VOL. XLI No. 5

MAY 1962

The NOVA SCOTIA MEDICAL BULLETIN

EDITORIAL

DIAGNOSTIC AND THERAPEUTIC INERTIA

The art of progress is to preserve order amid change and to preserve change amid order.
Whitehead.

During the past few years changes in both hospital and private practice have stimulated discussion as to how physicians may deal more adequately with the problems that have come with a broadened scope of medical practice.

The introduction of a hospital insurance programme represents one "change" that has required the physician to adjust his thinking regarding hospital patients. The increased demand for In-patient care coupled with limited facilities in certain areas has been of particular frustration to many physicians. In certain areas of this province hospital beds remain in short supply due partly to lack of actual accommodation and in some cases to lack of adequate nursing personnel for complete utilization of beds available. Because of this the physicians' problems regarding admitting and discharging patients has been compounded.

The increasing development of laboratory procedures and diagnostic tests has made the physician much more dependent on para medical personnel for diagnosis and therapy. Such para medical personnel are frequently employed on a five or five and one half day week - a necessity if medical services are to compete with industry for laboratory personnel.

This limitation of working hours of certain hospital personnel requires the physician to consider the availability of certain services. When admitting patients to hospital although emergency situations are managed with appropriate dispatch those that are non-urgent are not uncommonly looked after much less expeditiously.

Occasionally the plan for studies and treatment is not well organized and a number of days may go by while the physician orders piecemeal and sporadically the necessary diagnostic and the therapeutic procedures. Frequently some thought prior to admission would have accelerated therapy and shortened the patients hospital stay. Patients requiring surgery may be admitted without pre admission examination and consequently an associated infection goes unrecognized until after admission requiring a delay of several days before operation. In some cases surgical patients may be admitted at the end of the week remaining in over the week-end and not being operated upon until the beginning of the next week. Some thought at the time of the arrangement for

THE MEDICAL SOCIETY OF NOVA SCOTIA

NOVA SCOTIA DIVISION
OF
THE CANADIAN MEDICAL ASSOCIATION

MEMBERS OF EXECUTIVE COMMITTEE

OFFICERS

President	R. F. Ross
President-Elect	D. F. Macdonald
Immediate Past President	*F. J. Granville
Chairman Executive Committee	L. C. Steeves
Honorary Treasurer	J. F. Boudreau
Executive Secretary	C. J. W. Beckwith

BRANCH SOCIETY REPRESENTATIVES

Antigonish-Guysborough	T. W. Gorman
Cape Breton	H. F. Sutherland & J. R. Macneil
Colchester-East Hants	H. R. McKean
Cumberland	J. C. Murray
Halifax	D. M. MacRae, F. J. Barton & K. M. Grant
Lunenburg-Queens	S. B. Bird
Pictou County	M. F. Fitzgerald
Valley	D. MacD. Archibald
Western Counties	C. K. Fuller

OBSERVERS

Representative to CMA Executive Committee	R. O. Jones
Chairman Public Relations Committee	S. C. Robinson
Chairman Medical Economics Committee	H. E. Christie

CHAIRMEN OF STANDING COMMITTEES

COMMITTEE	CHAIRMAN	COMMITTEE	CHAIRMAN
Archives	C. M. Bethune	Medical Economics	H. E. Christie
By-laws	H. J. Devereux	Medical Education	D. C. P. Cantelope
Cancer	J. E. Stapleton	Membership	D. M. MacRae
Child Health	R. S. Grant	Nutrition	W. A. Cochrane
Civil Disaster	S. B. Bird	Pharmacy	R. M. MacDonald
Editorial Board	E. H. Evans	Public Health	S. Dunn
Fees	C. H. Young	Public Relations	S. C. Robinson
Health Insurance	N. K. MacLennan	Rehabilitation	G. J. H. Colwell
Legislation & Ethics	D. F. Smith	Traffic Accidents	A. L. Murphy
Maternal & Perinatal Health	M. G. Tompkins, Jr.	W.C.B. Liaison	A. W. Titus

BRANCH SOCIETIES	PRESIDENT	SECRETARY
Antigonish-Guysborough	G. L. Silver	R. Sers
Cape Breton	N. K. MacLennan	L. W. Christ
Colchester-East Hants	H. R. McKean	K. B. Shephard
Cumberland	R. E. Price	R. A. Burden
Halifax	F. J. Barton	J. A. Myrden
Lunenburg-Queens	D. C. P. Cantelope	G. D. Donaldson
Pictou County	J. A. F. Young	W. D. MacLean
Valley Medical	J. P. McGrath	H. R. Roby
Western Counties	D. F. MacDonald	G. D. Belliveau

AFFILIATE SOCIETIES	PRESIDENTS
Nova Scotia Association of Radiologists	A. J. M. Griffiths
Nova Scotia Society of Ophthalmology & Otolaryngology	R. H. Fraser
Nova Scotia Society of General Practitioners	A. G. MacLeod
Nova Scotia Chapter of College of General Practice	F. J. Granville
Nova Scotia Division of Canadian Anaesthetists' Society	C. H. L. Baker
Nova Scotia Association of Pathologists	J. N. Park

* Deceased Sept. 19, 1961.

hospitalization would have corrected this delay. Consultation by other services or confreres before or shortly after admission may shorten hospital stay by outlining a definite programme.

This diagnostic inertia is one of those hospital procedures that comes to be taken for granted - a way of hospital life.

It is interesting to review the average length of stay in various hospitals throughout the province over the past year. Hospitals admitting 1500 to 4000 patients per year have an average length of stay of 9.4 days with variations from 5.7 to 19.7 days suggesting a marked difference in clinical conditions or a difference in medical care.

The physician to provide the best medical care must have available in the community adequate facilities in quality and quantity for in-patient care. The responsibility of providing adequate hospital beds rest with the Hospital Board Members and the members of the Hospital Insurance Commission. However the physician himself has a responsibility to the community and his medical associates to reduce any iatrogenic problems of admission or hospital stay related to delayed investigation or therapy.

W.A.C.

N.B.—The present issue has been prepared in association with the active surgical staff of the Children's Hospital, Halifax.

It is hoped that the problems presented and discussed by the various authors will prove of interest to all members of the Society throughout the province.

HERNIA IN INFANCY AND CHILDHOOD

J. H. CHARMAN, M.D., F.R.C.S.(C)

Inguinal Hernia

Inguinal hernia in a child is almost always of the indirect type. In the embryo the testes lie in the lumbar region in front of the kidney. During intrauterine life they gradually descend from this position, along the posterior abdominal wall, through the internal ring along the inguinal canal and into the scrotum. This is brought about by a band of fibro muscular tissue known as the guberlaculum testes. This structure is triangular in shape, the base being attached to the testicle and the peritoneum in the neighborhood, while the apex is attached to the bottom of the scrotum. Contraction of the guberlaculum pulls the testes with the process of peritoneum from its abdominal position into the scrotum. In the process of descent, coverings are carried along from the various abdominal layers for the testicle and cord. On the outermost layer of the cord structures, therefore, we find the external spermatic fascia which is drawn off the external oblique. Next lies the cremasteric fascia and muscle from the internal oblique, the innermost layer, the internal spermatic fascia, is carried down from the fascia transversalis. These layers are identified and incised in the repair of an indirect inguinal hernia. The testes descends with the peritoneum and lies on its posterior surface. The peritoneal process is known as the processus vaginalis. This process normally becomes occluded at two points soon after birth. Firstly, at the internal abdominal ring and secondly, just above the testes. That part of the process in relation to the testes remains and is known as the tunica vaginalis. The portion between the two occlusions normally becomes obliterated forming a fibrous cord, the remains of the processus vaginalis. If the process does not pinch off at the internal abdominal ring, but remains open in continuity with the peritoneal cavity, an indirect inguinal hernia results. If, on the other hand, the process pinches off above and below, but the center portion remains as a tubular cavity shut off above from the peritoneum and below from the tunica vaginalis it may become distended with fluid forming a globular swelling in the inguinal canal, a hydrocele of the cord in the male or a hydrocele of the canal of Nuck in the female. The most common place for hydrocele to form is in the tunica vaginalis around the testicle. Not infrequently the whole processus vaginalis may remain open being sealed off from the peritoneal cavity, apart from a small pin point opening which admits the escape of fluid into the peritoneal cavity but is not large enough to allow the entrance of intestine into the sac. These may then gradually decrease in size on lying down. This however takes place much more slowly then does the spontaneous reduction of a hernia which usually disappears at once with recumbency.

The right testicle descends at a somewhat later date then does the left, therefore, the processus vaginalis is sealed off at a later date. This probably accounts for the increased incidence of indirect inguinal hernia on the right side. About 60 per cent of indirect inguinal hernias occur on the right side, 25 per cent on the left side and 15 per cent are bilateral. About 90 per cent of inguinal hernias appear in males.

The hernia may be present at birth or may appear at almost any time during life. They frequently develop as the child becomes stronger, when straining or crying forces the intestine down the pre-formed sac.

Symptoms and Signs

Usually the mother states that a bulge is noted in the inguinal area on straining or crying. This may be only a bulge at the internal ring or a swelling may be noted passing down into the scrotum. In infancy, and early childhood the hernial sac usually contains only small bowel, since the omentum is not well enough developed to project to this level. Occasionally the appendix may appear in the hernial sac on the right, or an ovary may appear in the sac in the female. The bulge usually disappears with recumbancy. The symptoms are usually minimal unless incarceration occurs. When this happens the child complains of pain, the swelling becomes tense and tender. Spontaneous reduction no longer occurs. Incarceraton is much more common during the first year of life and decreases in instance from there on. Its instance in childhood is stated to be 1.6 per cent. Vomiting usually occurs because of the resultant intestinal obstruction.

Physical Findings

Not infrequently the child presents with the parent's history of a recurrent bulge in the inguinal area, but one is unable to find this on examination. However by palpating the inguinal area a definite thickness or fullness is noted in this area as contrasted to the opposite side. Standing the child up or getting the infant to cry will frequently cause the hernia to become apparent. When the hernia is present, gentle pressure from below will cause spontaneous reduction and make the diagnosis definite.

With an incarcerated hernia on the other hand a hard, tense, tender swelling is present and reduction is impossible by the usual methods. The abdomen may be distended and increased borborygmi will be heard on osculation. A hydrocele of the cord presents as a globular swelling in the inguinal canal. This is usually not tense or tender and in most cases a history of some duration of the swelling is given. Hydroceles of the cord do not trans-illuminate well. On the other hand a scrotal hydrocele trans-illuminates, and frequently the testes can be outlined.

Treatment

Since the incidence of incarceration in indirect inguinal hernia is highest during the first six months of life, it would seem logical that these hernias should be operated upon when they are first diagnosed unless prematurity or some medical condition contra-indicates surgery at this time.

In the operative repair there are two basic pathological conditions that must be corrected. Firstly we have the presence of the pre-formed congenital sac. This must be excised high at the level of the internal inguinal ring, ligated and dropped back. Secondly, it must be remembered that the internal ring is a gap in the transversalis fascia through which the cord, the sac and its contained bowel, passes. The presence of the bowel in the sac at the internal ring acts as a hydrostatic dilator causing enlargement of the internal ring in a medial direction. Therefore, the second pathological feature in an indirect inguinal hernia is a widened internal ring. This opening being in the transversalis fascia, therefore it is essential to close the internal ring snugly around the cord after excision of the sac by approximating transversalis above to transversalis below. With an indirect inguinal hernia there is no weakness of the posterior wall and once these two factors have been corrected there is no point in buttressing the posterior wall by carrying out a Bassini or one of the many other operative repairs which are described.

