International Journal of Contemporary Pediatrics
Shahjahan M et al. Int J Contemp Pediatr. 2024 Aug;11(8):1027-1031
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: https://dx.doi.org/10.18203/2349-3291.ijcp20242010

Original Research Article

Common paediatric surgical problems in Bangladesh - experience in tertiary care center, Dhaka, Bangladesh

M. Shahjahan[1]*, Khondaker M. Elahi[1], Nusrat J. Nrjana[1], M. Kabirul Islam[2]

[1]Department of Pediatric Surgery, Anower Khan Modern Medical College Hospital, Dhaka, Bangladesh
[2]Department of Pediatric Surgery, Community Based Medical College Hospital, Dhaka, Bangladesh

Received: 20 April 2024
Revised: 13 June 2024
Accepted: 02 July 2024

***Correspondence:**
Dr. M. Shahjahan,
E-mail: mdrshahjahan@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: There are several challenges at the global and national levels that contribute to surgery in children's health. The aim of the study was to evaluate the surgical problems in children in Dhaka Shishu Hospital-that is in Bangladesh.
Methods: This retrospective study was carried out in the department of pediatric surgery, Dhaka Shishu Hospital. A retrospective study of surgical problems in children's in the last 10 (September 2013 to October 2023) years were done in admitted patients in the surgery department. A total of 12689 patients were participated in the study. The surgical units of this hospital contain 100 beds. So, the average total number of surgical patients are 200. This is for the first time in our country an attempt is made to present a data of surgical problems in children's in Bangladesh in the experience of Dhaka Shishu Hospital. Statistical analyses of the results were obtained by using statistical packages for social sciences (SPSS-24).
Results: A total number of 12689 patients; aged <10 years; admitted in the surgical units of Dhaka Shishu Hospital in the last 10 years were reviewed. Male patients were 59%, female 42%. Among them 29% were of age below 1 year, 43% from 1 to 5 years and 29% were above 5 years. Gastro-intestinal disorders were the commonest problem observed-constituting 43.9% of cases, while 9.2% of children came with burn injury.
Conclusions: The management of surgical problems often requires a multidisciplinary approach and advancements in surgical techniques, anesthesia, and perioperative care have improved the surgical interventions in pediatric patients over the years.

Keywords: Comorbidity, Surgeons, Pediatricians, Anesthesiologists

INTRODUCTION

The variety of surgical disorders that affect people in the pediatric age group is not well understood. It is because neither governmental nor non-governmental organizations place a high priority on pediatric surgical care, and as a result, surgical care is not included in the majority of children's health programs. Childhood surgical disorders are just as common in underdeveloped nations as they are in developed ones, and the morbidity and mortality rates from these conditions are widely known in wealthy nations.[1]

In the world, surgical issues are given less attention and more focused on the management of non-surgical pediatric disorders (such as malnutrition and infectious diseases). In impoverished nations, surgical care for children is perceived as an unnecessary luxury that comes at a high cost.[3] As a result, the majority of governments do not offer programs for children's elective hernia repairs or other prophylactic surgeries that would otherwise spare countless suffering.

Many medical disorders require surgery, even though the majority of childhood alignments are often managed with

non-invasive techniques like medicine. The medical staff will assess the child's medical history and conduct a physical examination prior to deciding whether to undertake surgery.[4] It might be necessary to do some imaging and laboratory testing to assess the condition's severity or identify any consequences.

According to recent estimates, up to 32% of the world's diseases are related to surgical problems, and 5 billion people, primarily in low- and middle-income countries (LMICs), lack access to safe and economical surgery.[5] The sustainable development goals, which include strengthening the health system and achieving universal health coverage, depend on having access to sufficient surgical care, according to the World Bank, the United Nations, and the World Health Organization.[6] Gaps in children's surgical treatment have received little attention, despite the fact that meeting surgical needs has been demonstrated to be a necessary component of healthy healthcare systems.[7]

Children's surgical needs differ fundamentally from those of adults.[8] Congenital abnormalities and injuries account for a significant component of the overall surgical burden, disproportionately affecting children. Pediatric surgical treatment necessitates a unique infrastructure, labor and resources that differ from adult care.[9] Many areas of surgical care for children are low-cost and in proper contexts, they can give financial security to low-income families.[10]

Paediatric surgery in a developing country like Bangladesh is not yet fully recognized as an independent branch of and many renowned surgeons are practicing this branch of medical science, yet we do not have a national data on surgical problems in children. In the present study we have tried to highlight the common surgical problems in children in our country that we have come across in our hospital.

