

Table 5. Cases of Exomphalos & Gastroschisis

	Male	Female	Total	Mortality
Exomphalos	6	10	16	5(31%)
Major	3	3	6	4(67%)
Minor	4	6	10	1(10%)
Gastroschisis	1	2	3	—

Table 6. Cases of Intestinal Atresia

Site	Male	Female	Total	Mortality
Ileal	9	4	13	8(62%)
Deodenal	2	—	2	1(50%)
Total	11	4	15	9(60%)

Table 7. Miscellaneous Neonatal Conditions

Disorder	Male	Female	Total	Mortality
Meconium Ileus	4	6	10	6(60%)
Diaphragmatic Hernia	4	2	6	2(33%)
Ectopia Vesicae	3	—	3	—
Biliary Atresia	1	1	2	—
Strangulated Inguinal Hernia	6	—	6	2(33%)
Necrotising Enterocolitis	3	—	3	3(100%)
Sacroccygeal Teratoma	2	1	3	1(33%)
Total	23	10	33	14(42%)

Table 8. Mortality in different studies

	Neural Tube Defect	Exomphalos Major Minor	Imper- forate Anus	Ileal Atresia	
Hassan ¹	25%	50%	17%	14%	50%
Swenson ⁴	—	35%	17%	26%	8%
This study	26%	67%	10%	15%	60%

Hirschprung's Disease

Twenty five cases, of congenital megacolon, 16 males and 9 females, were admitted during the study period. The diagnosis was made on clinical grounds. Digital probing of the rectum helped in passing the stool in many cases. In some cases in which there was no over distension, contrast enema was performed to make the diagnosis and the disease was confirmed by rectal biopsy. Two cases presented with

perforation and 3 had gangrenous bowel with over distension. At the time of presentation only the simple procedure of loop colostomy was performed. Death was seen in those cases who presented with perforation and gangrene giving a 20% mortality in these cases.

Intestinal Atresia

Fifteen patients were admitted with small bowel atresia (Table 6). Most of these babies presented within 72 hours of birth. In two cases ileal atresia was associated with high type of imperforate anus. The diagnosis was made on clinical history of vomiting with central abdominal distension, supported by multiple fluid levels on plain X-ray abdomen and was confirmed at laparotomy. In most of these cases of ileal atresia a side to side anastomosis was performed. Only 5 patients survived showing a high mortality rate. Two babies died on the operating table, five developed faecal fistula post-operatively and died subsequently. One developed severe sepsis with respiratory tract infection and also died.

Miscellaneous Group

These included ten patients with meconium ileus out of which six died, four of these had presented with peritonitis due to gut perforation. Four cases of diaphragmatic hernia survived after surgery while three cases of ectopia vesicae (grade three and four) were referred to specialized centres. Two cases of biliary atresia were admitted, their diagnosis was confirmed on Hida scanning done at Radioisotope Centre, Jamshoro, and were later referred to specialized centre. Other cases in this group were strangulated inguinal herniae, necrotising enterocolitis and sacroccygeal teratoma as shown in Table 7.

DISCUSSION

Prior to introduction of separate paediatric surgical services in England, mortality was high (72%) amongst neonates undergoing surgery. The commonest congenital neonatal disorder in our series was neural tube defects which could be open or closed. Meningomyelocele is the commonest defect and this could be associated with hydrocephalus (80%)², in our series also there were 58% meningomyeloceles. Only 40(63%) of these cases were operated, whereas all the meningocoeles (46) were operated. Neural tube disorders carried a mortality of 26% post-operatively. Surgery carried out in selected cases 24-36 hours after birth improves the quality of life^{2,3}. Surgery in spinal lesions, provides skin and meningeal

cover for neural elements, thus acting as a barrier against the entry of bacteria besides preventing CSF leakage. However, it will not improve the neurological disability i.e. weakness in the legs and loss of sphincter function^{1,4}.

Our series reveal severe mortality in intestinal disorders, such as 67% in exomphalos major, 62% in ileal atresia and 60% in cases of meconium ileus. The reason for this high mortality is not only lack of paediatric surgical facilities but also late referral of cases.

Colostomy procedures for high imperforate anus and Hirschsprung's disease carries more than 20% mortality. Due to lack of knowledge about this procedure and non-availability of stoma nurses at our centre, most of the patients with colostomy do not turn up for follow up and even if they do come, the babies are marasmic and malnourished due to complications like colostomy diarrhoea and bleeding. Therefore very few babies survive for definitive procedures.

Table 8 shows the comparison of neonatal mortality

rate of different authors. High mortality in our series is due to many factors like lack of early diagnosis, late referrals, non-availability of trained nursing staff, intravenous therapy regulators, respirators, incubators, and intensive care unit. We believe that general surgical services cannot achieve the goal of low morbidity and mortality among neonates without considering the above factors. Hence, we recommend a separate paediatric surgical unit in all teaching institutes and tertiary hospitals.