A transverse incision along the inguinal canal in one of the skin creases is used. This gives a far better cosmetic result than the oblique incision since it does not cut across skin lines. The aponeurosis of the external oblique is incised upwards from the external ring. The external spermatic fascia and cremasteric fascia are picked up usually in one layer between hemostats and incised longitudinally along the cord and wiped off. If the cremasteric is bulky as it frequently is in older children it should be excised at the internal ring to make closure of the ring more secure. Next the internal spermatic fascia is picked up between hemostats and incised in a similar manner, again being wiped off the cord structures with the handle of the scalpel. The sac is then picked up with hemostats and dissected off the cord structures. In infants it is very thin and has to be handled very gently. It is dissected free from the cord beyond the internal ring and is then opened and ligated with 0000 silk or cotton and dropped back. The edges of the dilated internal ring are then identified and closed snugly around the cord, using interrupted sutures of 0000 silk. Not infrequently, where only a small hernia persists, the opening is not dilated and it is not necessary to carry out this last step. It should be stressed that here, as in adults, only non-absorbable sutures should be used since cat gut sutures loose their holding power long before tissue repair is solid. The cord is then dropped back on the posterior wall and the external oblique aponeurosis closed with a fine running cat gut suture. Usually two or three interrupted sutures of fine cat gut or silk are placed in Scarpa's fascia to remove the tension from the incision and the incision is closed with a fine running subcuticular stitch of cat gut. The subcuticular stitch is superior to sutures through the skin since the wound edges are rapidly sealed and no skin sutures are present to become irritated in the post-operative period. No special post-operative care is necessary except in the older child where no heavy lifting or straining should be done for a period of two months by which time tissue repair is solid.

In the treatment of incarcerated hernias it is best if possible to reduce the hernia and wait two or three days until the edema and swelling in the area has disappeared before attempting repairs. It is usually possible to reduce these hernias by placing the patient in recumbency, elevating the foot of the bed twenty to thirty degrees and placing an ice bag on the hernia. With the disappearance of edema it is then possible in two to three hours with gentle pressure to reduce the hernia. Where reduction is not possible operation should be carried out immediately care being taken during surgery to prevent spontaneous reduction of the bowel before it can be inspected to rule out gangrene.

Since bilateral hernias occurs in only 15 per cent of patients it would not seem justifiable to explore both sides in infants as it sometimes recommended unless bilateral hernias are apparent at the time clinically. If such is the case they should be repaired at the same procedure. It is usually not necessary to keep these patients in hospital longer then three to four days. When operating on a hydrocele it should be remembered that an indirect hernia is present in the majority of the cases and therefore a careful search should be carried out of the cord area to rule out the presence of hernia. The same thing applies to the undescended testicle.

Umbilical Hernia

Umbilical hernias are very common in infants and young children resulting mainly from fascial defects of the abdominal wall at the point where it has been pierced by the blood vessels of the umbilical cord. The peritoneum is covered

only by skin and subcutaneous fat. The edges of the ring are formed by the fused rectus sheath. They are twice as common in females as males. They are usually relatively small and become apparent during activities which increase the intra-abdominal pressure. Occasionally the omentum may become incarcerated in the hernial ring in older children, and very rarely a loop of bowel may be caught in the ring producing symptoms of intestinal obstruction.

Treatment

Most umbilical hernias in infants cure themselves sponteneously, as the child grows older and the rectus muscles constrict and close the orifice. The process may be aided by proper strapping of the abdomen. The common method of strapping a coin over the navel is useless. The object should be to decrease the lateral tension of the abdominal wall thus approximating the edges of the ring and also to see that the sac is kept empty so that nothing interfers with its obliteration. This can best be accomplished by lateral strapping over the umbilicus thus bringing the edges together so that the umbilical mass is folded inwards and all lateral tension is removed from the area. This treatment is of particular use during the first six months of life, it should be continued for several months and is of little value after this. Generally speaking after the first year of life hernias over one centimeter in diameter should be repaired. Hernias of lesser size, probably close themselves in time and should be left alone.

Operative Technique

A curved incision is made above or below the umbilicus, usually this can be placed in a fold of skin so that the scar is not apparent. The umbilicus should never be removed. The sac is dissected free from the skin of the navel and the peritoneum is closed. The fascia of the rectus sheath is cleaned of fat and sutured with vertical interrupted sutures of 0000 silk, the skin of the unbilicus is then tacked down to the fascia with fine plain cat gut. Frequently this suture approximates the edges of the wound and no suturing of the skin is necessary. However it is usually better to place two or three subcuticular sutures of fine gut or silk to approximate the skin edges. The child is usually ready for discharge in a day or two.

ESOPHAGEAL ATRESIA WITH TRACHEO-ESOPHAGEAL FISTULA

D. A. GILLIS, M.D., F.R.C.S.(C) and E. P. NONAMAKER, M.D., F.R.C.S.(C)

Of the many potentially lethal anomalies which may afflict the newborn, few escape early detection as often as esophageal atresia. There is no other, however, in which the diagnosis, if suspected, can be more easily established. Its presence can invariably be confirmed by the use of one simple diagnostic maneuver. Few serious congenital malformations are more consistently amenable to surgical correction and in none is there a better demonstrated relationship between early diagnosis and survival.

Anatomy

The title is accurately descriptive. In approximately ninety percent of cases the anatomic arrangement conforms to that depicted in Fig. 1.

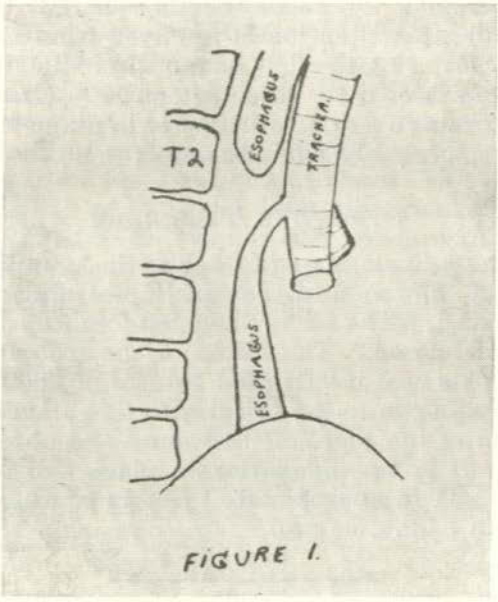


FIGURE 1.

The proximal esophagus ends as a blind pouch, usually about the level of T2. The distal esophagus communicates with the trachea by means of a fistula which enters in the region of the carina. Variations are occasionally encountered and we recently had an infant in whom there was no fistual at all. It is also possible to have a double fistula, i.e. one arising from each blind end of the esophagus, or to have a single fistula arising from the upper pouch. However, these are rare.

Clinical Manifestations

The mother of the affected infant often has hydramnios.

Other serious anomalies are present in about 25 percent of cases. In their absence, the infant commonly appears normal at birth. The commonest and most consistent early sign of trouble is the presence of an excessive amount of mucus and saliva in the mouth and pharynx. The infant who has to be suctioned at unusually frequent intervals should be suspected

of having an esophageal obstruction. Not infrequently it is the observant nurse in the nursery who first draws this to the attention of the physician. Feedings should then be witheld until he has had an opportunity to to check the patency of the esophagus. Commonly, however, the diagnosis is not made at this stage and oral feedings are begun. These are promptly regurgitated and some of the material will invariably be aspirated into the trachea as a result of overflow from the esophagus. It is wise routinely to offer glucose-water to all newborn infants as the initial feeding so that if aspiration should occur, less damage will be done than if a formula had been used. There is little reason for further delay in diagnosis once the initial feeding has given rise to regurgitation, coughing and respiratory distress. Any infant who coughs and chokes when first fed should be strongly suspected of having an esophageal obstruction and all further feedings should be witheld until this has been investigated. Not a single case of esophageal atresia would escape early detection if this simple rule were followed.

Later symptoms are almost always related to the inevitable pulmonary infection which results from the aspiration of saliva and feedings and commonly affecting the right upper lobe. Pneumonia of unexplained etiology during the first few days of life should alert one to the possibility of an underlying esophageal obstruction.

Diagnosis

This has two basic components: clinical suspicion and a small catheter. In any infant in whom the question of esophageal patency arises a number 8 or 10 catheter should be passed into the esophagus. If it passes into the stomach the question has been answered. As with every other diagnostic maneuver, however, there is one pitfall. It is possible for the catheter to become coiled in the dilated upper esophagus and give the impression of having gone all the way down. It is therefore essential, as with any gastric intubation, to verify the presence of the catheter tip in the stomach. This can be done by injecting air into the catheter while the stethoscope is placed on the epigastrium. The characteristic sound of air rushing into the stomach establishes that the catheter tip is there.

If the catheter meets with obstruction in the upper esophagus, what should one do? The catheter should be left in place and the infant taken to the X-ray department. There about two c.c.'s of opaque material (diodrast or dionosil may be used, not barium) is injected into the catheter and an upright X-ray is taken. The findings in a typical case of esophageal atresia are shown in Fig. 2. The blind upper esophageal pouch is well outlined. The presence of gas in the stomach and bowel indicates that there is a fistulous connection between the lower esophageal pouch and the trachea.

Management

Once the diagnosis of esophageal atresia has been established several additional steps should be taken. Feedings are, of course, witheld. The mouth and pharynx are suctioned as often as necessary, usually at about fifteen minute intervals. We have found it even more useful in the pre-operative period to keep the catheter on constant suction. Regurgitation of gastric juice into the esophagus occurs readily at this age and it will flow through the tracheo-esophageal fistula into the trachea unless the infant's head is kept well elevated. It is exceedingly irritating to the lungs and ac-

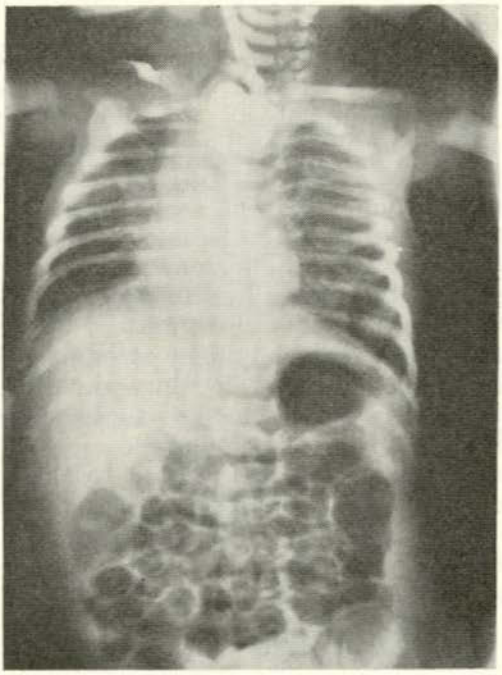


Fig. 2

counts for a major share of the pulmonary damage so commonly present by the time treatment is instituted. Oxygen may be given as needed and we usually begin penicillin pre-operatively.

