IMPERFORATE ANUS.

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Abstract

One hundred and four cases of anorectal anomalies treated by us in the last ten years are presented. The classification, mode of operation and results are discussed. A perineal approach for an intermediate variety and a one stage abdominoperineal rectoplasty for a high variety are stressed.

Anorectal anomaly, so called imperforate anus is one of the commonest neonatal malformations admitted in the general hospitals. The orthodox classification of high and low, still given in most text books, is not satisfactory. Accordingly many authors have presented their own classifications which have proved confusing (Table I). In 1970 Pediatric Surgical Congress formulated an international classification of anorectal anomalies (Table II). I consider this classification to be the best illustrated both anatomically and pathologically and to be the best guide to a surgical approach. It divides anorectal anomalies into a classification of high, intermediate and low. The first two present above the levator ani known as the supralevator and the third one presents below the translevator.

Table: I: Classification of Anorectal and Malies

No.	Author	Year
1.	Ladd & Gross	1934
2.	Dennis — Browne	1955
3.	Bill & Johnson	1958
4.	Louwe	1959
5.	Nixon	1959
6.	Scott & Swenson	1959
7.	Partridge & Gough	1961
8.	Gans et al.	1961
9.	Santulli et al.	1965
10.	International	1970

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Table II: International Classification of Imperforated Anus

	Male	*Female*
High	A) Anorectal Agnesis without fistula	A) Anorectal Agnesis without fistula
	B) Anorectal Agnesis with fistula:	B) Anorectal Agnesis with fistula:
	a) Bladder	a) Bladder b) Vagina c) Cloaca
	C) Rectal Atresia	C) Rectal Atresia
Intermediate	A) Anal Agnesis without fistula	A) Anal Agnesis without fistula
	B) Anal Agnesis with fistula with urethra	B) Anal Agnesis with fistula with
		a) Vagina b) Vestibule
Low	A) Normal Anal Site	A) Normal Anal Site
	a) Covered anus complete	a) Covered Anus Complete b) Anal Stenosis
	b) Anal Stenosis	B) At perineal Site
	B) At perineal Site	a) Anterior Perineal Anus b) Ano-cutaneous fistula
	a) Anterion Perineal Anus	C) Vulvar
	b) Anocutaneous fistula	a) Ano - Vulvar fistula b) Ano - Vestibular fistula c) Vulvar Anus

Material and Method

104 cases of anorectal anomalies were admitted and treated by us from 1968 to 1978 in St. Raphael's Hospital, Faisalabad, Aziz Bhatti Shaheed Hospital, Gujrat, D.H.Q. Hospital, Faisalabad, Pakistan. The baby is usually brought for examination with a history of complete constipation since birth or the passage of gas or meconium per urethra or per vaginam. Vomiting, which is a late sign, may also be present. On examination the abdomen is distended and the anal opening in the perineum is absent.

A small speck of mecanium (Stenosed anus), a black or green pearly thin line in the perineum (ectopic anus), anterior position of the anal opening or a bluish bulging membrane at the site of the anal opening denote the low variety. The presence of a rectovaginal fistula and absence of the hymen in the female are considered to be signs of a high variety anomaly (Bill et al., 1975).

The most important investigation apart from perineal examination, is the plain X-ray of the pelvis which is routinely done in the up and down position (invertogram) with a radio paque indicator at the anal site. A coin, metal button, bougie or barium paste can be employed for this purpose. This exercise is carried out to measure the distance of the gas bubble in the rectum from the perineal skin. The X-ray is done in either the A.P. or lateral view. In the lateral view when the gas shadow is present above the pubococcygeal line it is a sign of the high variety anomaly. When it is present below this line as far as the inter ischial line it is a sign of the intermediate and below this is the low variety. We also check for gas in the bladder which would be an indication of recto-vesical fistula. Gastrograffin or thin barium can also be injected through the fistula if it can be located or through the colostomy if already done and an X-ray taken to judge the extent of the rectal descent. Urinary examination is done to check for the presence of meconium epitheli, pseudomonas and E. coli in order to exclude anyrecto-vesical fistula.

