

The changing face of paediatric surgery

by

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The position and security of a child in society is generally taken as a reflection of the stage of development of that society. Treatment of the sick child, especially of the surgically sick child, was an aspect of the development of medical services that had to take low priority until quite recent years. Progress in surgery has always been closely related to war surgery; the return of the wounded soldier to battle is, after all, logistically important and, furthermore, even the most ardent defender of his homeland will go to war with more confidence in the knowledge that a surgeon awaits to heal his wounds should he become a casualty. The civilian population historically had to content themselves with the peacetime spin-off of wartime advances and the children came last.

Although some children's hospitals claim existence for five hundred years or more, these were not hospitals designed for curing disease but for the care of abandoned children and in some cases for the care of the severely handicapped. Hospitals for the surgical correction of diseases in children

were unthinkable in the pre-Listerian era, an era when any surgeon who had the courage to publish his results had to admit to an overall post-operative mortality rate of something over 90 percent. It was not until the introduction of antiseptic methods, closely followed by asepsis that the ratio of those surviving and those dying following surgical procedures was reversed, and it was then that children could be included amongst those to benefit from the new advances in surgery and children's hospitals began to be opened all over the western world. This period of active surgical advancement and the opening of children's hospitals occurred only 100 years ago.

For the first 50 years of the existence of our present children's hospitals the surgical admissions always accounted for more than half the total admissions as they do now. Those admissions were very largely for the treatment of acute and chronic infection, especially tuberculosis of bones and joints; those congenital anomalies which were treated were those that threatened function not those that

threatened life. Improvements in social conditions and in drug therapy, particularly in the 1930's, first reduced the incidence of tuberculosis and later reduced the demands for surgical treatment of pyogenic infections and it was in the late 1930's that the paediatric surgeon was beginning to face up to the problems of the treatment of congenital abnormalities which were incompatible with life.

NEONATAL SURGERY

It is likely that the development of techniques for the surgical management of congenital abnormalities in the newly born also owes a great deal to war surgery. In the 1940's further improvements in social conditions, together with the emergence of new antibiotics so reduced the infant mortality rate attributable to prematurity and infections that the hard core of deaths from congenital abnormalities was exposed. The paediatricians faced with this group of patients whose congenital abnormalities were life threatening looked for surgical assistance to correct those abnormalities; and experience gained in the battle fields in resuscitation and the treatment of shock, as well as in anaesthesia, opened new fields for major surgery in the first few days of life. Experience gained in the management of these neonates and the introduction of valved drainage systems for the control of hydrocephalus led also to an aggressive attack on open myelomeningocele during the neonatal period in many centres. Certainly in the United King-

dom it was this new surge of material producing about 100 cases for admission to a neonatal surgical unit for each million population that resulted in the development of a number of regional neonatal surgical centres with the consequent appointment of paediatric surgeons who would care not only for those neonatal surgical cases but for the surgery of older children.

The 1950's and 1960's were years of advancement and consolidation in the care of congenital abnormalities starting very largely in the neonatal period. New operations and techniques of management were developed which led to a marked reduction in mortality rates and an improvement in the quality of life of the survivors. In many instances, for example in oesophageal atresia, diaphragmatic hernia and intestinal atresias, babies born with a condition incompatible with life survived to live perfectly normal lives.

In other conditions, notably myelomeningocele, survival rates were increased but so was the number of severely handicapped survivors. Indeed, as results improved, so did early diagnosis of congenital abnormality and an increasing number of children often of very low birth weight with multiple abnormalities, were referred for surgery; in these children correction of the primary abnormality is often possible but there is serious post-operative morbidity attributable to the complications of low birth weight or to the associated anomalies.

In the United Kingdom in particular, and in some other countries the

long term survivors with myelomeningocele with severe handicap have caused a number of referring paediatricians to refrain from referring all such children for surgery believing that the end results do not justify the strain on hospital resources and family care.

Over the past five years attempts at selection of those children likely to benefit from aggressive treatment have resulted in a 50% reduction in the number of myelomeningoceles admitted during the neonatal period. During the same period there has been a very considerable drop in the birth rate in most European countries and this fall of 25% or more has probably reduced the incidence of congenital abnormalities disproportionately since the fall in the birth rate is particularly marked in women under 20 and over 32 years of age, the women in whom there is a slightly increased incidence of congenital abnormalities. The overall result in Liverpool has been a reduction of the admissions to the Neonatal Surgical Unit in Liverpool from 259 in 1971 to 165 in 1976.

