Case reports in foetal and perinatal pathology

AE Konstantinidou*

Abstract
Case reports in Foetal and Perinatal Pathology are rare. This scarcity reflects the fact that Foetal and Perinatal Pathology is a shortage specialty. In this Editorial, the reasons for the dearth of this kind of published literature will be discussed, the need for well-documented case reports in Foetal and Perinatal Pathology will be highlighted and their clinical and educational value will be explained.

Editorial
Developmental, Foetal, Perinatal and Placental Pathology are disciplines that form a distinct subspecialty of Paediatric Pathology. Abbreviated as ‘Perinatal Pathology’, they are mainly based on the autopsy of the foetus and infant and the examination of the placenta. In practice, a Perinatal Pathology unit covers embryonic, foetal, perinatal, neonatal, placental and infant pathology. The perinatal pathologist is called to perform the autopsy of the demise foetus or infant in cases of spontaneous abortion, intrauterine death or termination of pregnancy. In all instances, the autopsy report is meant to shed light not only to the cause of death but also to the aetiological factors and pathogenetic mechanisms of the adverse pregnancy outcome, addressing all the clinical questions and clarifying the significance of pathological findings. In cases of pregnancy termination, the autopsy report of a trained and experienced perinatal pathologist often provides additional clinically significant information and guides the genetic counselling and prognosis for the following pregnancies of the family1-2.

The ‘autopsy’ or ‘necropsy’ involves the external examination for malformations, dysmorphic features or other signs, a detailed description of the pathologic anatomy of all organs, X-rays and other ancillary tests, sampling and histopathological examination on light microscopy, histochemical or immunohistochemical stains on occasion, as well as the macroscopic and microscopic examination of the placenta. The foetal, perinatal or paediatric autopsy must fulfil the minimum standards required by the Royal College of Pathologists3,4. Many of these autopsies are very time consuming3, and most pathologists are not willing to support this type of work or, more commonly, lack the indispensable expertise on a field that requires vast knowledge, out with the remit of general histopathology, and by far exceeding the limits of general pathology training. In addition, continuous education and updating of knowledge is mandatory in this field, where the majority of foetal and perinatal pathologists are autodidact, given that in most European countries, Perinatal Pathology is not officially recognised as a subspecialty of Histopathology. Therefore, Perinatal Pathology services are self-learnt by pathologists who have special interest but noncertified training, in Perinatal Pathology. This contributes to low standards of perinatal autopsies in many countries, entailing an adverse influence on autopsy rates5,6 and consequently, a shortage of interesting and well-documented diagnoses to be published in the literature.

By contrast, in countries where Perinatal Pathology services are well developed, the positive professional perceptionism of the value of perinatal autopsy leads to an increasing demand for high-standard foetal and perinatal autopsies. These are likely to result in interesting and significant findings, worthy of publication in the literature. This positive influence is enhanced by popular interest in embryonic, foetal and neonatal well-being, also reflected by the emergence of the subspecialty of Foetal and Maternal Medicine. Medical interest is stimulated by advances in obstetric, prenatal, perinatal and neonatal medicine. Refined imaging techniques and the explosion of new diagnostic methods in molecular biology and genetics have also stimulated the interest in acquiring spherical knowledge on developmental, perinatal and neonatal pathology. Popular interest reflects the cultural changes in developed countries, where there is a prevalence of lower family size and older maternal age at childbearing. This trend, together with the rarity of perinatal death, has led to increased parental expectations that every pregnancy will have a successful outcome. In the developed countries, each pregnancy is considered as a major event; an occasional adverse outcome raises many questions that need to be addressed by the clinicians and the perinatal pathologist. The demand to explain the stillbirth, neonatal death or handicapped surviving infant, becomes even more insistent.

In the preface of the first edition of her book, ‘Pathology of the Foetus and Infant’, Edith Potter, a pioneer in Perinatal and Paediatric Pathology, who collected and meticulously...
described a host of malformations and diseases affecting the foetus and infant, stated.7

The description of the body of a dead infant is of no value as an isolated piece of information, but when it is integrated with the various aspects of heredity, conception, development, intrauterine and extrauterine environment and behaviour, it becomes part of an important chronicle.