Operation is ordinarily undertaken as soon as possible after the diagnosis is made. The superior mediastinum is approached via a transpleural incision on the right side, although the original approach was a retropleural one and this is still favored by some surgeons. The fistula between the esophagus and trachea is divided and closed on the tracheal side. The upper and lower esophageal segments are mobilized sufficiently to permit an end-to-end anastomosis without undue tension. On rare occasions the ends will be so far apart that an anastomosis is impossible. For reasons unknown this is usual in those uncommon cases of esophageal atresia in which there is no fistula between the esophagus and the trachea. In such cases the upper esophagus is brought out as a cervical esophagostomy and the gap is subsequently bridged, usually at the age of about two years, with a segment of colon or small bowel.

In all cases we do a gastrostomy and utilize it for early feedings. The gastrostomy tube is removed when all feedings are being taken well orally and if there is no evidence of an anastomotic stricture.

The early post-operative period is a most vital one during which the infant must be under constant, close observation. Respiratory depression is common during the first day or two and the patient requires periodic suctioning to avoid aspiration and to keep the airway clear. After the first day or two the major complications are pneumonia, which is often present pre-operatively, leakage from the site of anastomosis which may give rise to pneumothorax and empyema, and anastomotic stricture. The latter will require esophageal dilatations if sufficiently severe to give rise to clinical symptoms.

Ordinarily an esophagram is obtained in 5 - 7 days. If there is no evidence of an anastomotic leak or serious narrowing oral feedings are cautiously begun. If all goes well the gastrostomy feedings are gradually discontinued and the infant may be discharged in 12 - 15 days.

CASE REPORT. The following case illustrates many of the problems, diagnostic and therapeutic, associated with esophageal atresia and tracheo-esophageal fistula.

S.N. was a full term female infant who appeared normal at birth. Initial and subsequent feedings gave rise to coughing and regurgitation. A chest X-ray on the third day revealed a right upper lobe pneumonia. The baby was then transferred to the Children's Hospital. Antibiotics were started and a catheter was passed into the esophagus. This appeared to pass on into the stomach so that oral feedings were continued. Fever and respiratory distress persisted. On the sixth day of life a catheter was again passed into the esophagus and on this occasion appeared to encounter an obstruction. Opaque material was injected into the tube in the X-ray department and an upright film revealed the presence of esophageal atresia. The catheter had undoubtedly coiled up in the esophagus on the first occasion, thus giving rise to the false impression that the esophageal lumen was patent.

The infant was operated upon a few hours later and a typical form of esophageal atresia and tracheo-esophageal fistula was encountered. The fistula was divided and closed and the esophageal ends were anastomosed. Apart from several periods of bradycardia, the patient tolerated the operation quite well. During the first post-operative day the pharynx and trachea required periodic suctioning. On the second day the respiratory rate increased rather suddenly and the patient became somewhat more dyspneic. Physical examination revealed no obvious cause for this. A chest X-ray, however, revealed a tension pneumothorax on the right side. The air was evacuated by closed intercostal drainage. The source of this air leak was never conclusively demonstrated. At first it was felt to be likely due to an anastomotic dehiscence but this was later ruled out. The right upper lobar pneumonia cleared slowly. On the ninth post-operative day an esophagram revealed moderate narrowing at the site of anastomosis but no evidence of a leak. Oral feedings were then begun and the quantity given by mouth was gradually increased. The infant had been receiving gastrostomy feedings since the fourth post-operative day. The latter were gradually reduced and had been completely discontinued by the middle of the third post-operative week. The gastrostomy tube was left in place. The infant was discharged three and one-half weeks after operation. An esophagram one month later revealed good function and some increase in the size of the anastomotic lumen. She is eating well and has shown a normal weight gain. The gastrostomy tube will be left in place for at least another month or until there is no evidence of a developing stricture at the anastomosis. If clinically significant narrowing should develop, the gastrostomy tube can be utilized for feedings as well as for retrograde dilatation.

The diagnosis in this case escaped detection for six days, in spite of the fact that a catheter was passed into the esophagus on the third day. This can be misleading unless one is absolutely certain about the position of the catheter tip. The baby also had the commonest pre-operative complication,

namely a rather extensive pneumonia. In the post-operative period a respiratory crisis was precipitated by the sudden development of a tension pneumothorax. Consolidation and pneumothorax are not easily detected by physical examination at this age so that a chest X-ray should always be obtained when there is evidence of impaired respiratory function. The case also illustrates the fact that infants tolerate major surgery very well so long as the anesthetic, surgical and general supportive needs peculiar to this age group are met.

Prognosis

The major factors affecting prognosis are : 1.) Associated anomalies, 2.) Prematurity. This is unfortunately common and the smaller the baby the less hopeful is the outlook. 3.) Early diagnosis. This is one factor which can be controlled. There is a direct relationship between time of diagnosis and ultimate survival. 4.) Avoidance of serious post-operative complications. The most important of these have been mentioned.

In recently published series the overall survival rate has been in the vicinity of 60 - 70%.The last eight cases operated upon at the Children's Hospital survived. One child has subsequently died at the age of four months as a result of unrelated complex anomalies, including cyanotic heart disease.

Summary

Esophageal atresia with tracheo-esophageal fistula, unless treated, is incompatible with life and constitutes a surgical emergency in the newborn.

The commonest early manifestation is the presence of excessive mucus and saliva. Respiratory symptoms appear early and are related to the aspiration of saliva and feedings, as well as the regurgitation of extremely acid gastric juice into the trachea. The early diagnosis depends most heavily on a sensitive index of suspicion; it can be confirmed by the use of a small catheter along with a little radiopaque material and an upright X-ray. Early diagnosis has a great deal to do with ultimate survival. The early management and definitive therapy have been outlined.

ACUTE HAEMATOGENOUS OSTEOMYELITIS AND SEPTIC ARTHRITIS IN INFANTS AND CHILDREN

A. M. SINCLAIR, M.D., F.R.C.S.(C)

With the introduction of antibiotics, particularly penicillin, many physicians hoped that acute haematogenous osteomyelitis would become a disease of the past. Unfortunately osteomyelitis still exists. In the past two years there have been twenty-two cases of acute osteomyelitis admitted to the Children's Hospital.

The resurgence of this disease is possibly associated with the increasing resistance of staphylococcal infection to penicillin although the majority of staphylococcal strains isolated from these cases are still sensitive to this antibiotic.

There is no doubt that the severity and extent of this disease have been greatly reduced, and, with early diagnosis and efficient management, surgery may often be avoided. However, delay in diagnosis may have disastrous results in infants and children. A high index of suspicion is necessary when one is confronted with a febrile child who has a reluctance to move a limb.

I wish to bring to your attention certain aspects of acute haematogenous osteomyelitis, especially current concepts of its pathology, and to outline a treatment regime based on those concepts.

Aetiology

The causative organism in the child and adult is still shown to be staphylococcus pyogenes in 80-90% of cases. In the infant the streptococcus haemolyticus has accounted for as high as 63% of cases in some series.

Pathogenesis

The extensive investigations of Trueta and his colleagues at Oxford have added much to the understanding of this disease process in bone. Through their work on the changing vascular pattern of bone during growth they have suggested an explanation for the varying picture of acute osteomyelitis in the infant, child and adult. The treatment to be outlined presently is that advocated by Trueta and is based on his observations on the maintenance of an adequate blood supply to the bone.

The Pathogenesis of Acute Haematogenous Osteomyelitis:

In the Infant

The terminal branches of the nutrient artery penetrate into the thin, early epiphysis from the metaphyseal side. There they tend to end in dilatations or venous lakes. Infection beginning in these sinusoids as a result of a bacteraemia may easily cross the barrier and this accounts for the greater frequency of joint infections in the young infant. Destruction of the cells on the epiphyseal side of the growth cartilage is known to be irreparable and future disorganization of the joint or interference with growth of the bone may be expected when such destruction occurs.

The Pathogenesis of Acute Haematogenous Osteomyelitis in the Child

During the period of eight months to eighteen months of age the growth disc develops as a partial vascular barrier. The terminal branches of the nutrient artery now pass toward the growth disc, turn down in acute "hairpin" loops and end in a system of dilated venous sinusoidal lakes. These sinusoids are closely associated with the haematopoietic activity of the bone marrow. The flow of blood here is relatively slowed and the lodging of infected emboli, particularly with coagulase positive organisms, takes place readily. When local thrombosis and subsequent suppuration occur there is created a venous back pressure. This in turn will give rise to periosteal oedema. Extension of the suppurative process out under the periosteum causes this membrane to be elevated. This event deprives the cortex of its blood supply. When this periosteal elevation is extensive a large cortical sequestrum may be formed. The osteogenic layer of the periosteum now forms new bone which becomes apparent on the roentgenogram. Since it takes some time for the development of the sub-periosteal abscess, no radiological changes are seen until 8 - 10 days from the onset of the bone infection.

We are not concerned here with osteomyelitis in the adult. Suffice to say that since there is a cross circulation between the "fused" epiphysis, and the diaphysis, associated joint infection may be more common in adults. Also the periosteum is more firmly adherent, thus cortical erosion and pathological fracture, rather than periosteal elevation, may occur. Sequestrum formation is more rare and when it does occur the size of the dead bone fragment is much smaller.

The Clinical Picture of Acute Haematogenous Osteomyelitis

The classical onset may be abrupt with fever, general malaise and a reluctance or inability to use a limb or joint because of pain. There may be sharply localized tenderness and swelling. These signs are more difficult to elicit when the infection is in the hip, upper femur or under the vasti in the lower femur. The clinical findings may be modified considerably in the young infant and in cases that have received antibiotic therapy for an antecedent focus of infection.

A high fever is not always present. In the young infant there may only be muscle spasm associated with the involved bone or joint.

Laboratory Findings

There is usually a leucocytosis of 15,000 - 20,000 cu.mm. or more. The E.S.R. is elevated. Blood culture is often positive in the early stages if antibiotics have not been given.

Differential Diagnosis

In infants: Rheumatic fever is uncommon in infants. Local injury such as sprain or fracture are most unlikely to have the general systemic reaction although this reaction may be minimal in many cases. Scurvy has tenderness along the shaft of the bone and the accompanying clinical and radiological findings.

In children: Children with acute haematogenous osteomyelitis are usually more toxic than those with rheumatic fever and the involvement of other joints is likely in the latter condition. In acute pyogenic arthritis any motion of the joint is painful, whereas in acute osteomyelitis it may be possible to move the

joint very gently without accentuation of pain. Acute anterior poliomyelitis will probably show associated signs of meningeal irritation and possibly loss of deep reflexes in the "paralysed" extremity.

Treatment

Trueta found that although systemic antibiotics controlled the general septicaemia satisfactorily the local disease in the bone responded in a less satisfactory manner. He felt that the periosteal elevation due to extension of the suppuration accounted in a large part for the chronicity of the disease in the bone.

By using a well planned treatment regime with early and simple surgery where indicated, the blood supply to the infected area was restored earlier and the systemic antibiotic had easier access to the septic focus.

His method is outlined here:[1]

The patient is admitted to hospital and complete examination by the surgeon is carried out. An accurate clinical assessment of the extent and location of the bone infection is made. Blood is taken for blood culture, sedimentation rate, haemoglobin and white cell count. The extremity is immobilized by splint or plaster and the patient's general condition managed with hydration and blood transfusion if necessary. Parenteral crystalline penicillin 1,000,000 units q.3.h is begun. This may be given by intravenous drip if desired.