METHODS

This retrospective study was carried out in the department of pediatric surgery, Dhaka Shishu Hospital. A retrospective study of surgical problems in children's in the last 10 years were done in admitted patients in the Surgery Department. The surgical units of this hospital contain 100 beds. In addition, there were about 100 patients, in average, staying in cabin, paying beds, neonatal ward under surgical care. So, the average total number of admitted surgical patients at a time are 200. In the surgical out patients' departments (SOPD) all the patients were assessed by a qualified and well-trained doctor and then admitted. Diagnosis was done clinically in many cases. Investigations included routine blood, stool and urine examination, blood grouping and Rh factor, plain X-ray abdomen and chest X-rays. Biochemical tests and preoperative assessment were also done where it was necessary. This non-probability sampling method ensures that every eligible patient seen at the hospital is included in the study, thereby providing a comprehensive overview of the common pediatric surgical issues encountered. This study will include pediatric patients aged 0-18 years presenting with common surgical problems at Dhaka Shishu Hospital. Eligible participants must have a documented surgical condition requiring intervention and must be under the care of the hospital's pediatric surgery department during the study period. Patients with complete medical records and whose guardians have provided informed consent will be included. Exclusion criteria encompass patients with incomplete medical records, those who have undergone surgical treatment at another institution, and those with complex congenital anomalies that are not representative of common pediatric surgical problems. Additionally, patients whose guardians do not provide informed consent will be excluded from the study. Ethical approval for this study will be obtained from the institutional review board (IRB) or ethics committee of Dhaka Shishu Hospital. The study will adhere to the principles of the Declaration of Helsinki and all relevant ethical guidelines for conducting research involving human participants. Statistical analyses of the results were obtained by using window-based Microsoft excel and statistical packages for social sciences (SPSS-24).

RESULTS

Table 1 shows age and sex distribution of the study population, it was observed that 6.9% were male and 6.3% were female when the age group was 0-30 days. And when the age group was above 5 years, male was 59% and female were 12.0%.

Table 1: Age and sex distribution of the patients.

Age group	Male (%)	Female (%)	Total (%)
0-30 days	916 (6.9)	969 (6.3)	1885 (13)
1 month-1 year	1209 (9.9)	943 (6.1)	2152 (16)
1 year-5 years	3094 (25.4)	2146 (16.9)	5240 (43)
Above 5 years	1950 (16.0)	1462 (12.0)	3412 (29)
Total	7169 (59)	5520 (42)	12689 (100)

Table 2 shows common surgical problems in children according to gastrointestinal tract disorder. It was observed that intestinal obstruction was 6.90%, congenital anorectal anomalies was 6.51%,

Ascariasis was 5.59%, acute appendicitis was 3.96% and congenital pyloric stenosis was 3.41% respectfully.

Table 3 shows common surgical problems in children according to urogenital disorders, it was observed that inguino-scrotal swellings was 6.99%, hypospadias was 1.69%, vesical calculi was 0.49% and ectopic vesicae 0.32% respectfully.

Table 2: Common surgical problems in children according to gastrointestinal tract disorder.

Gastrointestinal tract disorder	N	%
Intestinal obstruction	951	6.90
Abdominal pain of uncertain origin	904	6.59
Congenital anorectal anomalies	693	6.51
Ascariasis	691	5.59
Acute appendicitis	490	3.96
Congenital pyloric stenosis	416	3.41
Congenital and acquired megacolon	305	2.50
Intussusception	299	2.39
Bleeding rectal polyps	252	2.09
Atresia, malrotation	194	1.51
Intestinal perforation	124	1.02
Rectal prolapse	49	0.39
Omphalocele	39	0.32
Total	5355	44.93

Table 3: Common surgical problems in children according to urogenital disorders.