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CONGENITAL NEONATAL SURGERY : A SIX YEARS EXPERIENCE AT NAWABSHAH

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ABSTRACT : A total of 282 cases of neonatal surgical problems were studied in retrospect from January 1990 to December 1995 at Peoples Medical College Hospital (PMCH), Nawabshah. Of these 109 (38.65%) cases were of neural tube defects, 79(28.01%) of imperforate anus and 25(8.87%) of Hirschprung's disease. Other cases included those of exomphalos, gastroschisis, intestinal atresia, meconium ileus, diaphragmatic hernia and sacrococcygeal tumours.

The overall mortality in this study was higher than that of other published series, highest mortality being noted in cases of neonatal intestinal disorders. The factors responsible for high mortality rate were non-availability of trained nursing staff, intravenous therapy regulators, respirators, monitoring equipments and an intensive care unit. To deal with neonatal surgical problems with lowest morbidity and mortality we recommend properly staffed and fully equipped separate paediatric surgery units in teaching hospitals and tertiary centres.

KEY WORDS : Neonatal Surgery, Congenital Abnormalities

INTRODUCTION

Paediatric surgery was introduced as a separate speciality in Pakistan with the establishment of the Paediatric Surgical Unit at JPMC, Karachi in 1962¹, although independent Paediatric Surgery units were working in England since 1949¹. At Peoples Medical College Hospital, Nawabshah there is no separate paediatric surgery unit, hence paediatric surgical patients are being dealt with by general surgeons. Several problems are encountered during the surgical care of neonates and children due to non-availability of monitoring equipments, respirators, intravenous therapy regulators, trained nursing staff and other intensive care facilities which greatly influence the outcome and prognosis in these cases. In this article we have analysed our 6 years experience of dealing with different neonatal surgical problems.

PATIENTS & METHODS

This retrospective study was conducted in the Dept. of Surgery at PMCH, Nawabshah from Jan. 1990 to

Dec. 1995 on 282 neonatal cases admitted through Casualty and Outpatient Departments. Data regarding these patients was collected from case files, and admission, discharge and OT records.

RESULTS

Out of the 282 neonatal admissions (Table 1) during the 6 years study period there were 109 cases of neural tube defects. Majority presented during the first week after birth, but some came as late as 3 months of age.

Neural tube defects

There were 46 patients with meningocele and 63 with meningomyelocele (Table 2). All neonates having meningomyelocele were not operated, cases were selected after considering the size of the defect, pedicle of the swelling and possibility of approximation of skin. Cases of meningocele with large defects were referred to specialized centres but those with small and narrow pedicle, and expectant good skin cover were operated. Out of those operated 40

Table 1. Annual Distribution of Neonatal Surgical Cases.

Disorder	1990	1991	1992	1993	1994	1995	No.	%
Neural Tube Defect	16	18	14	23	18	20	109	38.65
Imperforate Anus	10	12	15	13	13	16	79	28.01
Hirschprung's Disease	4	3	5	2	6	5	25	8.87
Exomphalos & Gastroschisis	3	4	3	3	4	2	19	6.74
Intestinal atresia	3	2	3	2	3	2	15	5.31
Sacrocoxygeal Teratoma	1	-	-	-	-	1	2	0.71
Miscellaneous	4	5	6	6	5	7	33	11.70
Total	41	44	46	49	49	53	282	100.00

Table 2. Cases of Neural Tube Defects

Defect	Male	Female	Total	Operated	Mortality
Meningomyelocele	39(62%)	24(38%)	63	40	12(30%)
Meningocele	26(57%)	20(43%)	46	46	10(22%)
Total	65	44	109	86	22(26%)

Table 3. Cases of Imperforate Anus

Type	Male	Female	Total
Low	16	10	26(33%)
High	35	18	53(67%)
Total	51	28	79

Table 4. Operations performed for Imperforate Anus

Procedures	No.	Mortality
Colostomy		
Transverse		
Right	22	5(23%)
Left	10	2(20%)
Pelvic	21	4(19%)
Anoplasty	20	1(5%)
Anal Dilatation	6	—
Total	79	12(15%)

had meningomyelocele and 46 meningocele. The operative procedures performed were excision of sac and repair for meningocele, and excision of sac and darning of membrane for meningomyelocele. The commonest postoperative complication was meningitis followed by fever and wound sepsis.

Imperforate Anus

A total of 79 patients presented with imperforate anus (Table 3). Most cases were admitted with history of not passing stools and abdominal distension, usually within 48 hours after birth. The diagnosis was made by clinical examination and the type evaluated by X-ray invertogram.

The type of surgical procedure performed along with mortality is shown in Table 4. Loop colostomy was performed for high type of imperforate anus and anoplasty with anal dilatation for low type. There was high mortality amongst patients who had high type of imperforate anus either due to colostomy diarrhoea (ill managed) or due to other associated congenital abnormalities. Two patients with high type of imperforate anus had rectourinary fistulae, as they were passing meconium in the urine.

Exomphalos and Gastroschisis

There were 16 patients with exomphalos (six major, 10 minor) and three with gastroschisis. All cases were admitted within 24 hours of their birth and operated except three (Table 5). High mortality in exomphalos major (67%) was due to respiratory and anaesthesia complications.