In 24 hours the limb is again examined by the same surgeon. If there is obvious reduction in intensity and extent of tenderness, conservative management is continued. If there is evidence of further extension of the process, incision and drainage is indicated.

Operative Technique

A tourniquet is used where possible, the incision is over the area of maximum tenderness, the periosteum is incised without separation from the overlying soft tissues. *It is not stripped from the bone.* Any sub-periosteal pus is gently swabbed out and cultured. Three or four drill holes about $\frac{1}{4}''$ apart are then placed through the cortex into the area of suspected bone abscess. If no put has been encountered under the periosteum but rather an oedematous periosteum only, a vigorous spurt of purulent material may be obtained from the drill holes.

The tourniquet is removed, allowing the blood to wash out more pus. The periosteum is not sutured. The wound is closed without drainage after penicillin powder has been placed in its depths. The limb is immobilized in plaster. Post-operatively the patient is continued on systemic penicillin unless cultures dictate a more effective antibiotic.

Haematoma formation sometimes occurs. This is aspirated on the 5th day post-op. when the limb is again examined. The skin sutures are removed at 10 - 12 days and a complete plaster applied.

The patient is continued on appropriate antibiotics for a minimum period of three weeks. Serial sedimentation rate re-checks are often of value in determining subsidence of the infectious process.

Re-check roentgenograms are the only means of determining reorganization of the bone and these are done at regular intervals of 2 - 3 weeks.

Immobilization in plaster is maintained until this reorganization is well established.

THE MANAGEMENT OF SEPTIC ARTHRITIS IN INFANTS AND CHILDREN

The diagnosis of acute suppurative arthritis in infancy is difficult. The reluctance of an infant to move an extremity because of muscle spasm should arouse the suspicion of a septic process within the joint. An elevated sedimentation rate and a leucocytosis with a shift to the left are aids in making the diagnosis. There may be no changes on the roentgenogram in the early stages and when the changes do occur extensive destruction of the cartilaginous portion of the joint has probably taken place. Early suspicion and early aspiration of the joint are essential for early diagnosis.

Hyaline cartilage is quickly destroyed by purulent exudate and the destructive process is hastened by pressure on the articular surfaces. Therefore early aspiration of the joint and instillation of antibiotics (penicillin and streptomycin), coupled with traction and immobilization will counteract the destructive effect of the disease. When the pus is very thick, arthrotomy and surgical drainage of the joint may be necessary. Indeed incision and drainage is preferred by some as the definitive treatment.

Systemic antibiotic is used in massive doses as for acute osteomyelitis. The penalty for delay or procrastination may be complete destruction or pathological dislocation of the joint or later bony ankylosis. Interference with the vascularity of the growth plate may give rise to subsequent leg length discrepancy or associated joint deformity.

In closing may I refer to the comment of Mr. F. LeGros Clark, F.R.C.S., Surgeon to St. Thomas Hospital, London, in describing certain cases of "bone necrosis" one hundred years ago.[2]

"Simple fever as well as rheumatic and typhus fever, are associated with the local disease and are made to appear, as they are often supposed to be, the cause of the bone disease, instead of being regarded, as I believe they usually are, as constitutional effects of the local disorder. Observe how (in his fourth case presented) *the local disease seems to have been in a great measure ignored;* or regarded as secondary to the fever, which was at first supposed to be rheumatic but was afterwards regarded as typhus.

"This is a point of considerable practical importance: for local inflammation of the bone may run its course to the irremediable destruction of the bone attacked, in the course of a few days, and the patient may perish in a way I shall presently notice, before the active source of the constitutional mischief attracts serious attention".

In the hundred years since he described these cases this all applies with the exception that acute anterior poliomyelitis might be substituted for typhus fever and patients rarely "perish" from the septicaemia.

In summary: acute haematogenous osteomyelitis and acute septic arthritis are still with us. Chronicity will again become more common if early diagnosis and effective early therapy are not used.

An effective method of management is outlined.

REFERENCES

1. Trueta, J. The Treatment of Acute Haematogenous Osteomyelitis. The Practioner 175 : 613, 1955.
2. F. LeGros Clark. Clinical Lectures delivered at St. Thomas's Hospital in 1861. Medical Times & Gazette 1 : 164, 1861.

DEVELOPMENTAL MESENTERIC CYSTS

BY EDWIN F. ROSS, M.D., F.R.C.S.(C)

Cysts within the abdomen may be encountered accidentally at laparotomy or they may be the cause of symptoms which make laparotomy necessary.

In 1956 Illingworth and Dick classified these as follows:

1. Traumatic. These cysts are formed in haematomata or around a foreign body e.g. a sponge.
2. Inflammatory, especially tuberculous nodes with cystic degeneration.
3. Parasitic. (Hydatid)
4. Neoplastic. Degeneration of Malignant Tumours.
5. Dermoid and teratoma.
6. Developmental. (a) Lymphatic. (b) Enterogenous. (c) Mesocolic. (d) Urogenital.

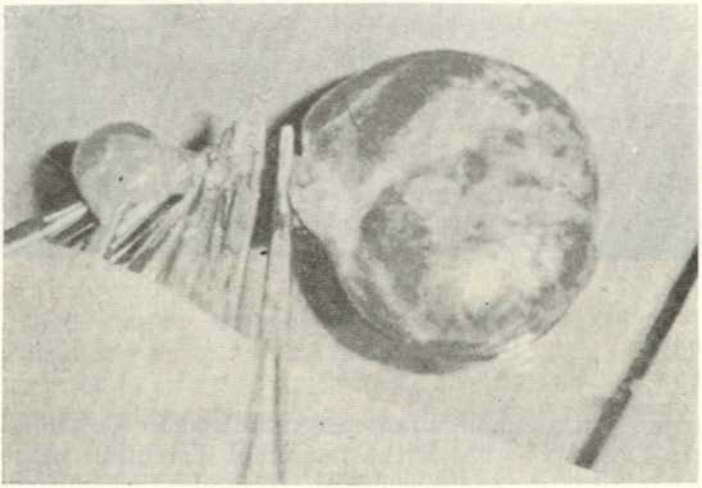
Three examples of this latter group are herein reported. Although they are uncommon, they are seen with relative frequency in a Children's Hospital.

Case Number 1.

Lymphatic.

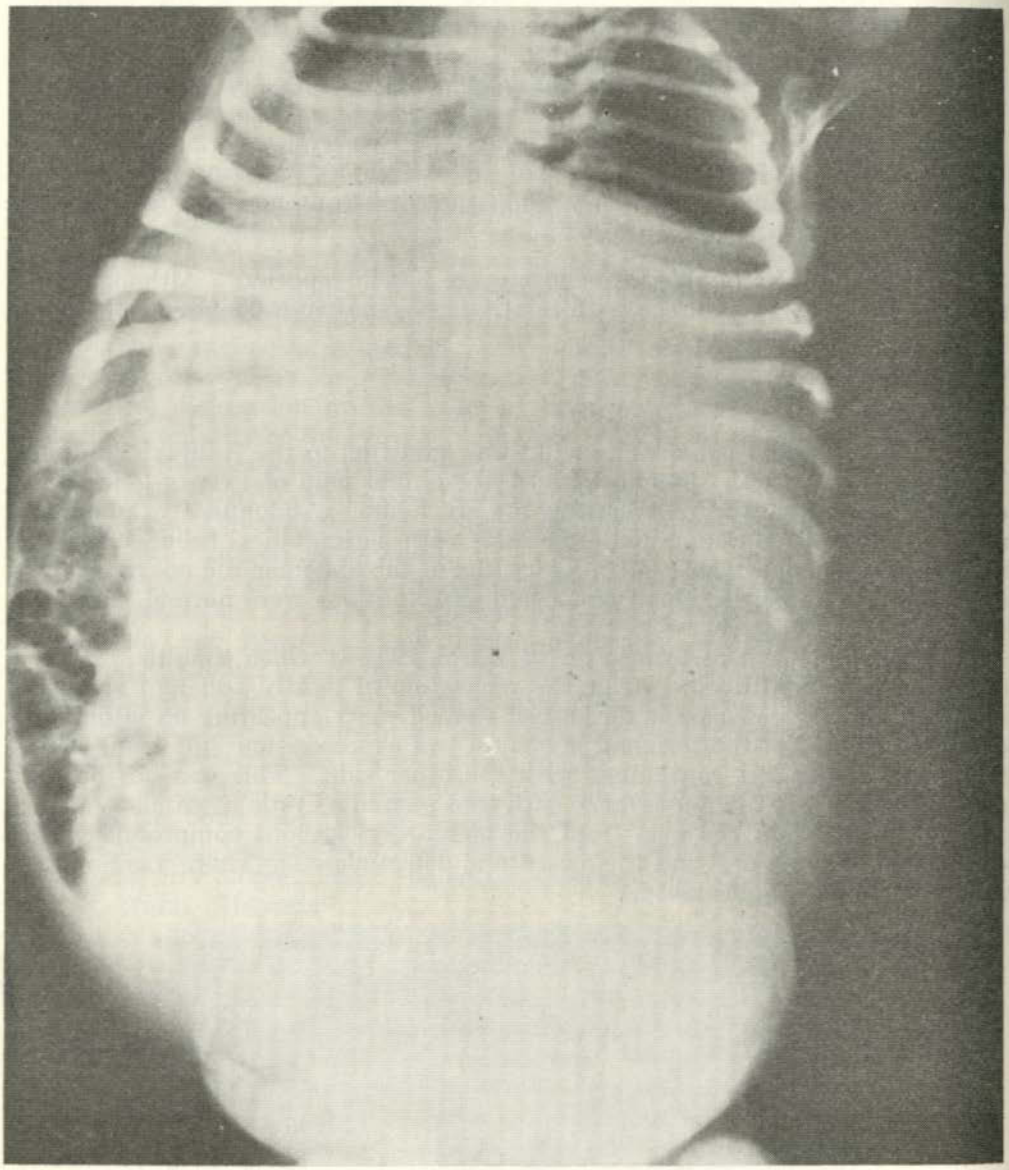
A five year old female white child was admitted to the Halifax Children's Hospital on 22 March 1961 because of abdominal pain of twenty-four hour's duration accompanied by vomiting for six hours. Abdominal examination revealed generalized abdominal tenderness with periumbilical fullness suggesting the presence of a mass. Flat X-ray film of the abdomen did not reveal any abnormal gas shadows, blood and urine examinations were normal, X-ray of the chest was negative.

Laparotomy was performed on 22 March 1961 at which time the presence of a mass was confirmed. After the separation of lightly adherent small intestinal loops, a transparent dumb-bell shaped mass appearing on either side of the mesentery of the terminal jejeunum was exposed—one side being about four times larger but continuous with the other side. This was obviously a cyst and was similar in appearance with that seen in a cystic hygroma. It was possible to separate the cyst from the mesentery without compromising the circulation to the bowel and the mesenteric defect closed. There was no other intra-abdominal abnormality.



PATHOLOGY. The weight of the cyst which was in two parts was one hundred and forty grams. The wall was glistening and translucent with a smooth internal surface. On microscopic examination there was dense connective tissue without epithelial elements. Diagnosis simple mesenteric cyst.

The patient made a good recovery.



