

Pattern of Pediatric Surgical Admissions in a Combined Military Hospital

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Abstract

Introduction: Pediatric surgical admissions are daily practice at peripheral hospital. To design strategy for appropriate diagnosis and management of pediatric surgical patient reported to combined military hospital (CMH) Bogura, Bangladesh.

Objectives: To find out the pattern of pediatric surgical admission cases and factors affecting their outcomes.

Methods: This case series analysis was conducted from November 2016 to October 2017 at CMH, Bogura. Total 175 patients admitted during this period out of them 13 children excluded from study due to parent's refusal for intervention or discharged against medical advice. In this study total 162 admitted children's data were analyzed.

Results: The study showed emergency cases were predominating 74.69% and elective cases were less common 25.30%. Mortality recorded exclusively in children admitted on emergency basis 6 children (3.70%). Congenital anomaly of GIT was found the leading causes of death in this study 4 (2.46%) children.

Conclusion: Many emergency and elective pediatric surgical patients can be managed at peripheral Hospital with acceptable outcomes except the neonate.

Key-words: Pediatric surgical admissions, Peripheral hospital, Emergency cases.

Introduction

The recent decades witnessed a tremendous growth in the field of medicine, especially in the area of sub-specialization in surgery^{1,2}. Pediatric surgery is one of the demanding surgical disciplines. Children are not young adult but are a group with specific attributes that necessitate special care and attention³. Comprehensive care of the pediatric surgical patient is multifaceted and requires a thorough understanding of the surgical diseases encountered, a detailed knowledge of the physiology of the pediatric population, and an awareness of the unique issues inherent in providing medical care for children^{3,4}. The surgeon must obtain a complete and detailed history from the patient and parents. The history, in concert with a well-performed physical examination, is the basis for a diagnosis and treatment plan⁵.

Surgical cares for pediatric patients in developing countries is said to be too expensive to deliver mainly due to economical

constraints and burden of non-surgical illnesses⁶. Usually the pattern of pediatrics surgical admission at peripheral hospital is poorly documented. So that mortality, morbidity and factors affecting the outcomes were difficult for analysis despite many children with surgical illness have been managed at these levels. The same as Bangladesh tertiary level hospitals, many sick children were found coming to peripheral hospitals with variety of surgical diseases. About three decades ago, Belachew⁷ analysis gave much emphasis on three common surgical disease (intussusceptions, inguinal hernia and appendicitis), at tertiary hospital level. A study conducted by Abebe⁸ did not separately analyze pediatric surgical diseases. Miliard's study⁶ was to the point; however, pediatric surgical cases managed in a tertiary hospital with much better setup could not represent peripheral hospitals. In other words, for a known fact, the finding in tertiary hospital can not be generalized. The object of this study is to analyze pattern of pediatric surgical admission at peripheral hospital of Armed Forces with emphasis on common cases and factors affecting the outcome.

Materials and Methods

This is a case series study conducted on pediatric surgical patients admitted from November 2016 to October 2017 in combined military hospital (CMH), Bogra. During the study period, a total of 936 children admitted to the hospital out of which 175(18.69%) were admitted with surgical illnesses. There were 13 parents who refused and failed to give consent for surgical interventions, and as result, these cases were discharged against medical advice and as well excluded from the study. For 162 cases surgical pediatric patients, either of the parent or close family member signed consent for both the surgical interventions and being involved in the study. Variables included were diagnosis, treatment and out come. Data collecting format was structured as open ended and administered/interviewed by two surgeons including the author prior and after the procedure. Completeness and consistencies of data were being checked and revised for errors during data collection. Data were analysis by Window Microsoft Excel and summarized and presented as simple frequency tables.

Results

Among the 162 patients 122(75.30%) were male and 40(24.69%) were female with a male to female ratio

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3.04:1. The age range of these children were from 1 day to 9 yrs. Leading cause of admission was extremity trauma 20(12.34%) followed by scald and burn injury 18 (11.11%), acute appendicitis 16(9.87%), then head injury, inguinal hernia, phimosis and foreign body ingestion 15 (9.25%) each (Table-I). Among the patients, emergency admission was 121(74.67%) and 41(25.33%) were routine admission (Table-II). Operative management was done for 119(73.45%) children out of them 69 (42.59%) were emergency operation and 43(26.54%) children were managed conservatively (Table-III). Among the 119 surgically managed cases only 12(10.08%) developed complications. Complication was surgical site infection 6(5.04%), hematoma and wound dehiscence 3(2.52) each (Figure-1). Patients' outcome after management are shown in Table-IV. Among 162 patient total mortality was 6(3.70%) among them 2 were gastroschisis and 1 intestinal atresia.

