suggestions, or, alternatively, have a slot in which adolescents and teenagers themselves can produce programmes.

The mere existence of television in our society means that television changes both through what it describes and through what it ignores, so that nothing is unaffected by it. Mrs Williams gave a good example of the place which Biafra now occupies in the news. It would be impossible, of course, to continue to present all past disasters as well as current disasters.

Television makes its major impact between the ages of 8 and 12 or 13 (afterwards it has a low priority since it is in the home); what can be done to lessen its influence?

Our research showed that every time a child was offered the opportunity to go out and meet friends, or to go to a youth club, television was forsaken. Television is like a tap, turned on if there is nothing better to do. Very few children become deeply involved in television; in fact, we found that where children were so involved they were either very unhappy in their emotional relationships at home or school, or they were in a situation where there was no outlet for them. Exaggerated involvement in television is often a sign of maladjustment.

REFERENCE
Schramm W, Lyle J & Parker E B
(1961) Television in the Lives of our Children. Oxford

Meeting May 22 1970

Neonatal Abdominal Emergencies

Mr H H Nixon
(The Hospital for Sick Children, Great Ormond Street, London WC1)

Small Intestinal Atresia

[Abridged]

The Great Ormond Street experience of jejuno-ileal atresias and stenoses from 1949 to 1967 has recently been reviewed, by the courtesy of my colleagues and with the help of Mr M Khan and Mr R Tawes.

There were 127 cases in all, including only those stenoses severe enough to present in the first month of life. They are compared with a series of 62 cases of duodenal atresia and stenosis seen between 1955 and 1964.

Nature of the Lesion

The commonest type was a gap atresia with separation of the bowel ends (53 cases); junction by a cord was almost as common (43). Septal atresia was less common in jejuno-ileum (9 cases) and in only 10% were there widely separated multiple atresias which would complicate treatment.

Macroscopic or microscopic evidence of origin in a late fœtal accident was found in the majority (intercalated mass of twisted bowel, adherence to the umbilicus, meconium peritonitis, squames below atresia, &c.). Disordered reduction of the physiological umbilical hernia of fœtal life (Clogg 1904, Nixon 1955) seems likely to be a common cause, and meconium ileus or fœtal intussusception less common. Such a late accident would be less likely to be associated with other abnormalities, which were present in only 15%. However, cystic fibrosis, acting through its local meconium ileus component, was present in 10%.

The Operation

Clinical observations and experiments reported some time ago (Nixon 1955, 1960) suggested that malfunction after direct anastomosis was often due to inadequate propulsion by the enlarged proximal loop. Our survivals increased from one-third to over two-thirds when elective resection was carried out.

The mesentery of the unused distal bowel is short and it is important to take a tuck in the longer mesentery of the proximal bowel to avoid kinking at the exit from the anastomosis.

Risk grouping has been used for some time in the assessment of neonatal surgery (Waterston *et al.* 1962): Group A, weight more than 5·5 lb (2·5 kg), no other significant anomaly. Group B, weight 4–5·5 lb (1·8–2·5 kg), or other moderate anomaly. Group C, weight less than 4 lb, or other anomaly endangering life; or 4–5·5 lb plus moderate anomaly. In this series we have also used a 'treatment grouping' which is believed to be more useful than the usual division into jejunal and ileal. A special problem arises at the upper end where adequate resection of the enlarged bowel is impractical because it extends

Table 1
Jejuno-ileal atresia and stenosis (94 cases 1956–67)