Perineal aspiration with a wide bore needle, I. V. P., micturating cystogram, urethroscopy and vaginoscopy are not routine procedures

Treatment

The operation is performed as an emergency after the proper investigations are completed. The treatment of the low anomaly may consist of simple dilatation of the stenosed anus, cutting back and proper repair of an ectopic anus, and cutting of the anal membrane in cruciate fashion followed by regular dilatation. Perineal repair is always done for the intermediate variety and abdomino — perineal repair for the high variety.

Results

Out of 104 cases of anorectal anomalies, 61 were males and 43 were female (Table VI) 26% were of high, 43% intermediate and 30% of low variety (Table III) only 44% had recto-urinary or vaginal fistuli (Table IV) much less in occurrence than reported by Adkins in 1976. Surgery was performed in all except six cases who were admitted dying. Abdomino perineal carried the highest mortality of 56%, colostomy had 50%, perineal repair 17% and dilation had no mortality (Table V). Overall mortality was 32% with post operative deaths 27%. The causes of death (Table VIII) were hypovolaemic shock, volvulus neonatorum, mucovicidosis. Septicaemia. but cause of the death could not be confirmed in majority of the cases due to lack of cooperation from the parents for the postmortem examination. Perhaps other serious associated anomalies might be the cause which we missed during preoperative examinations. The postoperative complication were volvulus neonatorum, injury to small cut, urethra and ureter, retentions of urine, recurrent fistula and anal stricture (Table VII). We blame the ignorant parents for postoperative anal strinctures who did not carry on the regularly dilatation of anus at home after the operation as advised and perhaps this is the cause of the recurrence of the fistuli. All of them had a follow up from few months to ten years. Only two had incontinence of the sphincters, in others the continence was fairly satisfactory.

Table III: Imperforate Anus Classification

Sex	*High*	*Intermediate*	*Low*		
			Membrane	*Covered*	*Ectopic*
Male	17	28	2	6	7
Female	10	17	7	3	7
Total	27	45	9	9	14
					32%
Percentage	26	43	8	8	13
					30%

Table IV: Imperforate Anus Recto-Vasical or Vaginal Fistula

Sex	*Total cases*	*Fistula*	*Percentage*
Male	61	11	18%
Female	43	35	81%
Total	104	46	44%

Table V: Imperforated Anus Operations

Sex	*Nothing*	*Abdomino Perineal*	*Perineal*	*Dilatation*	*Colostomy*
Male	5	16	30	6	3
Female	1	9	30	3	1
Total	6	25	60	9	4
Death	6	14	10	—	2
Percentage Mortality	100	56	17	—	50

Table VI: Imperforate Anus Mortality

Sex	*Number of Cases*	*Death*	*Percentage Mortality*
Male	61	26	42%
Female	43	8	19%
Total	104	34	32%

Table VII: Imperforate Anus Complication of Operations

Volvulus Neonatorum	7
Injury Smallcut	2
Cut Ureter	1
Injury Urethra	3
Retention Urine	5
Recurrent Fistuli	9
Anal Stricture	12

Table VIII: Imperforate Anus Causes of Death

Volvulus Neonatorum	2
Hamorrhagic Hypovolaemic Shock	5
Inhalation Pneumonia	2
Extremis	6
Unknown	17
Mucovisidosis	1
Septicaemia	1

Discussion

Onorectal anomaly occurs in 1 : 5000 births, were common in male children (2). In our personal experience its incidents are more common in Pakistan about 1 : 3000 to 1 : 4000 live births. 25 — 75% are accompanied by other anomalies which usually contribute to the loss of life. Emergency surgery is usually necessary in order to save the infant's life. Correction of the low variety is quite a simple procedure. For the intermediate and high variety anomaly there are three possible procedures : —

1) Perineo-plasty

2) Abdomino perineal approach.

3) Sacro perineo abdominal approach (no longer in use).