Case reports in Foetal and Perinatal Pathology illustrate this notion. In cases of pregnancy complications, such as spontaneous abortion and stillbirth, intrauterine growth restriction and premature labour, case reports may provide a holistic approach to the event, reveal unusual causes of stillbirth, focus on unusual or subtle findings overlooked by previous descriptions of specific pathologic entities, report previously unrecognised associations that may be aetiological involved in adverse pregnancy outcomes, investigate non-established pathogen that may cause congenital infections, shed light on the possible pathogenesis of a disease, report abnormal findings that may be linked to drug administration during pregnancy or explore the vast evolving field of placental pathology, just to mention some of their potential clinical value.

In cases of congenital malformations and genetic syndromes leading to the termination of pregnancy, case reports are even more valuable. The perinatal pathologist very frequently has to dive into the chaotic field of genetic syndromology, particularly that of Mendelian inheritance and single-gene disorders, which are not prenatally detected by molecular tests when there is no known family history. In these instances, it is the task of the perinatal pathologist to make the diagnostic approach and eventually recognise the phenotype of a genetic syndrome. The subsequent molecular confirmation, when feasible, will establish the tentative phenotypic diagnosis and will permit the prenatal diagnosis in a subsequent pregnancy. Therefore, knowledge of clinical dysmorphology and awareness of the genetic syndromes that become manifest and can be diagnosed in the foetus are essential to the perinatal pathologist, who most often plays the role of the clinical geneticist as well. It is of note that, although each non-chromosomal genetic syndrome is rare per se, however, as a whole, they form a large group frequently met by the perinatal pathologist at autopsy. Reporting typical or expanded phenotypes for a particular syndrome, phenotype–genotype correlations and, eventually new syndromes or new associations of congenital malformations is valuable not only for obvious educational reasons but also in everyday diagnostic practice. Textbooks are not sufficient to include and explain all the possible findings of a perinatal autopsy. Many times, our diagnostic approach to a genetic syndrome or a particular association of congenital malformations, or even to other unusual autopsy findings, is based on isolated case reports in the literature, rather than in textbooks containing only the basic and more common knowledge, or databases containing massive information where details are lost and difficult to interpret. Reading a case report in the literature often makes us recall similar cases we may have met in our personal practice or details in previous cases that we could not readily explain, and this comparison of findings may lead to the clarification of old undiagnosed cases and for correct diagnoses in the future.

Despite the fact that significant advances in medicine have been based on observations initially recorded as isolated case reports, nowadays case reports are considered trivial and of low clinical impact. Authors do not dedicate time in writing case reports, as they tend to have low citation value and the prevalence of such articles in high-impact journals has reportedly declined.8,9 Among certain medical specialties, though, the value of a well-documented case report remains indisputable. Perinatal Pathology is one of them and still awaits significant advances to originate from the observations and reports of alert physicians.

In this issue of the journal, a case report describes the diagnosis of lethal Osteogenesis Imperfecta type II established on curettage material at 13 weeks of gestation.10 The value of this report lies on the demonstration of the typical histopathology of this genetic skeletal dysplasia at a very early developmental age, histologically recognisable even on curettage material, where X-rays could not be applied. The parents were provided with a precise diagnosis, genetic counselling was feasible, and molecular confirmation was targeted, sparing the family from superfluous costly genetic testing.

Currently, it appears that it is not possible any more to practice Foetal and Perinatal Pathology without concomitant expertise in molecular diagnostic methods, clinical genetics, cytogenetics, ultrasonography, radiology and all the other approaches we use in our everyday practice, to assess all possible aetiopathogenetic factors in the deceased foetuses and infants entrusted to us for a final diagnosis. The necessity of well-documented and well-written case reports and case studies enables us to confront the many challenges in our ever-evolving specialty.

References