	Risk groups A+B		*Risk group C*	
	Survivors	*Deaths*	*Survivors*	*Deaths*
High jejunal (resection & anastomosis; 5 with transanastomotic tube; 1 with feeding jejunostomy)	6 (60%)	4	0	8
Mid-small intestinal (47 resection and anastomosis; 10 Bishop-Koop; 1 other)	32 (82%)	7	6 (30%)	13
Terminal ileal:				
Retaining ileocæcal valve	8 (100%)	0	1	2
Sacrificing ileocæcal valve	0	0	2 } 6	1 } 4
Bishop-Koop	0	0	3	0
Peritoneal drainage only	0	0	0	1

into the duodenum. Another problem at the distal end is whether to anastomose just proximal to the potentially obstructive ileocæcal valve or sacrifice the valve for a simpler anastomosis to the colon. The majority of the atresias lie in the mid-section and are amenable to the standard anastomosis described above. Table 1 shows clearly the improving prognosis as one proceeds distally – 60%, 82% and 100% survivals for Groups A+B. (This is in keeping with the etiological concept of snaring of the prenatal umbilical hernia, for in the higher atresias a greater part of the midgut loop would be involved in the accident.) It also shows that although anastomosis proximal to the ileocæcal valve is reliable in Groups A+B (100% survival) yet it can be sacrificed, as in some of the surviving Group C babies, without later ill effect.

Causes of Death

An attempt was made to analyse the primary causes of death into unavoidable and avoidable. Only six seemed virtually unavoidable (congenital heart defect, afibrogenæmia, &c.). There were thirteen avoidable causes acting before admission to hospital and these were mainly the result of delayed referral (e.g., septicæmia, inhalation of vomitus). The largest group of thirty-seven avoidable factors after referral remain for the surgeon to deal with. Mismanagement such as overhydration does not appear in more recent years. The hazards of hyperbilirubinæmia, hypoglycæmia and respiratory problems in particular have been realized, but the considerable proportion of deaths due to leak or functional obstruction of the primary anastomosis has not decreased: 1949–56, 6 deaths; 1956–62, 6 deaths; 1962–7, 5 deaths.

Risk grouping shows that this anastomotic trouble is almost entirely in Group C babies. For these I would now avoid straightforward resection and primary anastomosis and prefer Roux-en-Y anastomosis which has a safety valve effect. Technical problems remain important and are one of the good reasons for centralizing the care of these babies out of the hands of the occasional operator.

Comparison with Duodenal Atresia and Stenosis

Nature of the lesion: With duodenal atresias there is a high incidence (53%) of important associated anomalies but very few cases of anastomotic failure (Table 2). Annula or wedge pancreas is common and is associated with an intrinsic stenosis or atresia. Noblett's (1970) dissections demonstrate the frequency of doubling of the end of the common bile duct and separate entry of the dorsal and ventral pancreatic ducts. Thus bile and pancreatic juice may enter the gut above and below a complete atresia.

Table 2
Duodenal atresia and stenosis (62 cases 1955–64)

	No. of cases	*No. of survivors*
No significant anomaly:		
Group A	16	16
Group B	10	8
Group C	3	1
With significant anomaly:		
Group A	16	10
Group B	12	1
Group C	5	0

Down's syndrome and cardiovascular anomalies were the most frequent anomalies in other systems. Anomalous rotation and the more serious œsophageal atresia are the most frequent associations in the alimentary tract – all in keeping with an earlier organogenetic origin of these atresias.

The operation: Many of us now prefer the direct oblique end-to-end anastomosis (Nixon 1960) to the classical gastro- or duodeno-jejunostomy which leaves a blind loop. Because we cannot resect the enlarged bulb of proximal duodenum owing to the entry of the bile and pancreatic ducts we circumvent the early feeding problem

Table 3
Duodenal atresia and stenosis (62 cases 1955–64)

	No. of cases	*No. of survivors*
With transanastomotic tube:		
Group A	14	14
Group B	10	8
Group C	12	5
Without transanastomotic tube		
Group A	5	5
Group B	6	4
Group C	12	0

3 cases not operated: 2 mongols, 1 moribund on admission

by a transanastomotic jejunal silastic feeding tube. A large gastrostomy tube is more effective in preventing vomiting than a nasogastric tube and eases management (Table 3). (The same technique is applicable to high jejunal atresias after resection back to the duodenojejunal flexure.)