Case No. 2A
Flat X-ray of Abdomen

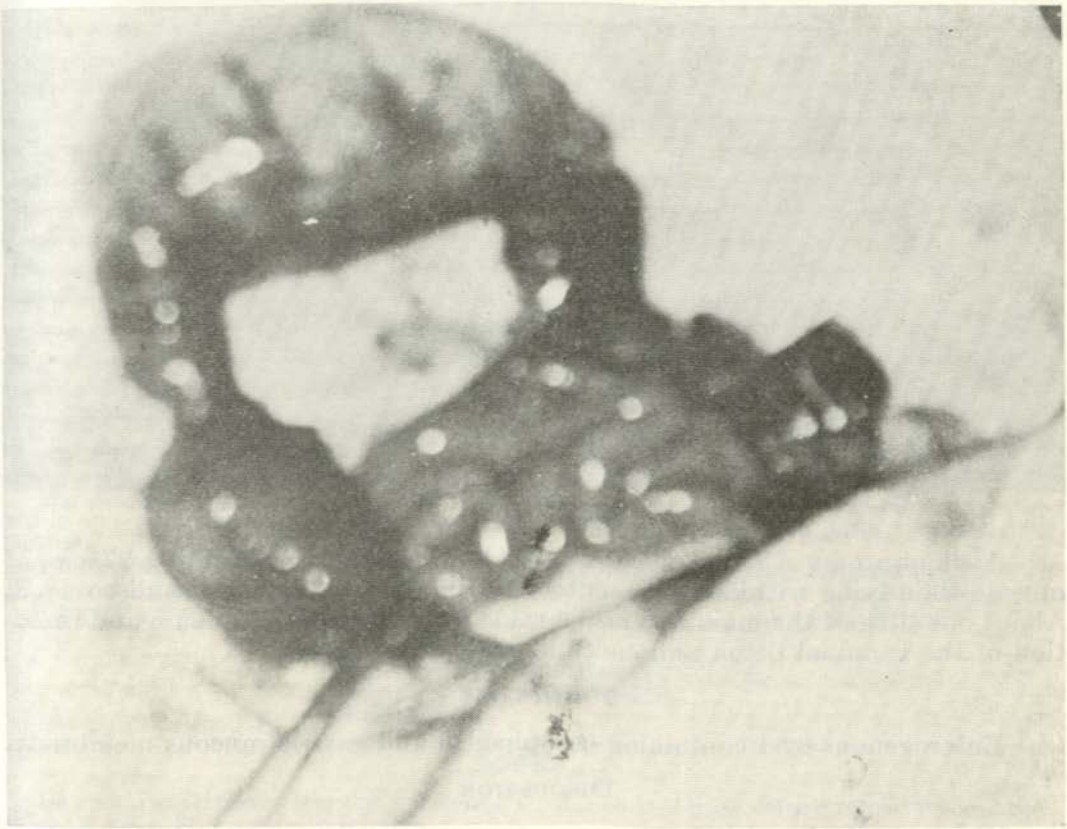
CASE NUMBER 2.

Enterogenous.

A six day old white female infant was admitted to the Halifax Children's Hospital on 11 December 1954 with abdominal distention without vomiting but there was failure to pass meconium. Examination revealed distention

of the abdomen similar to that seen in a closed loop large intestinal obstruction with marked fullness in the right abdomen extending to the costal margin and across the abdomen to the left upper quadrant. This mass was flat to percussion whereas the left lower abdomen was tympanitic. Flat X-ray film of the abdomen showed an opaque mass in the right abdomen displacing the bowel to the left.

Laparotomy revealed one large cystic mass filling the right abdomen, a smaller tumour in the left upper abdomen was joined to the larger one by a narrow segment. Aspiration of eight and one half ounces of greyish milky fluid made its delivery from the abdomen possible. It was attached to the mesentery of the terminal ileum and separation was possible without damage to the blood supply or injury to the ileum. This infant made a good recovery.



Case No. 2B

PATHOLOGY

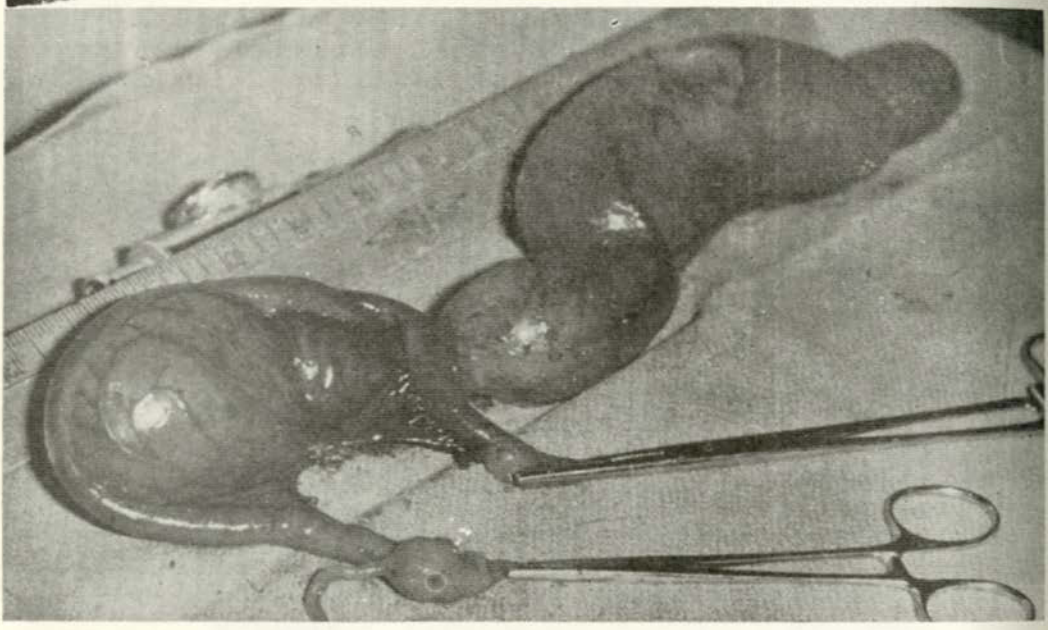
The specimen consists of an irregularly shaped cystic mass containing brownish material and weighing 220 grams. The cyst is lined with irregular mucosa similar to large intestine and beneath it there is muscularis mucosa and also well differentiated circular and longitudinal bands of muscle. The serous coat shows some fibrous thickening and increased vascularity.

DIAGNOSIS—Sequestration cyst of the alimentary tract.

CASE NUMBER 3.

Enterogenous.

A three week old infant was admitted to the Halifax Children's Hospital 14 February 1962 with history of projectile vomiting after each feeding. Examination revealed a distended abdomen with masses palpable in the right upper and right lower quadrants. Flat X-ray of the abdomen indicated the presence of two or three masses. Intravenous pyelogram, cystogram and G.I. series did not reveal any intrinsic abnormality.



Case No. 3

At laparotomy a cystic mass about 14cm. in length containing 275c.c. of mucoid fluid lying within the mesentery of the terminal ileum was discovered. About one-fifth of the mass was inseparable from the terminal ileum and resection of the terminal ileum and caecum was necessary.

PATHOLOGY

Enterogenous cyst containing oesophageal and gastric mucous membrane.

DISCUSSION

These cases represent the common types of developmental cysts encountered in a Children's Hospital viz.:

(1) the Serous (lymphatic) which is thin walled and has neither muscular coat or mucosal lining.
(2) the Enteric cyst which is a duplication of intestinal tract having the microscopic appearance of bowel wall.

The clinical features vary with the size and site of the cyst and may be essentially due to its presence or be obstructive in nature caused by bowel kinking or torsion. Flat X-ray films often reveal a gasless shadow which is probably more evident in the enterogenous group.

The treatment is surgical with either simple removal of the cyst or intestinal resection when separation is impossible. The results are generally good

in the single cysts. Occonomopoulos and Swenson recently reported thirteen cases of duplication successfully removed surgically.

Summary

One simple serous (lymphatic cyst) and two enteric cysts have been reported.

REFERENCES

1. The Surgery of Infancy and Childhood.—R. Gross. (Saunders).
2. Developmental Mesenteric Cysts.—Baker. British Journal of Surgery, March 1961.
3. Reduplication of Gastrointestinal Tract.—C. T. Occonomopoulos and O. Swenson. Journal of Paediatrics, March 1962.

MATERNAL AND CHILD HEALTH DIVISION
BOOKS, FILMS AND FILMSTRIPS

The following lists of books, films and filmstrips that are available on loan from the Division of Maternal and Child Health.

A short review of the books and films has been included which may be of some assistance in selecting the educational material for a group or a specific purpose.

Books may be borrowed from this office and kept for a period of one month. An extension of one month will be granted to the borrower on receipt of a letter requesting an additional month.

Films must be returned as soon as possible after use so that other requests can be filled with the minimum of delay.

Requests should be sent to the

Director,
Maternal and Child Health Division,
Department of Public Health,
Halifax, N. S.

BOOKS

Babies are Human Beings. Aldrich, C. A., and Aldrich, Mary, New York, MacMillan, 1954, 122.

Through this book, parents are taught that babies are not carbon copies of their parents. Each child has a personality of his own from the first day of life. The parents' function is to help the baby grow up with his natural personality.

The degree to which we are considerate of the baby's early needs, may be the measure of his later ability to feel secure in a world of change and to adapt himself to the necessities of circumstances.

This is a book, charmingly written, interpreting the natural development of young children as it unfolds before the eyes of observant parents.

Care of the Premature Infant. Lundeen, Evelyn, and Kunstadter, Ralph, Montreal, Lippincott, 1958, 367.

For anyone in anyway concerned with the care of the premature infant, this book provides outstanding complete and eminently authoritative reference. The reader will find not only a truly thorough discussion of the physiology, growth and development of the premature baby, but also the underlying principles concerned with the development and maintenance of a premature infant station.

THE CHILD, HIS PARENTS AND THE NURSE. Blake, Florence C.; Montreal, Lippincott, 1954, 440.

A sensitive nurse can give real psycho-therapeutic support to the whole family from the first prenatal visit. The nurse should be oriented to the patient rather than procedure. The nurse requires flexability of character.

This book deals with the mental health aspect of nursing care.

CHILDBIRTH WITHOUT FEAR. Read, Grantly Dick; Toronto; British Book Service, 1957, 243.

This is the most complete explanation now available of Dr. Read's famous natural Childbirth methods. Thousands of women have successfully followed his teaching and experienced practically painless childbirth.

Expectant mothers will find this book an invaluable source of aid and encouragement. Physicians, nurses and psychologists will also read it with great interest for the light it sheds on a major human problem.

CHRONIC ILIAC PAIN IN WOMEN. Atlee, H. B., Springfield, Thomas, 1954, 65.

This book is small and easy to read. Dr. Atlee stresses that before surgery is attempted for any number of causes of the pain, a complete investigation should be carried out. This should include history and physical as well as exploration into the psychiac and emotional fields.

The several possible causes are explored in separate chapters.

Until a diagnosis indicates surgery is necessary, it should not be done.

FAMILY-CENTERED MATERNITY NURSING. Wiedenbach, Ernestine, Putnam, New York, 1958, 345.

Miss Wiedenbach, in the first chapter, describes the theme of her book, "Maternity Nursing-Family Centered". The role of the nurse in maternity nursing is identified and the goal of maternity nursing is stated. Following this, the book is divided quite logically with the factual, scientific information preceeding the nursing during the various periods of the maternity cycle. What have been termed "complications of pregnancy, labour and puerperium to date" are not called potential hazards, factors which may affect the course of labour and potential complications and discomforts (postpartum).

