unit referral to hospital was delayed until the patient lacked the basic elements of care or until the help which he obtained from relatives, friends, and domiciliary services threatened to break down. Neglect of old people by relatives played a negligible part in the demand for admission to hospital. On the contrary, the help received from relatives, who were for the most part themselves middle-aged or elderly, was vast and was given willingly and cheerfully, so long as conditions were tolerable. The conditions found most difficult for relatives to bear was the long-continued presence of mental disorder, as noted also by Hoenig and Hamilton[5] and it is just this form of disability from which originates a very large part of the need of old people for care.

If the conditions shown by the present study are typical of those existing elsewhere in Great Britain it must be concluded that the burden of illness and disability in the elderly will exhaust any conventional system of domiciliary and hospital care. More hospital beds, home helps, and district nurses are certainly required, but this is not enough. New ways of dealing with the problems of ill old people[6-8] must be more widely introduced so that troubles are caught earlier and at least in some cases preventive and pre-emptive treatment is applied. If this is to be well done great improvements are required in the education of medical students and graduates in the diseases of old age and their management; more research opportunities must be created in the fields of dementia, incontinence, balance and gait disturbances, and medical care; and the status and conditions of work of departments of geriatric medicine must be enhanced so that more physicians of high calibre are attracted to this rewarding branch of the profession.

The prolonged survival of many severely disabled and ill people into advanced old age is a new phenomenon in our society and has created unprecedented strain on our family and social system. The terminology and thinking of a previous period with entirely different circumstances must be discarded if the solution to our difficulties is to be found.

The present study was conducted by a team of workers who included Dr. W. Mathieson, Mrs. M. Livingstone, Mrs. C. Campbell, and Mrs. Y. Neville, with additional secretarial help from Mrs. J. Gunn. The project was supported by a grant from the Research and Intelligence Unit of the Scottish Home and Health Department, and constant encouragement and advice were received from Dr. M. A. Heasman, director of the unit, and Dr. W. T. Thom, of the Scottish Home and Health Department. Every kindness and assistance was received from the many subjects, patients, general practitioners, hospital staff, social workers, administrators, and officials whose help we sought, and who are acknowledged individually in the publications cited.

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Problems of the Newborn

Some Congenital Malformations Necessitating Emergency Operations in the Newborn Period

P. P. RICKHAM

British Medical Journal, 1971, **4**, 286–290

The number of infants born with congenital malformations requiring emergency surgery during the newborn period is small—about 2 per 1,000 live births. The cost of treatment of these infants is high, since it necessitates a team of highly specialized and skilled medical and nursing personnel, as well as a great deal of special equipment. Unless these neonates are collected in a few widely separated special centres, doctors and nurses working in neonatal surgical units will not get enough experience in the management of these difficult conditions and will be unable to obtain consistently satisfactory results. By and large this principle has been accepted in Britain.

For the general practitioner who delivers an infant with a congenital malformation requiring urgent surgery there are three immediate problems to be solved: diagnosis of the condition, initial management, and management during transport, often over considerable distances. A fourth problem, which is at least as important as the first three, is the support and advice the practitioner has to give to the family of such an infant.

In this article common malformations except meningomyelocele and hydrocephalus will be considered; a separate article will deal with these two.

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Diagnosis

Broadly speaking, most malformations requiring emergency surgery during the newborn period are malformations of the alimentary and respiratory tracts, though a few grave genito-urinary malformations have also to be considered. In the diagnosis of the condition the presenting signs and symptoms are all important and will be discussed in some detail.

VISIBLE DEFORMITIES

The diagnosis is usually obvious, and it is mainly the evaluation of the degree of deformity which must be discussed here.

Micrognathia and Retrognathia

In these conditions the small and underslung lower jaw gives the child a characteristic expression (Fig. 1). The immediate danger is suffocation, as the tongue tends to fall back into the pharynx, obstructing respiration. This complication is

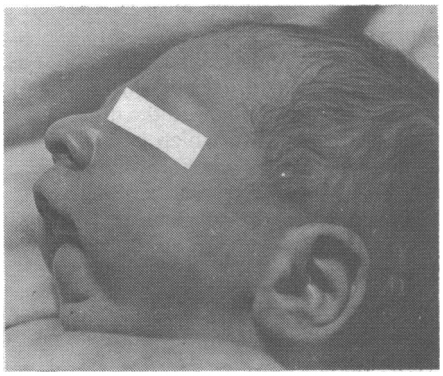

FIG. 1—Typical appearance of neonate with retrognathia.

especially prone to occur if the condition is associated with a cleft palate, the so called Pierre Robin syndrome. Depending on the severity of the condition greater or lesser feeding difficulties will also be encountered.