Urogenital disorders	N	%
Inguino-scrotal swellings	926	6.99
Phimosis and paraphimosis	596	4.26
Hypospadias	205	1.69
Hydronephrosis	139	1.13
Undescended testis	103	0.94
Vesical calculi	59	0.49
Ectopic vesicae	39	0.32
Urethral calculi	15	0.12
Renal calculi	12	0.09
Total	1963	16.20

Table 4 shows common surgical problems in children according to facial deformities and orthopaedic disorders. It was observed that harelip was 1.59%, cleft palate was 0.96%, osteomyelitis was 0.91% and arthritis was 0.59% respectively.

Table 4: Common surgical problems in children according to facial deformities and orthopaedic disorders.

Facial deformities and orthopaedic disorders	N	%
Telepes equino varus (T.E.V.)	296	2.33
Harelip with cleft palate	231	1.99
Harelip	192	1.59
Cleft palate	119	0.96
Osteomyelitis	112	0.91
Congenital dislocation of hip (CDH)	99	0.93
Arthritis	90	0.59
Fractures of long bones	59	0.49
Perthe's disease	19	0.14
Total	1163	9.62

Table 5 shows common surgical problems in children according to malignant diseases.

It was observed that neuroblastoma was 0.39%, sarcomas were 0.09% and testicular tumour was 0.60% respectively.

Table 5: Common surgical problems in children according to malignant diseases.

Malignant diseases	N	%
Wilm's tumors	229	1.99
Neuroblastoma	46	0.39
Malignant teratoma	15	0.12
Sarcomas	11	0.09
Hepatoblastoma	9	0.06
Testicular tumors	9	0.60
Total	319	2.60

Table 6 shows common surgical problems in children according to miscellaneous; it was observed that burn was 9.29%, cystic hygroma was 1.96%, haemangioma was 1.55% and meningocele was 0.56% respectively.

Table 6: Common surgical problems in children according to miscellaneous.

Miscellaneous diseases	N	%
Abscess in different sites	1231	10.09
Burn	1131	9.29
Cystic hygroma	215	1.96
Haemangioma	199	1.55
Foreign bodies	119	1.49
Post burn contracture	102	0.94
Meningocele	69	0.56
Others (lipoma, osteoma, sarcoma, lymphadenopathy, myopathy, dermoids, thalassaemia with splenomegaly, portal hypertension with bleeding, diaphragmatic hernia, cardiospasm, duodenal ulcer, cholecystitis, pancreatitis)	253	2.06
Total	3361	26.65
Grand total	24398	100.00

Table 7 shows method of treatment and results, it was observed that conservative was 35% and expired 3.6% and operative was 65% and expired 10%.

Table 7: Method of treatment and results.

Method of treatment	N (%)	Expired	%
Conservative	5464 (35)	196	3.6
Operative	6925 (65)	693	10.0
Total	123>9	>>9	6.9

DISCUSSION

Dhaka Shishu Hospital is the only paediatric hospital in the country for children with a full-fledged surgical unit. Many cases are referred here by the medical practitioners and different hospitals from all over the country.

In our series 4631 (32%) out of total 12689 patients were referred by medical practitioners and other hospitals. In a recent article on paediatric surgery in Bangladesh, Canadian paediatric surgeons Bagwell and Shadling have mention that about 100 operations were done in one month in 2006 in Dhaka Shishu Hospital of which 43 were of major cases.[11] Since then, number admission and operations have greatly increased. As for example, 39 patients were admitted in the surgery department in 2006. The number of admissions in same department was 2006 in 2016. Outdoor patients treated in the operation theater as day case which about more than 100 per month were not included in the study.

We had many patients with different types of congenital anomalies and altogether they consisted about 20% of our admitted patients. Kalam studied 696 consecutive life birth and found 10.6% with different types of congenital malformations.[12] A number of studies have been done on congenital anomalies in India and other countries 3456. In these studies, total malformations varied from 0.31% to 3.6% of life births. Our findings of congenital malformations were significantly high. We have studied congenital anomalies in comparison with admitted patients in the surgery department while those authors studied the same problems in comparison with life birth. So, we need more study in this respect.