This is a new approach. In fact, the whole book is a new, fresh, different approach to obstetrics. In understandable language, Miss Wiedenbach has managed to place the nurse in proper perspective. However, as much as this book is valuable, it may take a little time for the readers to adopt such different ideas as entertained in this book.

THE GIST OF OBSTETRICS. Atlee, H. B., Springfield, Thomas, 1957, 327.

This book was written chiefly for medical students. Its guiding principle is to present the subject without frills, without padding, and free from obsolete practises that have been given up by most leaders in the field. The book describes the practice of obstetrics as it exists generally in Canada and the United States.

HEALTH SUPERVISION OF YOUNG CHILDREN. American Public Health Association, New York, 1955, 179.

PART I:—In the past, prevention of disease was the important aspect of medical responsibilities. Today, promotion of health, keeping the well baby is brought into the wider concept of medical care. This is done by periodic health appraisal, immunization and parent consultation. In skilled interviewing, the doctor and the nurse can help the parents in the every-day problems of normal development and teach the mother what to expect before she worries or makes mistakes. Parents will enjoy the development of their infant if they become aware of the changes and stages of growth. There is a chapter on physical handicap, mental retardation, behaviour disorders and the importance of knowing community resources.

PART II:—Child Health Conference—definition and services, physical facilities, staff and associates (volunteers) procedure and records are discussed. Also described are health education materials, their use and value. There is a bibliography and an appendix with sample records, procedures and plans for a conference to complete the book.

THE MAGIC YEARS. Fraiberg, Selma H., New York, Scribner's, 1959, 305.

The Magic Years is a new and fresh approach which will appeal to many mothers. The book places a healthy emphasis on the very real effect of mother-child relationships in these years. Fathers are not neglected. Problems of second year including disciplining, control, limit setting are very well discussed. Much of the book contains too much phantasy.

MENTAL HYGIENE IN PUBLIC HEALTH. Limkau, Paul V., McGraw-Hill, New York, 1949, 396.

The author describes the public health and mental hygiene fields, giving history of bath, definitions and programmes that are being carried out and their relation to the whole population. Mental hygiene has a place in all health problems. Total personality knowledge is necessary to carry on mental health programme.

The author then describes the periods of development of various age groups and their problems. The book closes with a summary and prospects of mental health and public health programmes. There are extensive references at the end of each chapter and a list of visual aids.

(To be continued)

AVOIDING TROUBLE IN PAEDIATRIC ANAESTHESIA

BY A. S. WENNING, M.D. and T. A. ANDERSON, M.D.

No patient coming to the operating room today should experience any complication during the operative procedure or during the post-operative period which could be directly related to his anaesthetic unless there has been an error in management. Strict adherence to a few basic rules will assist greatly in substantiating this statement.

Any patient coming to surgery for an elective procedure should be in the best possible physical condition. It is the Anaesthetist's responsibility to assure himself of this fact. Findings which should unquestionably cause cancellation of the procedure include (a) any evidence of an upper respiratory tract infection or unexplained elevation in temperature (b) a hemoglobin of less than 9 grams, (c) any unexplained hepatic or splenic enlargement, or, indeed, any finding which would suggest the possibility of the presence of any undiagnosed disease process. Adhering strictly to these principles, delaying procedures until the patient is clear of infections or the hemoglobin level is raised by the use of iron therapy and sticking strictly to details of cleanliness in one's equipment, the incidence of post-operative pneumonias, laryngeal complications etc. should be negligible.

Previous cortisone therapy must be noted from the patient's history and if given during the past year then adequate coverage must be given during this period of increased stress.

All patients taken to the Operating Room on a non-scheduled basis must be looked upon as an increased risk and have adequate precautions taken during the procedure and immediately following to safeguard them against aspiration of stomach contents.

Any physician administering anesthetics to children should be expert at the technique of endo-tracheal intubation. Not only does it add a broader scope to his anaesthetic techniques, but in many instances will prove a life saving procedure for his patient. Endo-tracheal intubation may be a necessity in obstetrics to assist in the resuscitation of the newborn; in acute laryngotrachitis or in epiglottitis; in the emergency care of a child with a foreign body obstructing the laryngel opening; or, for the emergency care of a flash burn of the face.

Choice of a suitably sized endo-tracheal tube is of course necessary. It should be close fitting but never require any pressure to insert it between the vocal cords. Using Davol sizes, as a rough guide one may choose by age; From newborn to upwards of 6 months to a year, size No. 1; from six months to 3½ years, size No. 2; from 3½ years to 5 years, size No. 3; ages 6 and 7, size No. 4; ages 8 to 9, sizes No. 5; ages 9 to 10, size No. 6; ages 11 to 13, size No. 7; and in males ages 14 and 15, size No. 8. All tubes should be cut to a length to allow them to protrude just to the lip line as they are attached to the adaptor. Tubes should be lubricated before being used and one's choice should probably be that of a water soluable lubricant. The metal adaptor to the endotracheal tube should be of proper size. Never use an adaptor smaller in diameter than the endo-tracheal tube itself, as anything which lessens the diameter will act as a respiratory obstruction.

The technique of endo-tracheal intubation in children over two years of age does not differ from the adult. Greater care must be taken of the teeth.

It is very easy to displace a first tooth, especially if it is one that is already loosened, and permanent teeth as they are first erupting are very readily broken by the laryngoscope blade. In children up to the age of two years the technique of intubation is simplified if one follows the following technique:

The child is placed on the operating table with his shoulders at the level of the break between the body of the table and the head piece. Following the selection of a suitable sized endo-tracheal tube and laryngoscope blade and the patient having been brought to a sufficient depth of anesthesia to allow for intubation, the index finger of the left hand is inserted into the left side of the mouth thus opening it and retracting the tongue to the left, allowing space for the larynoscope blade to be inserted on the right hand side of the mouth. The head of the table is flexed so that the patient's chin is now down upon his chest. Any individual assisting you holds the baby's shoulders down on the table, never elevating them. Your larynscope is pointed directly towards the floor until the uvula is visualized, now a slight force is directed against the tongue and the larynscope is gently advanced for a very short distance at which time the epiglottis will come into view. At this point the tip of your larynoscope blade is in the soft tissue anterior to the epiglottis. In many instances this will be sufficient to give a good view of the glottic opening. If this is not so, then the tip of the epiglottis is picked up by your larynoscope blade and now you have an excellent view of the glottic opening in a horizontal plane rather than in a perpendicular one, as you would have noted if you had advanced the larynoscope with the head in an extended rather than a flexed position. This may at first seem an awkward technique but after a few trails you will find that it makes the technique of intubation in small children much easier.

Infants up to the age of six months tend to have a fall in body temperature under general anesthesia while those over six months tend to have a rise in body temperature. In many instances these swings in temperature can be quite severe and should be under control. Therefore body temperature should be monitored and this is especially true in the infant and in the older toxic patient. Efforts at maintaining normal body temperature must be made and the application of hot or cold water bottles as indicated will meet with considerable success. The toxic patient, prior to his admission to the operating theatre, will have had his temperature lowered to a normal range by use of rectal aspirin, by alcohol sponging and because his hydration will have been corrected pre-operatively. If we are aware of these possibilities then we should no longer experience any convulsions under anesthesia, nor be bothered by the depressed respiratory and cardiovascular systems of the hypothermic infant.

In the handling of any major surgical procedure an intravenous should be set up, be maintained and running through the procedure. No chest or abdomen should ever be opened without an intravenous having been established. An adequate sized needle must be used for venipuncture. Anything less than a No. 20 gauge would seem entirely inadequate for the rapid replacement of blood loss. If it seems impossible to do a percutaneous venipuncture a cut-down should be done using an adequate sized polyethylene tubing. Close attention must be paid to the volume of solution that the patient receives during the procedure and in small children a small vacolitre should be used and a trap, to assure the proper volume of infusion, should be placed between the bottle and the tubing leading to the patient. For infants a "Mini drip" should also be added allowing infusion as slow as 10 cc /hr. with ease.

The purpose of having the intravenous running of course is two-fold. First as a readily available route for the administration of any intravenous

drug which may be necessary during the procedure and secondly as a readily available route to maintain an adequate blood volume. Corrective intravenous therapy for any dehydration or electrolyte inbalance should have been carried out prior to the patients coming to the operating theatre.

Blood volume loss should be measured accurately. Possibly the simplest means of doing this, giving good clinical results, would be first of all to actually measure whatever may be taken away by suction and secondily by estimating what has come away in the sponges, by calculating the average amount of blood per sponge. We have found in most instances that in our hospital that do-dabs would account for 1 to 2 cc s, radio-opaques for 3 to 5 cc s, small sponges for 5 to 10 cc s, and larger sponges and tape pads we estimate individually. It must be pointed out that this is only an estimate, but with close observation we will find that it becomes a very practical method, applying the varying figures depending on whether the sponges are blood stained or wet.

Using the figure of 40 cc s per lb /body weight in estimating the total blood volume of a patient it soon becomes apparent that we must be extremely careful not to overload the blood volume, indeed this can be as harmful as to underestimate his requirements. If there occurs a 10% loss of blood volume one must be ready to start replacement and that at a 14 to 16% loss replacement becomes mandatory.

The patient who has suffered an injury causing severe damage to any portion of the intestine will experience a depletion in blood volume much greater than one would ever have anticipated. Estimation of the volume required to return it to normal is now more difficult and we must rely on our haematocrit estimations, blood pressure and pulse. Plasma expanders, and blood in that order will be found to be necessary for therapy.

Blood transfusions still carry a certain degree of morbidity and mortality in themselves and should not be given without adequate cause. The practice of giving blood to elevate hemoglobin levels in an elective procedure or because it is felt that he might need replacement on the table is a questionable practice.

If a hemoglobin must be raised by transfusions, as in a patient with severe infection, then whole blood or packed cells may be given on the basis of 10 cc /lb. body weight.

Muscle relaxants in paediatric anesthesia have introduced a new concept of management. However, they are a particularly hazardous agent and should be used only with the utmost care and by a physician having complete knowledge of their potency. The standard use by intravenous route is an acceptable technique in children of any age group. The more recent use by the intramuscular route in smaller infants has added much to the management of this group. The following points should be recognized and always kept in mind. Muscle relaxants are contra-indicated when: (a) open drop techniques of anesthesia are being used; (b) the physician does not feel absolutely assured that he is able to do an endo-tracheal intubation at any time; (c) the airway is for any reason in jeopardy; (d) in the presence of any suspected muscular dystrophy.

Constant attention must be paid to both respiratory and cardiac function during the entire duration of anesthesia.

Techniques of Anaesthesia which minimize dead space and respiratory effort must be employed. Controlled or assisted respirations are frequently necessary, becoming mandatory as the duration of anaesthesia increases and as the size of the patient decreases. Proper oxygenation and clearance of carbon dioxide is essential for the well being of young patients.

Careful suctioning of the airway may be necessary in the event of excessive secretions. Also, not infrequently, where non endo-tracheal techniques are employed the stomach will become grossly distended with air or gasses and must be deflated by means of a stomach tube if respiratory distress is to be avoided from an elevated diaphragm.