Exomphalos

In exomphalos there is a defect of the abdominal wall through which the abdominal contents protrude, covered only by a translucent, glistening membrane. In the minor variety of the

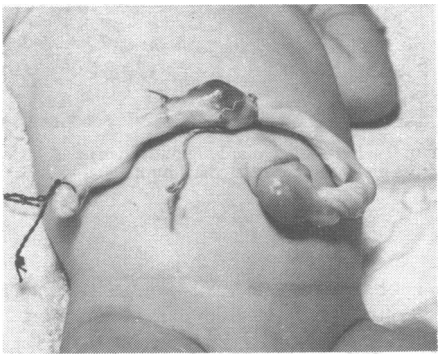

FIG. 2—Exomphalos minor containing a knuckle of intestine.

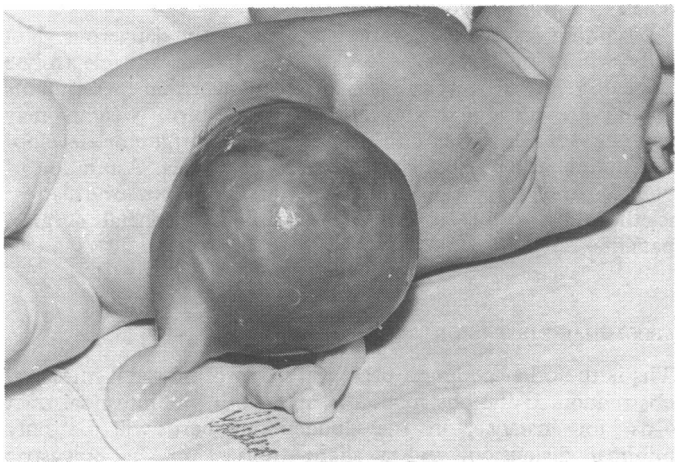

FIG. 3—Exomphalos major containing liver and most of the intestine.

malformation the defect will be narrow and only a knuckle or two of intestine may protrude (Fig. 2). In the major variety most of the intestine, stomach, liver, and spleen may be present in the sac (Fig. 3). If exposed to the air the translucent sac will soon become opaque and brittle.

In a less common variation called gastroschisis the intestine herniates through a gap beside the umbilicus, which is in its normal position. The intestine is not covered by a membrane and is often grossly thickened, cyanotic, and oedematous.

Ectopia Vesicae

Just above the symphysis pubis there is a bright red oval or round area, which is the exposed bladder mucosa. On closer inspection the trigone and the two ureteric openings into the bladder may be observed in the lower part of the bladder field (Fig. 4). There is complete epispadias. In the male the penis is flattened and shortened and frequently bent dorsally. In the

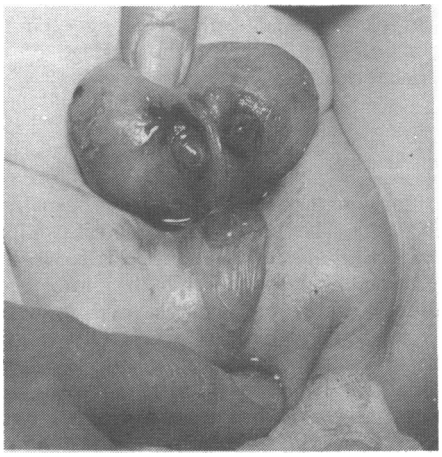

FIG. 4—Ectopia vesicae showing prolapsing ureteric orifices and epispadias.

female the urethra is represented by a strip of mucosa of 1 to 2 mm in length. In both sexes the pubic bones are widely separated. In a still more severe variation of the malformation, known as extrophy of the cloaca or vesico-intestinal fissure, the exposed bladder field is split into two halves by the interposition of an opened-up intestinal segment, which is usually the caecum with ileum prolapsing through the ileocaecal valve. Frequently exomphalos and myelomeningocele are associated lesions, and the penis is often split into two halves.

