Investigation and Treatment of Craniopagus Twins

1. Introduction

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The series of papers which follows derives from experience at St. Bartholomew's Hospital in the space of two years, with two pairs of conjoined twins—each with a cephalic union. Such craniopagus twins have been regarded as the rarest variety of joined twins, the incidence having been estimated as one in 2,500,000 births. In both pairs of children the union involved the entire vertex (complete parietal craniopagus) and the obstacles to successful separation were therefore very considerable; indeed, only one pair of twins with this degree of cranial union is known to have been separated before, one twin surviving.

In Dr. A. White Franklin's contribution (p. 1342) the two pairs of twins are described and general observations made from the paediatric point of view. Dr. G. H. du Boulay describes (p. 1337) the radiological investigation of the cases. While plain films of the conjoined skulls and pneumoencephalograms may reveal points of interest, carotid angiography is the important technique. It is a tribute to skill and patience that bilateral carotid angiograms were achieved during the first nine months of life in two of the four babies in spite of their small size and the difficulties occasioned by abnormal cervical posture. It is remarkable, too, that a clear demonstration of the conformation of each child's cerebrum, the relation of the brains to one another and to their containing skull was achieved, and abnormalities of cerebral circulation were revealed. Drs. Robert Ballantine and Ian Jackson discuss (p. 1339) the problems facing the anaesthetist and their solution. Although, of course, the major problems arose during the final operative procedure, both twins in each pair required repeated general anaesthesia for the numerous diagnostic tests. Mr. Percy Jayes describes (p. 1340) the planning of scalp flaps to cover the enormous area of the children's heads which becomes exposed when separation is effected. It is a tribute to the success of the plan and its execution that almost complete cover of the brain was achieved in the three children in whom it was required. I make some general observations (see below) on twinning and the origin of conjoined twins, and review the history of attempts at their surgical separation. The problems posed by the personal cases are reviewed and the three-stage operations for separation described with a brief indication of the result achieved.

The ethical problem in such cases is obvious to all. Should separation be attempted? At the beginning of life, just as at the end of it, a form of treatment which simply prolongs suffering and disability can have little to recommend it. The twins with whom the present series of articles deals were regarded by those competent to judge as normal healthy babies with prospects of long survival but none of normal life. The children were therefore in no sense monsters, although the situation occasioned by their union was certainly monstrous, and it was thought that great risks were justified in an attempt to free them from it.

2. Surgical Separation of Two Pairs of Craniopagus Twins

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[WITH SPECIAL PLATE]

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Wherever conjoined twins are born public interest is aroused and the event becomes an item of world news. The mystery of the union itself, particularly in the lay mind, is no doubt one reason for this reaction. Another is sympathy for an infant embarking on life with a serious congenital abnormality; in the case of conjoined twins this emotional response is particularly strong since the union may involve otherwise entirely healthy babies and yet preclude them from all possibility of normal existence. Interest on such a basis commands respect; it could indeed serve the purpose of bringing to treatment separable twins who might otherwise have been permitted to die or exist in their joined state. While the interest of the lay press may at times add to the difficulties of those concerned in the

care of conjoined twins, if the privacy of the individual—patient, parent, and doctor—is respected, it must be accepted as natural and not without possible benefit. The publicity which often surrounds conjoined twins and attempts to separate them should not prevent the scientific recording of such experiences. The purpose of the symposium of which this communication forms a part is to provide a record of the investigation and treatment of two pairs of conjoined twins in which the union was a cephalic one—so-called craniopagus twins.

Twinning

Of the types of human twins the commoner dizygotic results from the fertilization and simultaneous development of separate

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