In the disease pattern predominant were patients with gastrointestinal disorders. Bowel obstruction was common and of the underlying causes were the same as those seen in western countries.[11]

One of the commonest of small gut obstruction included those due to round worms which is not seen in western literature. We had 299 cases of intussusception in 10 years. Denver Children Hospital saw about 5 cases every year, Los Angels Childrens' Hospital-14 per year.[13] Since Barium enema was not available for reduction of intussusception in our hospital operative intervention was necessary in most cases.

Burn was also common among children. In our series we had 1131 (9.2%) patients with different degrees of burn injuries. The patients received burn injury by hot water, soups or by burning mosquito nets. Most of the burn cases were domestic and accidental in nature. We treated burn patients by fluid replacement, blood transfusion, antibiotics, dressing by surgical or paraffin gauze. Radiation sterilized amniotic membrane grafts prepared in the Institute of Food and Radiation Biology, Bangladesh Atomic Energy Commission successfully used in Dhaka Shishu Hospital in treating burn patients.[14]

Limitations

The present study was conducted in a very short period due to time constraints. The small sample size was also a limitation of the present study.

CONCLUSION

In conclusion we would like to mention that, to our knowledge, there is no published statistical data of surgical problems in children in Bangladesh. So, it can be said that our data is reflection of the whole count.

Recommendations

This study can serve as a pilot to much larger research involving multiple centers that can provide a nationwide picture, validate regression models proposed in this study for future use and emphasize points to ensure better management and adherence.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Ozgediz D, Langer M, Kisa P, Poenaru D. Pediatric surgery as an essential component of global child health. In: Seminars in pediatric surgery. WB Saunders. 2016;25(1):3-9.
2. Kim JY, Farmer P, Porter ME. Redefining global health-care delivery. The Lancet. 2013;382(9897):1060-9.
3. Bickler SW, Rode H. Surgical services for children in developing countries. Bull World Health Org. 2002;80:829-35.
4. Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. The Lancet. 2015;386(9993):569-624.
5. Shrime MG, Bickler SW, Alkire BC, Mock C. Global burden of surgical disease: an estimation from the provider perspective. Lancet Global Health. 2015;3:S8-9.
6. Canfin P, Eide EB, Natalegawa M, Ndiaye M, Nkoana-Mashabane M, Patriota A, et al. Our common vision for the positioning and role of health to advance the UN development agenda beyond 2015. The Lancet. 2013;381(9881):1885-6.
7. Greenberg SL, Ng-Kamstra JS, Ameh EA, Ozgediz DE, Poenaru D, Bickler SW. An investment in knowledge: research in global pediatric surgery for the 21st century. In: Seminars in pediatric surgery. WB Saunders. 2016;25(1):51-60.
8. Bickler SW, Kyambi J, Rode H. Pediatric surgery in sub-Saharan Africa. Pediatr Surg Int. 2001;17:442-7.

9. Okoye MT, Ameh EA, Kushner AL, Nwomeh BC. A pilot survey of pediatric surgical capacity in West Africa. World J Surg. 2015;39:669-76.
10. Meara JG, Hagander L, Leather AJ. Surgery and global health: a Lancet Commission. The Lancet. 2014 Jan 4;383(9911):12-3.
11. Saifullah S, Chandra RK, Pathak IC, Dhall GI. Congenital malformations in new born. A prospective longitudinal study. A preliminary report on 1000 consecutive births. Indian Pediatr. 1967;4(6):251-61.
12. Ozgediz D, Poenaru D. The burden of pediatric surgical conditions in low- and middle-income countries: a call to action. J Pediatr Surg. 2012;47(12):2305-11.
13. Snyder WH, Kraus AR, Chaffin L. Intussusception in infants and children: A report of 143 consecutive cases. Ann Surg. 1949;130(2):200-10.
14. Packard GB, Allen RP. Results in the treatment of intussusception in infants and children. Surgery. 1957;41(4):567-75.

Cite this article as: Shahjahan M, Elahi KM, Nrjana NJ, Islam MK. Common paediatric surgical problems in Bangladesh - experience in tertiary care center, Dhaka, Bangladesh. Int J Contemp Pediatr 2024;11:1027-31.