Absent Anus

This condition should be obvious on first inspection, but is commonly overlooked. The site of the anus may be represented by a dimple or scar (Fig. 5). In girls a fistula is frequently

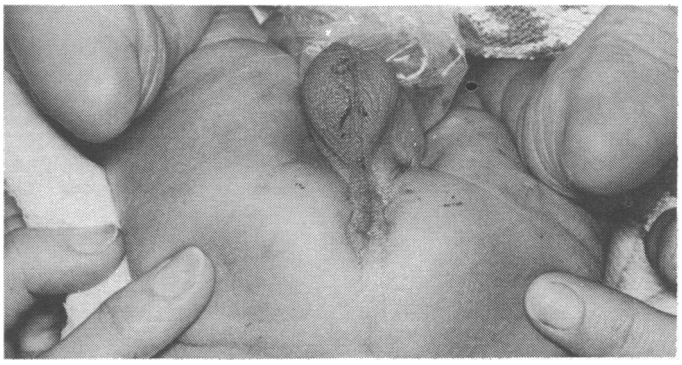

FIG. 5—Absent anus. There is a scar at the site where the anus should be.

present between the blind-ending rectum and the vulva or perineum. In boys a fistula between the blind-ending rectum and the bladder or posterior urethra is often seen. In all these cases there may be meconium stains on the nappies, which may deceive the attendants unless the baby's perineum is examined.

RESPIRATORY DISTRESS

Many urgent surgical conditions of newborn infants present with respiratory distress shortly after birth. The more common of the conditions are:

Bilateral Posterior Choanal Atresia

Both posterior nares are blocked by a mucosal, cartilaginous, or bony septum and the infant cannot breathe through his nose. Many newborn babies will not open their mouth to breathe; they suck in their lower lip and become progressively more cyanosed. Unless the attendant opens the mouth the infant will die of asphyxiation. The diagnosis is confirmed by attempting to pass a small catheter along each nostril. The obstructing septum will prevent the passage of the catheter into the nasopharynx.

Oesophageal Atresia

There is a block in the upper oesophagus usually just below the thoracic inlet. The infant regurgitates swallowed mucus and saliva, constantly. Occasionally, especially when the infant's position is changed, saliva may spill over into the larynx and trachea, causing attacks of dyspnoea and cyanosis. If these presenting symptoms are ignored, the child will be fed, with disastrous consequence, as the blind oesophageal pouch will be filled with the first swallow of the feed, which will overspill into the larynx and down the trachea into the lungs. The weak infant may be drowned, the stronger one will splutter and cough, but some feed will have run into the lungs, causing pulmonary collapse and subsequent pneumonia.

Once oesophageal atresia is suspected a stiff rubber catheter should be passed down the infant's mouth. If the passage of the catheter becomes blocked at a distance of about 10 cm from the lips oesophageal atresia is the likely diagnosis, and should be confirmed by radiography of the chest with the oesophageal rubber catheter in situ (Fig. 6).

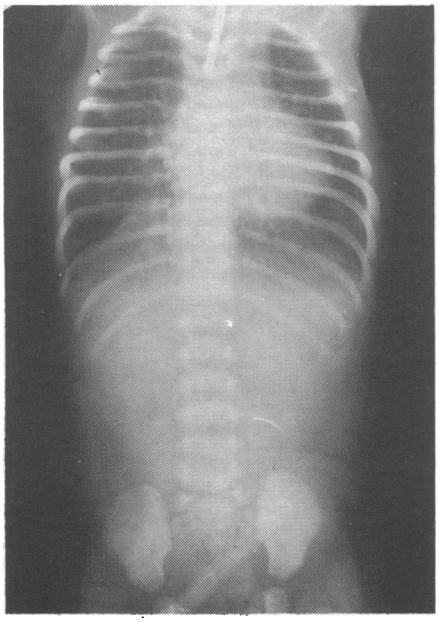

FIG. 6—Oesophageal atresia showing radio-opaque catheter in proximal pouch. There is no air in the abdomen; hence the child does probably not have a tracheo-oesophageal fistula.

Diaphragmatic Hernia

There is a congenital defect usually on the left side of the diaphragm. Intestinal loops are sucked into the pleural cavity preventing expansion of the ipsilateral lung. The heart and mediastinum are displaced to the opposite side and the contralateral lung is compressed. The child will suffer from severe respiratory distress from birth, which becomes worse when he is fed. The abdomen will be scaphoid, while the mediastinum and heart are grossly displaced and on auscultation over the affected side of the chest bowel sounds will be heard. The diagnosis is confirmed by radiography of the chest (Fig. 7).