It was neonatal surgery which accounted for the increased recognition of paediatric surgery and any decrease in it must cause some concern, particularly with regard to material available for training. However, provided the Regional Neonatal Surgical Unit serves a population of two million or more, there are still likely to be at least 100 admissions each year and concentration of effort on these children should improve results. New tech-

niques in open heart surgery in the very small child are likely to lead to an increase in the amount of open heart surgery in the neonate. Paediatric surgeons undertaking the care of the newborn, must increasingly be prepared to undertake total care; there is no place for dealing with only one part of a child's multiple anomalies. For instance, if a child with oesophageal atresia is known to have a severe ventricular septal defect then the oesophageal atresia should not be repaired unless it is intended that the ventricular septal defect will also be repaired if necessary in the first few days of life. The increasing contributions of intensive care, especially ventilatory care, will continue to improve the survival of very small children and, hopefully, to improve the quality of life in the survivors, and very close association between the surgeon, the anaesthetist and the neonatologist become increasingly important.

SURGERY OF MALIGNANT DISEASE

The establishment of national and international groups for the study of tumours in children has resulted in the pooling of information and some remarkable improvements in survival rates in spite of the fact that malignant tumours are rare: indeed, not only are tumours rare but the varieties are few and it has thus been possible to concentrate on specific types. Improvements in radiotherapy and the use of cytotoxic drugs have altered the function of the surgeon; combined

treatment is essential and the days of massive destructive surgery are probably past with far more attention paid to the quality of life of the long-term survivor. However, the surgeon still has an important part to play. Few would argue that complete excision was not the treatment of choice in a tumour that was confined to its primary site; and when the disease is more widespread, staging will usually depend on the surgeon and reduction of tumour bulk or removal of residual tumour after other forms of therapy may often be indicated.

SYSTEM SPECIALTIES

Traditionally, the part played by the system specialist varies from centre to centre. Otorhinolaryngology and ophthalmology in children are almost universally practised by adult specialists. Orthopaedic surgery in children is a major problem and, if not practised by a paediatric surgeon, it is often practised by an orthopaedic surgeon who devotes the majority of his time to the treatment of children. Plastic surgeons often overlap with paediatric surgeons in the care of cleft lip and palate and many other soft tissue anomalies. Urology is an area of competition in many centres; urologists tend to believe that urological conditions in childhood persist into adult life and therefore the child should be cared for by the adult system specialist. But urological conditions in childhood pose many problems different from those in adults and, in

general, advances in paediatric urology have come from paediatric urologists; the clinical material in the larger paediatric surgical centres will provide sufficient work for at least one surgeon to concentrate on urology and it is to be hoped that the number of paediatric urologists will increase in the next decade.

TRAUMA

If 60% of the admissions to a paediatric surgery unit can be attributed to congenital abnormalities of some variety, then another 30% can be attributed to trauma, and in spite of the work of many committees on the prevention of accidents this total is unlikely to change appreciably in the coming years.

The work load of a paediatric surgeon therefore will not appreciably diminish until the effect of reduction in the birth rate makes itself apparent in the reduction of the total child population; and it is rather doubtful if this situation will ever occur, since the reduced birth rate is more likely to reduce population increase rather than produce an actual decrease.

In the United Kingdom the hospitals account for 67% of the National Health Service budget: but children who account for 25 of the total population take up only 17% of hospital beds and no more than half of these children are undergoing surgery. These children therefore account for only a very small part of the total hospital population. Yet 90% of hospital admissions in paediatric surgery are

emergencies. The responsibility of the paediatric surgeon is much greater than the size of his specialty; his patients cannot speak for themselves but he must obtain for them the highest priority; in no other specialty can one look for 75 year survivals.

The paediatric surgeon must also deliver to his patients the highest standards of surgery and justify his specialty by the excellence of his service. In a small specialty international co-operation is of the utmost importance and paediatric surgeons can modestly claim to have achieved a very high level in the exchange of experience between nations. The first large national association was The British Association of Paediatric Surgeons and at its foundation almost 25 years ago, one third of its members were from overseas; today, of a total membership of over 400, over 300 members are from a total of 60 countries abroad. It is at the inter-

national congresses organised by the B.A.P.S. and other associations that problems in paediatric surgery are identified and hopefully that research projects are developed to solve them; world wide communications are facilitated by the World Federation of Associations of Paediatric Surgeons which now has 34 member societies from all continents.

The specialty which is small nationally thus becomes much larger internationally; its strength lies in co-operation not only with paediatric surgical colleagues but also with other surgeons and with all those concerned in the care of children. The development of paediatric system specialists in the larger centres, especially in cardiac surgery and urology, and a closer relationship with paediatricians in such special fields as neonatology and oncology are areas in which advancements can be expected in the next few years.

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