Palpation of a peripheral pulse and auscultation of cardiac sounds are still the most efficient means of cardiac evaluation. An electro cardiograph tracing can be very helpful but should never be thought of as taking the place of palpation and auscultation.

When any operative procedure is completed, the duties of the Anaesthetist are not terminated. The first post-operative hours are very hazardous ones, especially in the infant group. Regurgitation, vomiting and aspiration is a constant hazard. A fall in blood pressure as a result of miscalculated blood volume loss are prone to occur in this period. Also episodes of respiratory arrest are not infrequent in infants following major surgical procedures. Close attention must be paid to the lungs in these first post-operative hours and days as these babies are prone to develop areas of atelectasis and pneumonia.

The Anethetist is probably best qualified to recognize and to deal with many of these post-operative complications and it is only through his close attention, and when required, his constant supervision that he can fulfill his proper duties. Careful but thorough endo-bronchial suctioning may be required in some infants at frequent intervals during the first 24 to 48 hours post-operatively. The baby who is in the greatest jeopardy is the one who has his surgical procedure completed late at night. It is only too frequent that the members of the anesthetic and surgical staff, after removal of the baby from the operating theatre, quickly retire to their homes and to bed. This is entirely unsatisfactory.

The responsibility undertaken by the anaesthetist when starting an anesthetic requires that he remain with the child as long as his skill might be of benefit in the final outcome of the surgical procedure.

SURGERY IN CONGENITAL HEART DISEASE

BY F. G. DOLAN, M.D., F.R.C.S.(C) and A. S. WENNING, M.D.

The surgical treatment of congenital heart disease has shown steady improvement over the period of the last ten years. This has resulted in a tendency for greater correction of defects within the heart and a relative increase in safety of operations on the heart. Improvement in the mortality rate is due in a very large measure to the very careful selection of patients for operation, and to improvements in anesthetic technique. Refinements in diagnostic methods have enabled the Cardiologist to make extremely accurate diagnosis of conditions within the heart, observations that were impossible only a very few years ago. It is now very rare to find, at operation, anomalies that were not predicted by the Medical Cardiologist.

It was frequently thought that patients who were seriously ill from heart disease were poor anesthetic risks. Opinion now would be considerably altered for many Anesthetists feel they have such fine control of the patient under anesthesia that the patient is safer in the anesthetic state, as demonstrated by a decrease in cyanosis, better ventilation and greater regularity of the heart. The Anesthetist now has at his side not only his anesthetic equipment but also a continuous electrocardiograph recording, an adequate quantity of blood and the ability to deliver it rapidly, the bronchoscope, the oesophageal stethoscope, the hypothermia apparatus and the cardiac defilbrillator and stimulator. The patient is maintained at an extremely light level of anesthesia with the use of relaxants to control movement.

We have as yet not reached the stage of open heart surgery using a pump - oxygenator. We are rapidly moving toward the time when this will be available, the delay centres around the need for laboratory facilities for the initial trial run for this machine. These facilities are being provided and we would anticipate that a heart-lung machine would be in operation in Halifax within the next year, this machine is essential for the surgery of ventricular defects and for the complete repair of the tetralogy of Fallot. These require periods with an incision into the ventricular outflow tract of the right ventricle. This is impossible under hypothermia alone due to a time factor. Other procedures within the heart can be done under hypothermia, and these are presently being done. The following is a review of the first 105 cases of congenital heart disease that have been operated upon in the Children's Hospital and Victoria General Hospital.

Patent Ductus Arteriosus

This is the simplest of the congenital defects of the heart. It is a communication between the bifurcation of the pulmonary artery and the aorta in which there is a flow from the aorta through the ductus to the lungs. All patients with this defect should undergo operation for closure unless there is evidence of other defects within the heart or pulmonary hypertension with reverse flow. It is suggested that these patients be operated on at about four years of age. This time is chosen because it is in the pre-school period and a delay until this age is usually no hardship for the patient. It should be pointed out however that operations can be performed any time after birth if necessary. A total of 47 patients have been treated surgically with two deaths and one recurrence. This is a relatively high mortality rate for this condition but it can be explained

by the circumstances of these deaths. One patient was an infant age three months who had a large patent ductus and a ventricular septal defect. The patient was in very marked failure and it was felt that ligation of the ductus might help. This was performed successfully and the patient did well in the post-operative period. However four months later the patient died as a result of chest infection secondary to his ventricular septal defect. The second patient was 33 years old when her ductus was ligated. She did well post-operatively, but two months after operation a continuous murmur returned and there was evidence of a false aneurysm at the site of the ductus. Cultures taken revealed a staphylococcus albus septicemia. This is an unusual complicatiou since this organism is ordinarily non-pathogenic. The only recurrence in this series occurred in an adult patient in which the original ductus was tied off without difficulty but the continuous murmur persisted and a second operation had to be performed two years later. This patient is now alive and well.

Coarctation of the Aorta

This is a condition in which the aorta becomes narrowed just beyond the arch. The lower part of the body is supplied largely by an extensive collateral circulation. Fourteen patients have been operated on for this condition and there is one patient in this group who required four procedures. There are three deaths following this operation, two of the deaths occurred as the result of haemorrhage; one in the operating room from uncontrollable bleeding from a collateral vessel, the other in an adult three days after operation as a result of bleeding from an intercostal artery. The third death occurred in an adult of 38 years who died three years after operation as a result of a coronary occlusion. This condition is a much more formidable one than patent ductus in that there is a great risk of haemorrhage from the very dilated and friable vesells carrying the blood around the coarcted segment. These patients are all operated on under hypothermia as a protection to the spinal cord. With clamping the aorta cases of paraplegia have been reported following repair of this defect in the normothermic state; however, no cases have ever been reported when hypothermia was used. The indication for operation in these patients is fairly wide. All patients who have a coarctation should be operated upon. The ideal age is 8 years, the delay is desirable in order that the aorta may grow to near adult size, but the delay should not be long enough so that complications of coarctation may develop. One patient who underwent four operative procedures was a boy age 13 years who showed very marked irregularity of the heart during incision into the chest wall at his first procedure. The procedure was abandoned at this point. Some two weeks later at operation he showed similar irregularity but the procedure was carried out and the coarctation resected. Post-operatively the chest films suggested a leak at the site of the anastomosis and a third operation was performed. The operative site appeared perfectly normal and the chest was closed, but two days later the left pleural cavity filled up with blood and a fourth procedure had to be done to evacuate blood. This patient did well from this point on.

Atrial Septal Defect

This condition is one in which there is a hole between the right and left atria. The usual pattern of flow is from left to right and the patient usually has evidence of enlargement of the right side of the heart with right ventricular hypertrophy on the electrocardiogram. There have been 23 patients with this

defect. The indications for operation are not well laid down for there are some patients with this defect who require no surgical treatment. We have operated on those patients who show signs of a right ventricular strain pattern and in whom there is a bundle branch block in the electrocardiagram. There have been some patients with little evidence of right heart strain who have not been operated on, for it was felt by the Cardiologist that this defect was compatible with a normal life span. Of the Atrial defects, eleven occurred in children and twelve in adults. There have been two deaths from this procedure, both of whom were in the adult group. The operation is an open heart procedure done under hypothermia with total circulatory occlusion and entry into the right atrium. The defect is visualized under direct vision and repaired by silk suture. One patient died in the operating room as a result of cardiac arrest after closure of the defect. Despite prolonged massage the heart could not be restarted. The second patient died four days post-operatively. It was sudden and unexpected. The pathological examination showed the defect to be completely closed but there was a haematoma in the upper portion of the intra-ventricular septum some distance away from the operative site.

Pulmonary Stenosis

This is a condition of narrowing of the outflow tract of the right ventricle in which there is marked ventricular hypertrophy in the X-ray and the cardiogram associated with the finding of signs of outflow obstruction. Ten patients have been operated upon with this condition and there has been one death in the adult group. This death occurred as a result of mediastinal haemorrhage in a patient who had a very narrow pulmonary annulus. It was felt in opening the valve to its widest diameter that a small hole must have been made in the posterior wall of the pulmonary artery and that death was due to mediastinal haemorrhage.

Tetralogy of Fallot

For many years this condition has been treated by palliative surgery alone in which a new channel was made to allow blood to flow from the aortic circulation to the lung. This results in improvement of the patient but does not in any way correct the defect within the heart. In recent years there is a strong tendency to attempt total repair of this defect by opening the pulmonary stenosis and closing the ventricular septal defect. This is undoubtedly the surgery of the future for this condition; at present the risk of this surgery is still very high but it is recommended that patients should be carried along until this procedure is safer. At the present rate of progress this could be in a very short period of time in terms of years. There are some pateints however who get into serious trouble in early life and who would unlikely survive long enough to come to total correction. It is in these patients in whom the palliative operations are recommended. These are all very seriously ill patients, often they are in the first year of life and are generally deeply cyanosed. Several operations are available. The one that has been done here is the Blalock procedure in which a subclavian artery is anastamosed to a pulmonary artery. Sixteen have been done, there have been four deaths. This is a relatively high mortality rate but it is in keeping with the procedure. All deaths occurred in the infant age in which the vessells anastomosed were small and it is felt that these vessells thrombosed post-operatively.

This is a summary of the surgical operations and mortality in congenital heart disease performed in the Children's Hospital and in the Victoria General

Hospital. The results would tend to indicate the greater degree of safety of operations during childhood compared with similar procedures during adult life. The overall mortality falls within a reasonable range. The advent of the use of the heart-lung machine will see alterations in these mortality figures since more complicated defects in the heart will be dealt with. However the majority of conditions described in this article will continue to be treated in the same method as outlined. It is our hope that within a relatively short period of time all types of congenital heart disease may be dealt with in our area.

NOTICE

The Nova Scotia Brace and Appliance Centre at 41 Cornwallis Street, Halifax, N. S., is staffed and equipped to manufacture braces, orthopedic footwear and other orthopedic prosthetic appliances. Any Doctor can arrange an appointment for his patient to be measured and fitted at the Brace and Appliance Centre. It is understood that an adequate prescription for the desired appliance must accompany the patient. The shop is operated by the Nova Scotia Rehabilitation Council Incorporated—it is not yet equipped to manufacture artificial limbs.

MEDICAL OFFICER

The Workmen's Compensation Board of B.C. requires the services of a competent Physician to review the treatment and progress of claimants, examine, or arrange for the examination of claimants when deemed advisable, assess the degree of permanent disability of claimants and to make recommendations on the medical aspects of claims. Must be licensed to practice in B.C. or prepared to obtain such license. Adequate experience in general practice and/or special qualifications necessary. Age preference 40-50. Superannuation and M.S.A. benefits.
Reply by letter only please to:

Personnel Manager,
Workmen's Compensation Board,
707 West 37th Ave.,
Vancouver 13, B.C.

PERSONAL INTEREST NOTES

Physician's Art Salon

The 18th Annual Physicians' Art Salon will be held at the Royal Alexandra Hotel in Winnipeg, June 18 to 23, as a feature of the C.M.A. Annual Meeting, and sponsored by Frank W. Horner Ltd. The Salon is an Amateur Art and Photographic Competition open only to Physicians and Medical undergraduates, who may submit paintings, monochrome photos, colour transparencies, or colour prints up to a set limit in each category. Further details on how to prepare and ship your entries may be obtained from the sponsor at P.O. Box 959, Montreal 3, Quebec.