These operations are done either in one stage or in more than one step i.e. colostomy in the first stage, either sigmoid or transverse, followed by definitive repair after 6 — 12 months. We agree with the opinion of Trylor et

al. (1973), Scott et al. (1960), Partridge and Gough (1961), Nixon (1959), Woolam (1974) and Soane (1969) who believe that imperforate anus should be repaired in one stage. The following points are in its favour:—

1) In newborns the dilated bowel is more easily freed with minimum disturbance of blood vessels, nerves and greater preservation of bowel sensations. The fistula is easily accessible from above for repair.

2) After colostomy the distal sigmoid colon and rectum tend to shrink. There are more adhesions in the pelvis after the first operation which make the second more difficult. Apart from this the colostomy itself presents problems with which the neonates find it difficult to cope.

3) In the presence of a fistula there is always a chance of urinary infection.

4) Dilatation of the rectum is a routine postoperative procedure. Psychologically it is much more disturbing for the older child than for the neonates.

5) The neonates learn normal evacuation and use of a new sphincter more quickly than old children and there is less skin excoriation in the initial period.

6) In the phased repair the baby has to undergo three operations. First colostomy, then proper repair and finally closure of colostomy. Each has its own morbidity and mortality. The complications of the one stage rectoplasty are less than the collective complications of all three operations. Colostomy is reserved only for patients who are grossly distended, very sick, premature with a weight less than 5 pounds and those with other anomalies.

There is no controversy at all about the abdomino perineal approach being the ideal for a high anomaly. However there is difference of opinion concerning this approach for the intermediate variety. The perineal approach is technically easier, blood loss and shock is less, complications are fewer, mortality rate is lower and the results are reasonably satisfactory. Schnauffer et al. (1967), Cozzi and Wilkinson (1968), Trusler and Wilkinson (1962) and Arhan et al. (1976) have all admitted that continence is much better after perineoplasties than after the abdomino perineal approach. We have not experienced any difficulty in the perineal approach for an intermediate anomaly and the morbidity and mortality rate has been low, we try to preserve the puborectalis as stressed by Stephen (1953) but usually it is not possible to do so as Trusler and Wilkinson (1962) have pointed out.

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References

Adkins, J.C. and Kiesewetter, W.B. (1976) Imperforate anus. Surg. Clin. North Am., 56:379.

Arhan, P., Faverdin, C., Devroede, G. et al. (1976) Manometric assessment of continence after surgery for imperforate anus. J. Pediatr. Surg., 11:157.

Bill, A.H., Hall, D.G. and Johnson, R.J. (1975) Position of rectal fistula in relation to the hymen in 46 girls with imperforate anus. J. Pediatr. Surg., 10:381.

Cozzi, F. and Wilkinson, A.W. (1968) Congenital abnormalities of anus and rectum mortality and fuction. Bri. Med. J., 1:144.

Nixon, H.H. (1959) Ano-rectal anomalies. Postgrad. Med. J., 35:80.

Partridge, J.P. and Gough, M.H. (1961) Congenital abnormalities of the anus and rectum. Br. J. Surg., 49:37.

Schnaufer, L., Talbert, J.L., Haller, J.A., Reid, N.C.R.W., Tobon, F. and Schuster, M.M. (1967) Different sphincter studies in the diagnosis of ano-rectal disorders of childhood. J. Pediatr. Surg., 2:538.

Scott, J.E.S., Swenson, O. and Fisher, J.H. (1960) Some comments on the surgical treatment of imperforate anus. Am. J. Surg., 99:137.

Soave, F. (1969) Surgery of rectal anomalies with presentation of the relationship between the colonic muscular sleeve and the puborectalis muscle. J. Pediatr. Surg., 4:705.

Stephens, F.D. (1953) Imperforate Rectum. A new surgical technique. Med. J. Australia, 2:202.

Taylor, I., Duthie, H.L. and Zachary, R.B. (1973) Anal continence following surgery for imperforate anus. J. Pediatr. Surg., 8:497.

Trusler, G.A. and Wilkinson, R.H. (1962) Imperforate anus. A review of 147 cases. Can. J. Surg., 5:269.

Woolam, G.L. (1964) Congenital anomalies of the anus and rectum. Mayo Clin. Proc., 39:866.