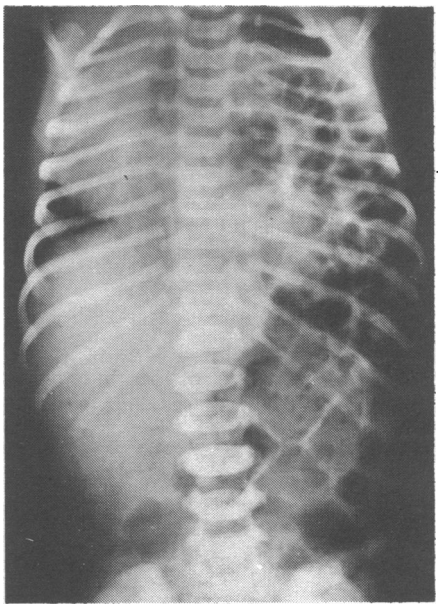

FIG. 7—Left-sided diaphragmatic hernia showing gross displacement of mediastinum.

VOMITING

As intestinal obstruction is usually below the ampulla of Vater the vomitus will be bile-stained in most cases. Any infant who vomits green material after birth must be suspected of suffering from intestinal obstruction until proved otherwise. If the obstruction is high up in the intestinal tract vomiting will be early in onset and profuse and may at times be projectile; if it is low down the onset of vomiting may be delayed for many hours and there will be effortless regurgitation of small quantities of vomitus.

Vomiting in newborn infants is extremely dangerous. Not only will it quickly cause severe dehydration and electrolyte depletion, but there is an ever-present danger that these infants —who are enfeebled and often of low birth weight—may aspirate vomitus, thus either suffocating outright or developing pulmonary collapse and bronchopneumonia. Aspiration of vomitus, mucus, or saliva and the resulting respiratory distress is the most common cause of death in neonatal surgical patients.

ABDOMINAL DISTENSION

Ths is the other common presenting sign of neonatal intestinal obstruction. If the obstruction is high up in the intestinal tract —as, for instance, in the duodenum—there will be only minimal distension, and a slight fullness in the epigastric region. In low intestinal obstruction, however, the small

intestine proximal to the block will dilate and fill with intestinal contents and swallowed air. As the newborn infant has relatively weak abdominal muscles, abdominal distension is often extreme, the abdominal skin being tense and shiny (Fig. 8). Gross abdominal distension is a dangerous state of affairs in the newborn infant, whose respiratory movements are practically entirely diaphragmatic. Increased intra-abdominal pressure secondary to distension will therefore seriously interfere with respiration and may cause severe dyspnoea.

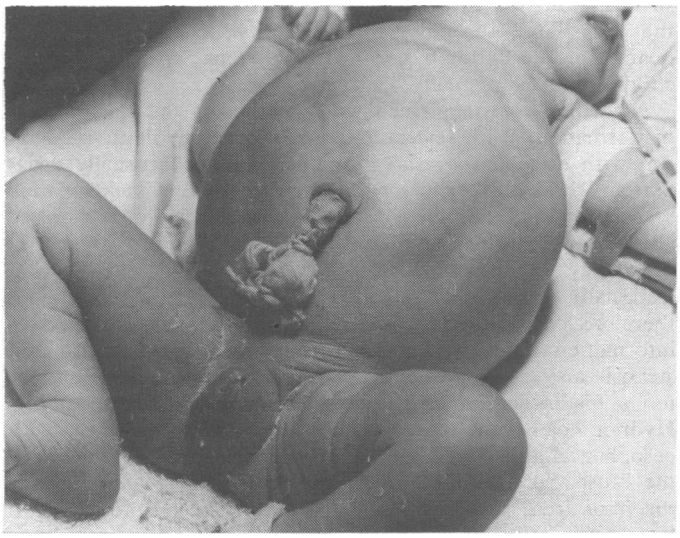

FIG. 8—Marked abdominal distension in child with low intestinal obstruction.

OTHER SIGNS AND SYMPTOMS OF INTESTINAL OBSTRUCTION

In the newborn all the other signs and symptoms of intestinal obstruction may be misleading. Absolute constipation may be present and the passage of a greyish plug of mucus per rectum is often diagnostic of neonatal intestinal obstruction. In many cases, however, one or two small meconium stools may be passed even if the obstruction is complete and in incomplete obstruction meconium, changing stools, and milk stools may all be passed.