Table-I: Total admitted children with diagnosis, sex ratio, age range and average age (n=162).

Diagnosis	Total Patients	Sex Ratio M:F	Age	
			Range	Average
Acute Appendicitis	16	4.33:1	4-7.2 year	5.1 year
Appendicular lump	7	2.5:1	5-6.8 year	6.2 year
Blunt trauma abd	3	2:1	6-8 year	7 year
Calculous cholecystitis	5	1.5:1	8-10.2 year	9.2 year
Cholelithiasis	3	2:1	9-11 year	10 year
Extremity trauma	20	1.5:1	4-7 year	5.3 year
Foreign body swallow	15	2:1	2-12 year	4.06 year
Head injury	15	4:1	2.6-7.6 year	5.1 year
Inguinal hernia	15	15:0	3-7.3 year	5.1 year
Intussusception	3	1:2	11-14 month	12.33 mot
Omphalocele	3	2:1	1-3 days	2 days
Paraphimosis	5	5:0	3-4 year	3.4 year
Phimosis	15	15:0	1.5-4 year	2.5 year
Scald burn injury	18	2:1	1.1-6.5 year	3.8 year
Tongue tie	8	3:1	0.5-9 year	3.03 year
UDT	3	3:0	3-5 year	4 year

Table-II: Distribution of patients by diagnosis and type of admission (n=162)

Diagnosis	Type of Admission	
	Emergency	Routine
Acute appendicitis	16	0
Appendicular lump	7	0
Blunt trauma abdomen	3	0
Calculous cholecystitis	5	0
Cholelithiasis	0	3
Extremity trauma	20	0
Foreign body swallow	15	0
Head injury	15	0
UDT	3	0
Inguinal hernia	0	15
Omphalocele	3	0
Paraphimosis	5	0
Phimosis	0	15
Scald/burn	18	0
Tongue tie	0	8
Intussusception	3	0
Other	8	0
Total-162(100%)	121(74.67%)	41(25.33%)

Table-III: Distribution of patients by diagnosis and type of treatment (n=162)

Diagnosis	Total Patients	Operative management		Conservative management
		Emergency	Elective	
Acute appendicitis	16	16	0	0
Appendicular lump	7	0	0	7
Blunt trauma abdomen	3	1		2
Calculous cholecystitis	5	0	0	5
Cholelithiasis	3	0	3	0
Extremity trauma	20	20	0	0
Foreign body swallow	15	0	0	15
Head injury	15	4	0	11
UDT	3	0	3	0
Inguinal hernia	15	0	15	0
Omphalocele	3	1	0	2
Paraphimosis	5	5	0	0
Phimosis	15	0	15	0
Scald/burn	18	14	4	0
Tongue tie	8	0	8	0
Intussusception	3	2	0	1
Others	8	6	2	
Total	162(100%)	69(42.59%)	50(30.86%)	43(26.54%)

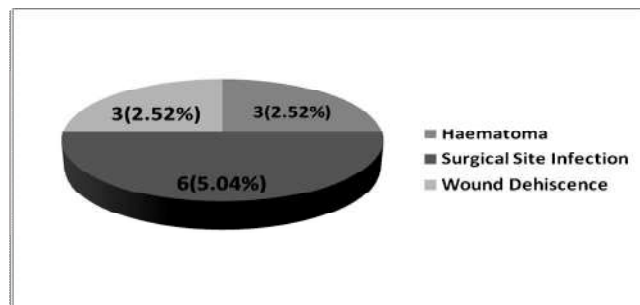


Figure-1: Distribution of patients by type of complications after operative management (n=119)

Table-IV: Distribution of patients by outcome after management (n=162).

