both the teacher and the taught in the field of Obstetrics and Gynaecology as well as practitioners in all the branches of medicine were dependant mainly on history taking, and clinical examinations.

Gradually, help from the biochemical, pathological and radiological colleagues began to trickle in and there were great advances in the field.

Improved anaesthetic techniques, blood transfusions, antibiotics - all resulted in improvement of surgical procedures and its scope extended both in horizontal and vertical levels. This was true in all branches of surgery including Gynaecology and Obstetrics. Improvement in

procedures and techniques evolved gradually.

However, many conditions were not understood, so diagnosis and treatment suffered. Resulting in further progress, at times, coming to a standstill.

Then came the Revolution, a breakthrough, opening up a gamut of research procedures. These brought in newer concepts, understanding and a novel approach to almost all conditions, both in diagnosis and therapy, altering our attitude to our very practice of Obstetrics and Gynaecology, in a tremendous fashion.

It is generally believed that in the last 50 years, our scientific knowledge has grown by such leaps and bounds, that in quantitative and qualitative assessment it had surpassed the total scientific knowledge of mankind gathered until then.

During the last World War, there was unimaginable progress in all branches of science - including that in Biophysics and Biochemistry. Its application in medicine was immediate, which was reflected in our speciality as well. We saw the emergence of four revolutionary procedures which opened up our ideas of many conditions, which were not understood so long.

Before embarking upon a discussion of these revolutionary procedures, we may do well to recall that...

The revolutionary technology that made the greatest impact on our speciality are applications of advanced Biophysical and Biochemical technology.

These are :

- Sonography
- Endoscopy - Laparoscopy and Hysteroscopy,
- Radio Immuno Assay and
- Research and development in the pharmaceutical field.

It is not possible to give a detailed description of how each technology has contributed in different aspects of our speciality, in this short space. We will therefore restrict ourselves in highlighting some important points.

In Obstetrics

In early diagnosis of pregnancy, gone are the days of only clinical assessment, of size and texture of the uterus, of Hager's sign and Palmer's Sign etc.

Soon after, Amenorrhoea before other symptoms of pregnancy has appeared - now the Elisa (Card) Test can give the clinician the answer in five minutes, in his own chambers, sometimes even days before the expected date of the next onset of menstruation.

In cases of Bleeding in the First Trimester of pregnancy, doubts about placental separation, with consequent initiation of treatment, can be carried out with confidence by Pelvic Sonography.

Similarly, if intervention is necessary, the same procedure of Sonography will help detect blighted ova or progressive stages of abortion.

If pain or other features which bring suspicion of Ectopic gestation, Sonography and, where necessary, supplemented by Laparoscopy, will clearly discern the conditions. Association of uterine or adnexal tumours are detected through routine first trimester Sonography.

Sonography also helps us in the diagnosis of Hydatidiform mole. It has also given us the idea of the condition of Intra Uterine Growth Retardation, which was not even known to us before. We now take the help of Sonography in clarifying Foeto-placental profile and estimate the time of interference when needed. Where routine Sonography is a must, the problems of post dated pregnancy or postmaturity are no more a problem.

Similarly, in Antepartum Haemorrhages, Sonography has done away with laborious and skilful endeavour to distinguish between Placenta Praevia and accidental Haemorrhage. In the immediate periods of post-abortion (spontaneous or induced) or post natal (normal delivery or Caesarean section) the presence of left over bits of products of conception, can be easily detected by Sonography.

Sonography has not only helped us in diagnosing congenital defects of foetal (placental) and multiple

pregnancy but has, in addition, helped the neonatologists greatly in intracranial damage detection..

Sonography has also helped in discrepancies of size of the uterus vis a vis menstrual dates. The bigger size is due to multiple pregnancy, Hydramnios and associated uterine Fibroid. The smaller size is due to irregular and infrequent ovulation. Sonography also helps reveal the presence of malformations of uterus such as bicornuate uterus and detection of incompetent cervix, especially in repeated abortions.