Causes of death: The serious effect of associated anomalies is seen from the 100% survival of otherwise normal mature babies, as against 63% of mature babies with another significant abnormality and no survivors under 4 lb (1·8 kg) birth weight with a major associated anomaly.

The benefit of transanastomotic jejunal drip feeding is most clearly seen in the Group C babies where survival was raised from zero to 42% of the 24 babies.

Only one death was primarily due to anastomotic failure but pre-operative (and pre-transfer) inhalation of vomitus was a significant factor.

Unusual Facets

It has been accepted that the development of a blind pouch with hæmorrhage and malabsorption was a complication of side-to-side anastomosis which would be avoided by other forms of anastomosis. However, the late follow up of these patients has revealed three such cases following the very oblique end-to-end anastomosis carried out in these jejuno-ileal atresias to join segments of unequal calibre (Nade & Dickson 1970).

A group first called 'apple peel' by Santulli have atresia at or just beyond the duodenojejunal flexure. The bowel beyond has an entirely unfixed mesentery. The superior mesenteric vessels are absent and the bowel survives on the arcade from the right colic. Four of our 5 cases were in two pairs of siblings with identical lesions. Mishalany has recently reported 3 cases in one sibship (Mishalany & Najjar 1968, Blyth & Dickson 1969).

One of the babies with multiple anomalies was left with 22 cm of jejunum anastomosed to the ascending colon without an ileocæcal valve. After three months of intermittent intravenous therapy she compensated so that she has since gained steadily on the 25th percentile for weight on a normal diet with vitamin B_{12} once a month, and has started school.

This series only included stenoses presenting in the neonatal period. Other stenoses presented later with malabsorption which had led to preliminary diagnosis and treatment as cœliac syndrome. Such partial obstruction causing the 'stasis syndrome' seems to have been missed because of the paradoxical presentation without constipation – fatty stools and bouts of diarrhœa were seen and vomiting was intermittent or virtually absent.

Comment

Management before and during transfer to a pædiatric surgical unit is important. The stomach should be kept empty by the passage of a nasogastric tube and repeated aspiration during the journey. Warmth should be maintained by a portable incubator.

Surgical techniques for Group C babies with jejuno-ileal atresias may be modified.

REFERENCES

Blyth H & Dickson J A S
(1969) *J. med. Genet.* **6**, 275

Clogg H S (1904) *Lancet* ii, 1770

Mishalany H G & Najjar F B
(1968) *J. Pediat.* **73**, 753

Nade S M L & Dickson J A S
(1970) *Brit. J. Surg.* **57**, 540

Nixon H H
(1955) *Arch. Dis. Childh.* **30**, 13
(1960) *Ann roy. Coll. Surg. Engl.* **27**, 105

Noblett H (1970) Communication to Centenary Meeting, Royal Children's Hospital, Melbourne

Waterston D J, Bonham-Carter R E & Aberdeen E
(1962) *Lancet* i, 819

Mr John D Atwell
(*Southampton Children's Hospital, Southampton*)

Pitfalls in the Diagnosis of Intestinal Obstruction in the Newborn

The true incidence of neonatal intestinal obstruction is unknown, but in 1964 when the Registrar General started to keep records he reported 250 patients from England and Wales; of these 163 had anorectal anomalies and 33 had Hirschsprung's disease. These figures are inaccurate as there was only one patient reported from London. The importance of early diagnosis in neonatal intestinal obstruction cannot be overstressed as delay may cause an increase in the morbidity and mortality.

One hundred and seventy patients with intestinal obstruction at differing levels of the intestine have been treated since June 1963. Group 1 consisted of 36 patients with duodenal obstruction: atresia, stenosis and annular pancreas (21 patients); malrotation, congenital bands and volvulus neonatorum (15 patients). Group 2 (29 patients): jejuno-ileal atresia and stenosis (16 patients) and meconium ileus (13 patients). Group 3 (62 patients with large intestinal obstruction): Hirschsprung's disease (40 patients) and the other idiopathic causes of obstruction (22 patients). Group 4 (43 patients) includes the high and low types of anorectal anomalies.