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Postmortem audit in a paediatric cardiology unit

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SUMMARY Postmortem examinations performed on 76 children with a clinical diagnosis of congenital heart disease were reviewed retrospectively and compared with the findings before death. Both operated and unoperated cases were studied over a three year period. Despite intensive investigation during life, there was a high rate of unsuspected abnormalities at necropsy (80%): 29 cases had undiagnosed additional cardiac anomalies or surgical flaws, which contributed to death in 13 cases. Defects in surgery were uncommon but permitted modification in surgical technique to avoid recurrence. Myocardial necrosis and pulmonary foreign body embolism were common findings, the importance of which is uncertain and requires further study for their prevention.

Even in the most thoroughly investigated cases postmortem examination has a high yield of clinically important pathology which is undetected during life.

The lamentable decline in the number of necropsies performed in the United Kingdom has been the subject of much comment and speculation. The reasons underlying this change in clinical practice are complex and varied. Many studies by pathologists have shown the continued value of necropsies in clinical audit.[1] We chose to study a group of children with a very specific diagnostic problem by performing a retrospective review of 76 necropsies performed on children with a clinical diagnosis of congenital heart disease. One of our aims was to assess the claim that modern diagnostic techniques are sufficiently accurate as to negate the value of necropsy.[2] The children had been thoroughly investigated in life by both invasive and non-invasive imaging. Our experience has allowed us to propose a protocol for this type of examination when performed at specialist centres.

Material and methods

Seventy six cases from the Bristol paediatric cardiology unit had necropsies performed by the paediatric pathology department during a three year period, 1985–1987. All these children had a clinical diagnosis of congenital heart disease and were under the care of the cardiology and surgical teams; we also included cases who had received cardiological assessment under the care of neonatologists. We did not include cases of cardiological malformation diagnosed antenatally and aborted as these seemed to form a distinct group with different diagnostic problems.

Case notes were examined and the findings from clinical observations, echocardiography, and angiography recorded. Details of surgical intervention and other treatment were noted. A synopsis of the final clinical diagnosis was made. The necropsy report was then reviewed and the findings summarised and compared with the clinical assessment. When available the heart was re-examined to resolve any points that were unclear from the report. No major modifications, however, were made to the necropsy accounts of the cardiac abnormalities. The original histological preparations from each case were reviewed and the findings recorded without knowledge of the original report. Cases were then categorised into four main groups:

Group: A where the necropsy showed additional undiagnosed cardiac lesions;

Group B: where the necropsy showed unsuspected major or minor complications of cardiac disease or of its treatment;

Group C: where the necropsy showed additional clinically important pathology not directly resulting from the cardiac condition;

Group D: where the necropsy yielded no additional information.

Groups A, B, and C were not mutually exclusive; group D formed a completely separate category.

Results

Seventy six consecutive cases from the Bristol paediatric cardiology and cardiac surgery departments were reviewed. The sex ratio was exactly equal with 38 boys and 38 girls. Forty eight (63%) of the necropsies were performed for Her Majesty's Coroner,

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