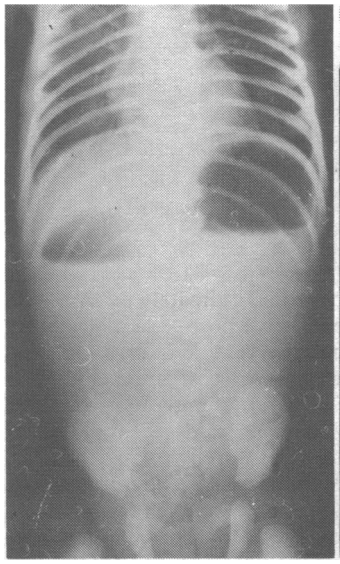

FIG. 9

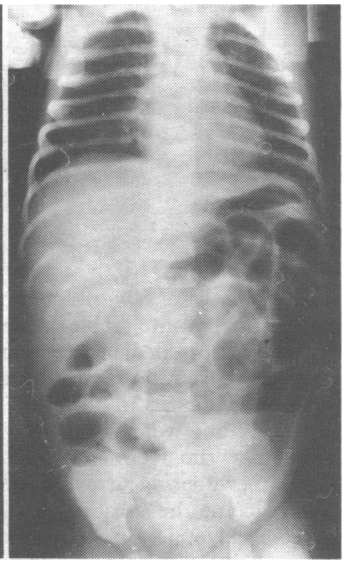

FIG. 10

FIG. 9—Duodenal atresia showing one fluid level in the stomach and one in the proximal duodenum. There is no air in the rest of the abdomen; the obstruction is therefore complete. FIG. 10—Ileal atresia with multiple fluid levels. There is no air in the pelvis; the obstruction is therefore complete.

Visible peristalsis—either gastric in high intestinal obstruction or intestinal in low obstruction may be observed—but it may also be seen in normal, thin infants, especially if they are of low birth weight, as the very thin abdominal wall may allow the normal movements of the intestine to be observed.

The diagnosis of neonatal intestinal obstruction is therefore made primarily by noting bile-stained vomiting (usually) and abdominal distension. It is confirmed by taking one straight radiograph of the infant's chest and abdomen in the upright position. By noting the presence, number, and distribution of fluid levels; the absence or presence of air in the pelvis; the absence or presence of calcification or free air under the diaphragm; etc., it is possible in the majority of cases to make a correct diagnosis of the nature of the obstruction, its anatomical site, and the presence or absence of complications. (Figs. 9 and 10).

Initial Management

The initial management consists in keeping the infant warm, keeping the respiratory passages clear, and preventing vomiting and abdominal distension. Some special measures are required in certain cases.

KEEPING THE INFANT WARM

Nursing the infant in a warm room and covering him with blankets is usually all that is required. Hot water bottles should be avoided and used only in extreme cases, outside the blankets, and with great care.

KEEPING THE RESPIRATORY PASSAGES CLEAR

At the slightest indication of respiratory embarrassment the mouth and pharynx should be aspirated. This is best done with the aid of the Queen Charlotte's mucus aspirator, which every midwife keeps in her bag. In babies with oesophageal atresia this may have to be repeated every few minutes. All infants should be nursed flat, lying on their side to allow mucus or vomitus, or both, to dribble out of their mouth.

PREVENTING VOMITING AND ABDOMINAL DISTENSION

This is best accomplished by passing a thin, soft rubber urethral catheter through one nostril into the stomach, strapping the catheter to the nostril, and aspirating the stomach with the aid of a 10 ml syringe at 5- to 10-minute intervals. In infants even extreme abdominal distension due to low intestinal obstruction can be relieved by efficient gastric aspiration.

SPECIAL MEASURES

Infants with micrognathia should be nursed in the semi-prone or full prone position to allow the jaw and tongue to fall forward. The sac of an exomphalos should be dressed with wet sterile gauze and the dressings should be repeatedly moistened using sterile water, saline, or Hibitane (chlorhexidine gluconate) solution. In bilateral posterior choanal atresia the infant's mouth must be kept open. This is best done with an airway of appropriate size. If this is not available the mouth can be kept open simply by wedging the corner of a gauze swab between the jaws at the angle of the mouth.

Management during Transport

Because of the necessity to concentrate treatment of these urgent surgical malformations in a few centres these infants will often travel over long distances. Fortunately (with one

exception) they travel well provided certain precautions are taken.

A doctor or experienced nurse must accompany the infant and watch him continuously. In cases with intestinal obstruction the gastric tube has to be aspirated at frequent intervals. All infants are nursed lying flat and on their side and the mouth and pharynx are aspirated at intervals and at any time when there is the slightest indication of respiratory distress. Heat loss is guarded against by transporting the infant, wrapped in blankets, in a carrycot. Covering the blankets by wrapping thin aluminium foil around them further protects against heat loss by radiation. Ideally the infant should be transported in a portable incubator heated by the ambulance's battery in an ambient temperature of between 30 and 35°C, a high humidity and, if necessary, in an oxygen-enriched atmosphere. These portable incubators allow for close observation of the infant during transport and are now available at most large maternity hospitals.