In Gynaecology

From birth until the end of life, more so around menarchy and menopause, Radio Immuno Assay has played a great part. If Sonography may be likened to a television representation of what's going on inside the uterus, Radio Immuno Assay may be likened to a marker sent out to locate and assess the satellite from which the particular chemical in question is emanating, its concentration and destination.

The two together have opened up a new vista in our understanding. Many newer conditions have come to our knowledge, many cobwebs in our appreciation so far misunderstood or misinterpreted have been clarified, thus helping immensely in diagnosis and treatment.

At times these two procedures are complementary to each other. Their use is also popular as they are noninvasive techniques. The endoscopies though, are invasive, but give a direct view making "seeing is believing" a real truth.

The gynaecological conditions where we have considerable beneficial use of the procedures are too vast to be taken up in detail. We shall only mention them to make our point.

In childhood and the pubertal stage:

Thus in primary and secondary Amenorrhoea, next to clinical examinations, estimation of T3, T4, TSH, and prolactin are mandatory. Where suspected of associated hirsutism, Pelvic Sonography is a must to find out the presence of PCOs.

In the childbearing period:

In Menorrhoeia, beside hormonal assay for detection of an uterine polyp or a fibroid, Sonography is a great help. Similarly, to distinguish uterine mass from ovarian mass, we do not have to rely on such clinical findings such as reaching the lower pole of the mass from above, or detecting cervical movement from below in relation to movement of the mass above are superfluous - a Pelvic Sonography will also give various information to help us in deciding the treatment.

In Sterility

Pelvic Sonography is now a great help for us and it is complemented very often with Endoscopy like Chromolaparoscopy to detect tubal patency as well. Laparoscopy is a very helpful step for detection of Pelvic Endometriosis. Laparoscopic Surgery has now opened up the various conditions for treatment of Pelvic Endometriosis, ectopic pregnancy, ovarian cysts and even small fibroids. The hysteroscope is now used by many clinicians for diagnosis and treatment of Menorrhoeia.

Sonography not only can diagnose ovulation but can time it to help conception. The whole process of ART is based on the initiation of ovum collection by laparoscopy and the scope is extended to GIFT with skilful use of Laparoscopy.

In Menopausal Stage

Especially in early and spontaneous onset of Menopause, Hormonal Assay, to find levels of FSH or Gonadal hormones, Sonography is helpful. At times repeat sonography is also helpful.

Similarly, second look Laparoscopy is used by some clinicians to assess the result of previous surgery or chemotherapy in ovarian malignancy.

These are the procedures that have suddenly opened up the gates of a vast and unknown area in the diagnosis and treatment in our speciality - the newer approach of competitive Pharmaceutical and allied organisations to fund Research and Development made it possible to probe into the vast areas of conjecture and transform them to reality.

It has become a purposeful symbiosis - on the one hand we now know the place of neuroreceptors and their transmitters, pathways to target organs and their production and interdependence of their bilateral and multilateral activities, and on the other hand, various therapeutic agents developed by them are now available to the clinicians for use which facilitates the manufacturers to continue research economically.

The Future:

The tremendous impact of progress in Biochemistry and Biophysics has brought in this evolution. In time the Bioengineering will bring in newer activity which we cannot conceive of today. Just as Intra-oocyte Sperm Insemination (IOSI) was an unknown phenomenon a few

years ago, the production of Clone Progeny about to be a reality today.

The knowledge of chromosomal and now specific actions of genes and analysis of DNA, may one day bring in a situation when someone writing in the future will focus today's activities as a part of evolution in comparisons to Revolutionary techniques of our times.

In a future date we apprehend a day might come when in an affluent society, community or nation, all the modern techniques will be available. The teaching of a future medico will do away with ageold customs of history taking and clinical examination and emphasise only on these modern innovations. Thus a new problem looms large with the North-South divide.