

## **THE CLINICAL VALUE OF A PERINATAL AUTOPSY**

The last quarter of a century has witnessed major advances in the fields of prenatal diagnosis, high risk obstetrics, neonatal intensive care and genetic counselling. We have seen the birth and expansion of a new sub-speciality, that of perinatal medicine. However, the zest and enthusiasm with which we have ushered in perinatal medicine is lacking as far as its counterpart perinatal pathology is concerned. The time is ripe to review perinatal pathology against a background of recent developments both in antenatal care and intensive neonatal care.

The availability of prenatal diagnosis has increased the importance of making a precise diagnosis in any baby who is born with a serious defect and in offering skilled genetic counselling to the parents of all such babies(1). The planning of genetic counselling and consideration of the possibility of prenatal diagnosis in a future pregnancy should begin in a doctor's mind as soon as an abnormal baby is delivered because all those services to the couple, depend upon a correct diagnosis in the baby. The doctor should ensure that appropriate investigations are carried out even when the prognosis is hopeless for the present child. The importance of an autopsy in babies with birth defects cannot be overemphasized and a failure to carry it out may make it impossible for geneticists to give accurate advice or to arrange prenatal diagnostic tests in a subsequent preg-

nancy (2). Many doctors imagine that the suggestion of an autopsy will distress parents very greatly, but this is not usually the case, if the reasons for the autopsy are properly explained and the importance of correct advice for future pregnancies emphasized(3).

A perinatal autopsy other than having significance for the bereaved parents is also significant for the clinician concerned (whether an obstetrician/pediatrician/geneticist), the pathologist, the medical student and largely the nation(4).

In these days of safe obstetrics, the anticipated outcome of pregnancy is a normally formed, healthy infant and the possibility of perinatal death is not seriously entertained. In the event of a mishap the parents want to know where and how things went wrong, without necessarily wanting to attach blame to a particular individual or institution. Of even a greater concern is the need to know the risks of repetition, means of prevention if any and the chances of achieving their desired family size(5,6).

For the clinician in charge, autopsy details are necessary for a correct prediction of recurrence risk so that an appropriate plan for surveillance of subsequent pregnancies can be instituted. Porter and Keeling(7) have reported that autopsy results differed from clinical findings in 44% cases whereas according to Meier's data(8) a perinatal autopsy was the sole means of establishing diagnosis in 26% cases.

As for the pathologist a perinatal autopsy can be described as the most important post mortem he performs, since it may affect the reproductive behavior of the current generation and the quality of the next(9).

An aspect of necropsy which is often overlooked is its importance to the continuing education of both undergraduate and post graduate medical students. Exposure to a fixed number of perinatal autopsies should be a part of the training of all pediatric and obstetric residents. Not only would the interaction help a better understanding of the disease process, it would also be an encouragement to the pathologist concerned and educate him about current clinical practice and the clinical relevance of information obtained during an autopsy.

Perinatal mortality data are a very sensitive index of a nation's health hence an accurate collection of information, both in respect of completeness of ascertainment and cause of death is a necessary part of national statistics which would be neither complete nor accurate in the absence of a perinatal autopsy.

By and large the value of a perinatal autopsy cannot be disputed but a high autopsy rate would lose its value if the examination is not of a high quality(10-13). Prior to undertaking perinatal autopsy, full clinical data is pre requisite, *i.e.*, a. family history, obstetrical history, details of labor and delivery as well as neonatal course. Thereafter, at the concerned person's discretion, various methods may be used to reach a final diagnosis. A properly conducted examination should essentially be complete in 8 respects(9): (i) Clinical summary, (ii) Post mortem radiography, (iii) Body measurements, (iv) Descriptive content with photographic documentation, (v) Organ weights, (vi) Microbiology, (vii) Histology, and (viii) Other relevant investigations, *i.e.*, cytogenetics and biochemistry.

It is hence incumbent on all clinicians engaged in the care of the pregnant women

and neonates to encourage perinatal autopsies, but some cases will remain where permission is denied. In the instances a 'limited autopsy' can be resorted to which comprises of photography, radiography and examination of placenta. The first two are invaluable for a malformed fetus whereas the third would be more useful for a complicated pregnancy: (i) A photographic record of dysmorphic features and other external abnormalities provides both a quicker and more accurate record than a lengthy description. These photographs are particularly useful when seeking a further opinion in difficult cases and will be valuable educational tools also. (ii) Radiography is a simple and informative means which can even prove diagnostic in selected cases(14). A whole body radiograph, both anteroposterior and lateral views are required. Radiography of still births or neonatal deaths while still in the labor ward/neonatal unit should not be a problem. (iii) The placental examination may not be particularly useful for the malformed fetus but would definitely be so in pregnancies complicated by hypertension, diabetes, Rh incompatibility, immunological disorders and when the baby is premature, growth retarded or there has been an intrauterine death. Histology of the placenta should not be ignored(15,16).

Our experience of perinatal autopsy is largely confined to congenitally malformed fetuses referred from local obstetric centres. From a total of 50 cases, in as many as 30, the referral diagnosis differed from the one reached after autopsy. In 6 the diagnosis could be made after radiography itself and a detailed autopsy did not yield further findings (unpublished observations). Hence amongst all perinatal deaths the subgroup of congenitally malformed fetuses is the one where autopsy is most likely to help in

ascertaining the diagnosis. This would aid genetic counselling by helping to predict the recurrence risk and the possibility of prenatal diagnosis. Similar findings were evident in the other Indian studies(17). In a series of neonatal necropsies, in 7 % the cause of death was altered on necropsy and most of these neonates belonged to the group of lethal malformations.

The justification of a perinatal autopsy can be summed up by the two questions that the bereaved parents invariably ask - "Is it my fault?" and "Will it happen again?" They are haunted by a sense of personal failure and guilt and by ascertaining a cause it can help them to come to terms with their loss. It is important, at this critical juncture in their lives, to provide them a rational, scientific explanation which is possible only by perinatal pathology.

**Anita K. Sharma,**  
*Assistant Professor,*

*Department of Medical Genetics,  
Sanjay Gandhi Postgraduate Institute  
of Medical Sciences,  
Raebareli Road, Lucknow 226 014.*

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