The one type of malformation that is associated with difficulties during travel is diaphragmatic hernia. Here a rubber tube has to be passed into the stomach and aspirated repeatedly to prevent distension of the stomach and intestine. An endotracheal tube must be passed and positive pressure respiration instituted. As it is extraordinarily easy to burst some of the alveoli with positive pressure respiration, and thus cause a tension pneumothorax, an experienced anaesthetist should always accompany the child. Sterile hollow needles and syringes should be at hand. Sudden deterioration of the infant's condition is often due to the development of a tension pneumothorax on the unaffected side, which can be relieved by aspirating the pleural cavity through the anterior end of the second intercostal space.

Advice to the Family

The general practitioner is the doctor who knows the family best and is therefore the ideal person to advise and support them. The parents' shock when they first hear that their baby has been born with a malformation necessitating immediate major surgery is very great indeed, and they need reassurance and support. They will have to give permission for operation and will want to know the chances of success. In general it can be said that if the infant is of normal birthweight, if there is no other severe malformation, and if the diagnosis has been made promptly and complications such as pneumonia, dehydration, etc. have not yet developed, the prognosis is good; thus about 90% or more of these infants survive today in the major neonatal surgical centres. Low birthweight, associated malformations, and a poor general condition naturally worsen the prognosis.

The second question the parents will ask is whether the child will be completely normal if he survives operation. In the vast majority of the cases mentioned above this is the case. The exceptions are, firstly, intestinal obstruction due to meconium ileus, a severe form of mucoviscidosis, where the surviving infants invariably suffer from fibrocystic disease of the lungs and, secondly, mongolism (which affects about a quarter of the children born with duodenal atresia), as these children will be mentally backward.

A further question which will be asked is the cause of the malformation. With few exceptions (meconium ileus; mongolism with duodenal atresia) the family history is usually negative and it is extremely rare for more than one malformation to occur in one family. Most of the malformations described above can develop only during the first eight weeks of pregnancy. Diseases of the mother during this period (especially virus infections), the taking of drugs, etc., should therefore be inquired about, but it is very rare for positive information to be forthcoming. Jejunal and ileal atresia and stenosis may develop later on during intrauterine life, but here too a history of maternal illness is very rarely forthcoming. Hydramnios is common in mothers giving birth to infants with oesophageal atresia or high intestinal atresia. It is not, however, the cause, but the effect of the malformation, which prevents the fetus from swallowing the amniotic fluid and absorbing it from his intestine.

The parents also worry about whether these children will need much extra care and attention after discharge from hospital. Several of them will need a certain amount of extra care, especially with feeds. They may be infants of low birth weight and may in any case not gain weight as quickly as a normal child; but by and large the extra care needed is minimal and with the help of their general practitioner most of these infants can be brought up more or less normally to develop into perfectly normal children and adults. There are exceptions. Some of them have already been mentioned (meconium ileus, mongolism) and in others, such as ectopia vesicae, the chances of operation producing normal control of micturition is small, and most of these children will need some type of urinary diversion later on. The ultimate outlook for most survivors of operations for malformations of the alimentary tract is very good.

Organizing a Medical Congress

PHILIP H. N. WOOD

British Medical Journal, 1971, **4**, 290-291

Introduction

The periodic jaunt to an international conference is an accepted part of the scene, and though many have begun to question the value of these jamborees few seem to have been provoked by P.M.S. Blackett's view that soundly based doctrine needs re-examination since time may overtake it. Yet this is what has happened. What was perhaps agreeable when the participants were few and could gather intimately as in a club has become an intolerable and expensive bore.

Firstly, most people agree that the functions of a congress are social, scientific, and educational—in that order and with education a poor third. "Who learns anything? We meet and get ideas, but we don't learn" someone said recently. Timetables may run from 9 a.m. to 6 p.m. for five days or more, with a bewildering array of disjunct topics. The young turks may welcome the breadth of choice, but humbler beings begin to feel schizophrenic when they want to hear a number of papers being presented at the same time. At the extreme of my experience were 36 concurrent sessions intended to elucidate various human problems. Too much choice readily breeds indifference so that scientific sessions are neglected and social contacts become pre-eminent.

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