Aetiology	Survived (%)	Died (%)	Total (%)
Acute appendicitis	16(100%)	0	16(100%)
Appendicular lump	7(100%)	0	7(100%)
Blunt trauma abdomen	3(100%)	0	3(100%)
Calculous cholecystitis	5(100%)	0	5(100%)
Cholelithiasis	3(100%)	0	3(100%)
Extremity trauma	19(95%)	1(5%)	20(100%)
Foreign body swallow	15(100%)	0	15(100%)
Head injury	14(93.33%)	1(6.66%)	15(100%)
UDT	3(100%)	0	3(100%)
Inguinal hernia	15(100%)	0	15(100%)
Intussusception	3(100%)	0	3(100%)
Omphalocele	2(66.66%)	1(33.33%)	3(100%)
Paraphimosis	5(100%)	0	5(100%)
Phimosis	15(100%)	0	15(100%)
Scald/burn	18(100%)	0	18(100%)
Tongue tie	8(100%)	0	8(100%)
Others	5(62.55)	3(37.55)	8(100%)
Total	156(96.29%)	6(3.70%)	162(100%)

Discussion

The study analysis showed many pediatrics surgical patients are coming to peripheral hospital and managing there. There were 175 pediatric surgical admission representing 18.69% of the total pediatric admissions which is similar to other study⁹ where 15.5% were total pediatric surgical admission. In the study area predominant admitted children are with emergency conditions, emergency admission 121(74.67%) and routine admission 41(25.33%), same as other study¹⁰ which showed emergency cases were predominating (73.13%) and elective cases were less common (26.26%) but different from other studies^{6,11} finding, this explains that unlimited for emergency admission and/or refer these children very difficult due to far distance nearby territory hospital with better facility. In this study admission due to congenital anomalies was 36(22.22%) which is more than other study⁹ where congenital anomalies were 12.6%. Study also show boys were predominant in numbers comparing with girls^{6,9} it is due to boys more vulnerable for inguinal hernias¹¹ and trauma that were common presentation in this study. In this study 75.3% of the children needed a surgical procedure which is nearly similar to other study⁹ findings where 66.7% needs surgical procedure. The majority of patients were managed operatively, 69(42.59%) were operated emergently, routine operation 50(30.86%) and conservative management 43(26.54%) but different from other study¹² where majority of patients were managed non-operatively, with only 35% (n=392) of patients underwent surgery. Of the 392 patients who underwent operations, 87(22%) were operated emergently. In this study, most common injuries diagnosis were fractures in 20(12.34%), burns in 18(11.11%) and acute appendicitis 16(9.87%) which is a little different from the other study¹⁰ where most common injuries diagnosis were fractures 15.6%, soft tissue injuries 8.2% and burns 5.9% patients. The most common procedure was reduction and immobilization of fractures in 20(12.34%) which is similar to the other study⁹ where the most common procedure was reduction and immobilization of fractures in 23.6% cases. Also was documented in a study in Tanzania¹³ and Malawi¹⁴. In this study all ingested foreign bodies¹⁵ pass spontaneously through the gastrointestinal tract without causing injury, patients age range was 2-12 yrs and average age was 4.06 years and male to female ratio is 2:1, which is more or less similar to other study¹⁵ where majority of ingested foreign bodies pass spontaneously through the gastrointestinal tract without causing injury however, according to Louie and Bradin¹⁶, 10–20% will require nonsurgical intervention and less than 1% will require surgery. Also the age range and gender preponderance is similar to other study¹⁵. These findings are consistent with other reports such as the ones of Adhikari

and other authors regarding age and gender distribution^{17,18}. Procedure was required in 133 cases and among them complications was found in 12(10.08%) cases; maximum is wound infection in 6(5.04%) cases. In this study mortality was 6(3.70%) which is little more than the other study¹⁴ there were 3 deaths giving a mortality of 2.2%. Among the neonate patients' one case of gastroschisis, one case of omphalocele and intestinal atresia patients were referred to tertiary hospital for operative procedure but the patients expired after operation. One case of gastroschisis expired before referral.

Conclusion

This study showed pattern of pediatrics admission and outcome after operation at peripheral hospital. The study noticed many children with surgical diseases can be managed at peripheral hospital. To decrease burden of tertiary level hospitals, and to give a better service to children with surgical illness the set up of peripheral hospital should improve specially for the management of neonates. Quality of service also can be increased by trained pediatric anaesthesiologist who is giving service at peripheral hospital.

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