Pediatric Autopsies
Are they still useful?

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Autopsy has traditionally been considered the gold standard for determining the cause of death. Autopsy studies have detailed many new disease entities. Legionnaires’ disease, acquired immune deficiency syndrome, Alzheimer’s disease, severe acute respiratory syndrome and toxic shock syndrome are among the many diseases initially delineated through autopsies. Autopsy is critically important to the evaluation of new diagnostic tests, new surgical procedures, and new drugs. A good example is that Adriamycin cardiotoxicity was first studied through autopsy. Autopsy is also an important and perhaps underutilized quality assessment tool for the quality of patient care. Finally, autopsy aids medical education for residents, fellows, medical staff and other health care providers.

Unfortunately there has been a significant decline in overall autopsy rates during the past several decades. In the 1940s, the non-forensic autopsy rate in the United Stated was 50%. The rate dropped to 15% in the 1980s. In 1994, the last year for which national data exist, the overall autopsy rate was reported to be less than 6%. In pediatric patients, autopsy rate has also been declining, but at a much slower pace compared to adult population with a current estimated average rate of 20-30% in children hospitals in the United States. This decline of autopsy rate has been attributed to difficulties in obtaining consents, reduced reimbursement for autopsy service, and a loss of interest by clinicians related to advanced diagnostic and imaging techniques.

Researchers have documented substantial discrepancies between clinical diagnoses and findings at autopsy in the past 100 years. Is autopsy still helpful with the advent of image studies and diagnostic techniques? Some physicians argue that autopsy is no longer needed. Many recent studies demonstrate the frequency of unexpected findings has not change significantly over time. A 1994 study by the College of American Pathologists examined the performance of 2459 autopsies in 248 institutions, excluding all stillborns and forensic cases. Forty percent of autopsies had at least one major clinically unexpected finding contributing to the patient’s death, 17% had a minor finding contributing death, and 32% had a minor finding not contributing to death. In 1998, Kumar et al (1) published the results of a retrospective review of 107 pediatric autopsy cases between 1984 and 1993. In 34% of cases, new diagnoses were made at autopsy, including 7 cases where the new findings, if known before death, would likely have resulted in a change in treatment or improved survival. The same authors (3) also reviewed 296 cases of neonatal autopsy between 1984 and 1993. New diagnoses were made at autopsy in 44% of cases. Major discordances were identified in 35 infants (12%); minor discordances in 95 (32%). They found that major findings at autopsy were more likely in infants whose mothers had no prenatal care and in infants who died within 6 hours of birth. Another study by Newton et al (3) in 2004 examined the usefulness of the pediatric and perinatal autopsy in a major children’s tertiary care hospital. The authors reviewed 61 autopsies performed in the year of 2000. Of 61 autopsies, 12 (20%) revealed a major diagnostic discrepancy or unexpected pathologic finding, 17 (28%) had a minor unexpected finding or additional diagnosis.
41 (67%) clarified the differential diagnosis, 46 (75%) confirmed or verified a major diagnosis, and 21 (34%) provided information regarding treatment effects.

These studies conclude that pediatric autopsy continues to provide clinically significant data and remains a valuable tool in modern pediatric practice. It is an important medical and quality assurance procedure for assessing the accuracy of diagnoses, clarifying differential diagnoses, yielding unexpected findings, and providing feedback regarding therapeutic outcomes.

Reference