Halifax Medical Society

April 11, 1962—The monthly meeting was held at the Nova Scotia Hospital, for routine business, including the appointment of a nominating committee and auditors and to discuss Maritime Medical Care. Dr. Clyde Marshall presented "Nova Scotia's Expanding Mental Health Programme - a report to the Medical Profession".

April 12, 1962—A new 255 bed, seven story Nurses' Residence for the Nova Scotia Hospital in Dartmouth, has been announced. Work on the one and a half million dollar residence was expected to start within the next 10 days.

March 22, 1962—Dr. Graham G. Simms, Executive Director of the Nova Scotia Hospital Insurance Commission, stated in regard to the proposed addition to the Victoria General Hospital, Halifax: "to rush things by building now and planning as we go would not save time, would result in a less efficient hospital and be costly in the long run". Present plans call for the addition of 350 beds at the hospital bringing the total to 850 beds, Dr. Harvey Agnew, Toronto, special Commission Consultant stated.

April 12, 1962—Dr. C. H. Reardon, M.L.A. Halifax West, stated in the Provincial Legislature that people with terminal illnesses were being sent home from hospitals "to spend their last few months in misery" because adequate care could not be provided at home. He felt there should be some provision for places where good medical and nursing care could be provided, especially older people, whom it was very difficult to get into hospitals. Health Minister Donahoe told the House, the Victoria General Hospital now had a waiting list of 420 elective cases and 90 more urgent cases waiting for public ward beds - all of whom had had dates of admission assigned to them - and 35 cases waiting for private or semi-private room beds. The first available date for a private bed was May 7, he said. In semi-private the first available bed was May 7 for a male and June 18 for a female. Premier Stanfield, replying to Dr. Reardon, said there was no question it would be desirable to provide beds for chronic and convalescent cases, but "the first task, surely, is to provide enough beds for the needs of the Hospital Plan". He said the Province and the Federal Government would pay $5,000.00 towards every approved hospital bed constructed.

Dr. Duncan MacMillan, recently told Halifax County Council, that the Medical Society should investigate the dissatisfaction expressed by rural Councillors with doctors who charge for polio immunization shots. This was in answer to questions by Councillor Moser of Glen Margaret who complained that school youngsters in his district were charged 50c a shot and those who couldn't pay "didn't get their needle."

Pictou County Medical Society

Dr. and Mrs. W. A. MacQuarrie have recently returned from a vacation in Jamaica and the Bahamas.

Dr. and Mrs. C. G. Harries, accompanied by his uncle and aunt, Dr. and Mrs. D. J. MacLean of Palmer, Mass., have returned to their homes after spending the month of March in Florida.

Dr. James Park, Pathologist at the Aberdeen Hospital, New Glasgow, has recently returned from a trip to the United Kingdom.

Western Nova Scotia Medical Society

Dr. and Mrs. Felix Doucette, Weymouth, spent a week vacationing in Quebec City during February.

Dr. W. L. MacK. King has moved from Weymouth to Sackville, N. S.

The Nova Scotia Society of Internal Medicine

The Annual Scientific Meeting of the Nova Scotia Society of Internal Medicine was held in Kentville on March 23 and 24, 1962. The first session on the 23rd was devoted to a business meeting under the chairmanship of the President, Dr. G. D. Denton, Kentville. Dr. J. F. L. Woodbury, Chairman of the Fees Committee, discussed the proposed new fee schedule. These changes will be presented to the Provincial body. It was generally agreed that so-called major and minor consultations should not be in force. The next item discussed was how to improve public relations between the Internist, other physicians and the public at large. Various suggestions were brought forth and will be considered later. On the same afternoon, a very interesting paper on Gram Negative Bacteria was presented by Dr. Alan J. MacLeod, Halifax. He discussed the various aspects of this very important group of bacteria. A second paper, also very interesting and instructional, was given by Dr. R. D. Drysdale of Charlottetown, in which he discussed his experience with a case of Hemochromatosis. Dr. Drysdale reviewed the current thinking on the aetiology and treatment of this rather rare disease.

On Saturday morning a coffee party was held for the ladies at the Cornwallis Inn. The Medical presentation on Saturday was given by Dr. R. C. Dickson, Professor of Medicine, Dalhousie University. Dr. Dickson discussed "Esophageal Motility Associated with Achalasia". He presented his findings in a group of cases at the Victoria General Hospital. It was unfortunate that because of the weather, Dr. J. C. Sinnott of Charlottetown and Dr. R. N. Anderson of Halifax were unable to present papers as had been planned.

On Saturday night, a cocktail party and supper were held at the Cornwallis Inn which were very much appreciated and enjoyed. We wish to thank Dr. G. D. Denton for his work in arranging the programme and Dr. J. E. Hiltz for providing the use of Miller Hall, and to the members who were good enough to present papers. We hope that our next meeting will be at a time when the weather is more favourable. (Ed. Note:—We wish to thank Dr. J. M. Cairns, Sect'y-Treasurer for these notes).

University

Dr. Donald J. Mackenzie, retires the end of April, after 36 years as Director of Nova Scotia Public Health Laboratories, and Assistant Professor of Bacteriology at Dalhousie University Medical School. At a ceremony in

the Pathology Institute, University Avenue, on April 10, 1962 he was guest of honour, when his portrait was unveiled by Miss Margaret Lowe, for many years senior technician in the department. That same evening one hundred of the Director's associates and colleagues, honoured him at a testimonial dinner in the Nova Scotian Hotel, when he was presented with a gold watch and radio by Norman Cuthbertson.

Dr. Mackenzie was born in Mira Gut, Cape Breton, in 1895, educated at Glace Bay and Sydney and graduated from Dalhousie Medical School in 1918. Following 18 months' service with the Canadian Army Medical Corps, he did two years General Practice in Louisburg, then took post-graduate work in Bacteriology and Serology at Johns' Hopkins and McGill Universities, and in 1921 he was appointed Assistant Professor of Bacteriology at Dalhousie Medical School and in 1926 was appointed Director of Laboratories, Department of Public Health for the Province of Nova Scotia. He was made a Fellow of the Royal College of Physicians (Canada) in 1931, a Fellow of the American Public Health Association in 1943, and was given membership in the Royal Society of Health of Great Britain in 1956. He has served as President of the Laboratory Section of the Canadian Public Health Association and President of the Halifax Medical Society. During Dr. MacKenzie's tenure of office, laboratory services to the Province have expanded from a few tests carried out by one technician in a single room to the present status, consisting of a large central laboratory in Halifax with a staff of 160 technicians, plus laboratories in most hospitals throughout the Province, and a Training School in Halifax to maintain an adequate number of qualified personnel.

Dr. Gordon H. Hatcher, whose appointment as Head of the Department of Preventive Medicine was announced in the Nova Scotia Medical Bulletin September, 1961 (page 285) has recently arrived to take up his duties in Halifax.

Drs. Harold C. Read and Demetria T. Fernandez, were awarded grants and fellowships at the 13th Annual Meeting of the Canadian Arthritis and Rheumatism Society in Toronto recently. Dr. Read received an arthritis research grant, and Dr. Fernandez a fellowship to work in the field of anaemia in rheumatoid arthritis.

Dean C. B. Stewart, President of the Association of Canadian Medical Colleges, welcomed the recent announcement by the W. K. Kellogg Foundation of Battle Creek, Michigan of a five year $170,000 grant to establish a full time secretariat on medical education for the association. The association has worked with part-time staff since its foundation in 1943, and the Kellogg fund will support the appointment of a physician as Executive Secretary, provide a social scientist and statistician and cover administrative costs for the Ottawa headquarters and finance special studies. Among the responsibilities of the Secretariat will be studies to indicate the extent to which existing medical schools should be expanded and /or new schools established. Another study will pertain to the costs of medical education in Canada and the extent of financing needed from Federal and Provincial Governments.

Births

To Dr. and Mrs. Gerald Davis, a daughter, at the Grace Maternity Hospital, Halifax on March 19, 1962.

To Dr. and Mrs. Alden R. Hansen, a son, at the Halifax Infirmary on March 16, 1962.

To Dr. and Mrs. Alan R. Hebb, (Louise Smith) a daughter, at the Grace Maternity Hospital, Halifax on March 22, 1962.

Dr. and Mrs. J. Douglas Hines, (nee Audrey Crouse, R.N.) a daughter, at the Soldiers Memorial Hospital, Middleton on April 4, 1962, a sister for Brian and Margo.

To Dr. and Mrs. Ernest Johnson, (nee Margaret MacMillan) a son, at the Halifax Infirmary on March 28, 1962.

To Dr. and Mrs. Donald (Eileen) Milford, their second daughter, at the Yarmouth General Hospital on February 22, 1962.

To Dr. and Mrs. Garth Vaughan, a daughter, at the Payzant Memorial Hospital, Windsor, on March 30, 1962.

Coming Meetings

May 21-23, 1962—109th Annual Meeting of the Medical Society of Nova Scotia, Nova Scotian Hotel, Halifax.

June 18-22, 1962—95th Annual Meeting of the Canadian Medical Association, Winnipeg, Manitoba. The Blackadar Lecture, (to commemorate the late Dr. A. D. Blackadar, Pioneer Canadian Paediatrician) will be delivered by Dr. S. van Creveld, a distinguished Paediatrician from Amsterdam. Three well-known Physicians from the United States will be guest speakers: Dr. Milton L. McCall, University of Pittsburgh, "The Gynaecological Aspects of Obstetrical Injury", Dr. Carl T. Nelson, Columbia University, New York "Common Bacterial Infections of the Skin" and Dr. Michael E. DeBakey, Baylor University College of Medicine, Houston, Texas, Surgery of the Aorta". A Medical Economics Day will be presented and some of the speakers and subjects for this important phase of the programme will include: "Impressions of the Royal Commission on Health Services"—Dr. G. E. Wodehouse, Toronto; "The People's Health - Whose Responsibility?"—Dr. L. R. Rabson, Winnipeg; "The Saskatchewan Situation"—Dr. E. W. Barootes, Regina; "Trends in Medicine that Pose Problems for Prepayment Agencies—Dr. R. O. Jones; Halifax; in addition there will be two panel discussions on the subjects: "The People's Health - Whose Responsibility"—Moderator: Dr. A. D. Kelly, Toronto and "The Current Problems of Prepayment Agencies"—Moderator: Dr. E. F. Donald, Edmonton.

September 18-21, 1962—5th Canadian Conference on Mental Retardation, Nova Scotian Hotel, Halifax. This conference, sponsored by the Canadian Association for Retarded Children, will have as its theme: "The Community - A Necessary Member of the Team". Slogan: "Help Them to Help Themselves". For further information: Mrs. J. L. Stewart, C.A.R.C., National Conference Chairman, 610 Kenaston Ave., Town of Mount Royal, Quebec.

June 10-14, 1963—96th Annual Meeting of the Canadian Medical Association, Toronto.

September 23-26, 1963—6th Canadian Conference on Mental Retardation, Marlborough Hotel, Winnipeg, Manitoba.

Sympathy

The Editors of The Nova Scotia Medical Bulletin extend their sympathy to Dr. G. M. Macdonald, Yarmouth on the death of his father in Glace Bay recently.

Also to Dr. C. B. Stewart, Halifax, and Dr. W. B. Stewart, Moncton, on the death of their father in Charlottetown, P.E.I. on April 18th.