Prevalence of Acute Abdominal Diseases in the Cases Operated in Emergency in Bir Hospital.

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Introduction

Acute abdomen is one of the problems which is continuously faced by a general surgeon. When being the part where so many different organs are lying in, sometimes it becomes difficult to arrive at a conclusion even with the help of modern gadgets at hand. Hence and again, abdominal cavity has been accepted as a "magic box". In an attempt to put different incidence of such problems in this paper, we have tried to analyse the condition, which needed emergency operation over the years. By taking into account of the operated cases we have tried to eliminate the factor of probability and thus reach to the truth. Bir Hospital being one of the general hospitals in Kathmandu valley, we thought that spectrum of disease pattern of the hospital could reflect the prevalence of conditions in population at large. Detailed discussion of different conditions in a small like this will not be possible. Hence we have deliberately excluded those things and dealt only salient features of each, their incidence, sex ratio, age incidence and certain rarities. Hope in future, a study of this nature will serve as a base line and open channels for further studies.

Consultant Surgeon, Bir Hospital.

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Methodology

Records of cases operated for acute abdominal emergency in Bir Hospital from year 2018-2032 were collected and studied retrospectively. For the purpose of incidence of different diseases, age & sex incidence, all the cases over these years are included. For mortality rate, probable cause of death and some other interesting aspect cases operated 2028-2032 (5 years) only are studied. The whole study is divided into two sets i. e. observations and discussions and then followed by discussion in individual disease types.

Observation & Discussions

A lot of 1457 patients suffering from acute abdominal condition underwent emergency operation in this hospital during the said period. To start with in 2018 only 30 cases were operated. In the following years, the number gradually went on increasing till 2025 when it reached maximum of 148. Then the yearly incidence started varying without any fixed pattern.

Graph No. 1

Actually surgery in its real sense had started in this hospital from 2016 B. S. Naturally in years immediately following B. S. 2016 we could expect the number of cases to be small. With passage of time, it seems more & more people have started coming to the hospital.

In 1457 cases 1014 were males and 441 were females. The male to female ratio is 2.3:1. As this series included various types of diseases it is probably not that pertinent to discuss the sex incidence in toto. Anyway over all prevalence of abdominal emergency seems more common in the male than in the female.

The commonest age group suffering from these conditions seems to be between 20-40 years. In this series largest number is that of acute appendicitis and the acute intestinal obstruction. Therefore, general age group distribution is similar to that of these diseases.

Types of diseases

The different types of diseases that were found out after the operation is as following:—

	<u>Number</u>	<u>Percentage</u>
1. Acute Intestinal Obstruction	734	50.37%
2. Acute Appendicitis	478	32.80%
3. Perforation peptic Ulcer	44	3.01%
4. Perforation Small bowel	94	6.45%
5. Injury Abdomen	27	1.83%
6. Miscellaneous	80	5.49%

Diseases that are included in Miscellaneous group are (i) ectopic pregnancy (ii) Rupture of the gall bladder (iii) Acute cholecystitis including round worm obstruction (iv) Empyema gall bladder (v) Acute pancreatitis (vi) Twisted ovarian Cyst (vii) Bleeding peptic ulcer (viii) Meckel's Diverticulum presenting as pain in abdomen not as intestinal obstruction. (ix) Perforation of caecum & colon (x) Internal haemorrhage including post operative bleeding (xi) Diverticulitis (xii) Exomphalus (xiii) Non specific mesenteric lymphadenitis and few other abdominal conditions. The number of none of these conditions did exceed more than 9%. Therefore these conditions have not been discussed.

From the above chart it becomes clear that the most prevalent problem is abdominal emergency is the acute intestinal obstruction. It covers slightly more than 50% of all the cases. Next in incidence is followed by acute appendicitis, perforation of the peptic ulcer, perforation of small bowel and injury of the abdomen and other miscellaneous conditions. The reason for this high prevalence of acute intestinal obstruction is not clear.

Acute intestinal obstruction

It has been already said that major bulk of emergency operations is for the acute intestinal obstruction. The different types of obstruction met in this hospital are as following.

Volvulus of the small gut	403	54.90%
Strangulated Hernia	199	27.11%
Stricture, Band and adhesions	68	9.26%
Intussusception	24	3.26%
Imperforate anus	18	2.45%
Volvulus sigmoid	6	0.81%
Congenital pyloric Stenosis	2	0.27%
Others including neoplasm	14	1.90%

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Volvulus

Of the 734 cases of intestinal obstruction volvulus of small gut is more than 50 %. Strangulated Hernia comes next. Band & adhesions and intussusception & others following conditions. Out of 14 of miscellaneous causes, there were 6 cases of neoplasm, 3 cases of volvulus of caecum, two cases of round worm obstruction and one case of gangrene (Sigmoidal).

Most of the cases of acute intestinal obstructions have been observed between the ages 20 to 50 years; more common being between 35-45 years, Male to female ratio is 3:1. In the present series the male to female is nearly 1 : 1

Volvulus of the small bowel is the commonest cause of intestinal obstruction. Volvulus of small bowel is quite rare in Britain and North America. In Eastern Europe, the Ukraine, Scandinavia and Russia volvulus of the large bowel is quite common. In India in North Bihar, (Banerjee) Volvulus of the small bowel accounts for 51 % of all varieties of intestinal obstruction. In the present series, too, volvulus of the small bowel accounts for 54.9 % of all varieties of intestinal obstructions. Total number of the large bowel is quite small compared to that of the small bowel i. e. only nine; six of sigmoid colon and three of caecum.

Except in 4 cases where Meckel's diverticulum with a band was the cause of the twist and a few cases associated with enlarged mesenteric lymphnodes, no other apparent cause for volvulus could be ascertained. Out of 148 cases of small bowel volvulus operated during 1932-1962 (5 years) 117 (79.54 %) came from rural area; and only 31 came from the urban area. Of these 31 also, 2 were farmers by profession though city dwellers. One of the interesting features that has been observed in this study is that the volvulus of small gut is the disease of rural population. Except for dietary habit both the groups belong to the same broad racial division. Rural diet, for all practical purpose, is vegetarian and the rich in roughage. Volume consumed by a farmer in one meal also is quite large as compared to that of a city dweller. A vegetarian diet which may lead to over loading of the sigmoid has been attributed as one of the cause of the volvulus of the sigmoid colon. But in this series surprisingly the number of large bowel volvulus is quite small. Therefore high percentage of roughage in diet only does not seem to be that important factor. Rather a large volume of bulky diet consumed after a long interval of time may be the contributory factor in the development of volvulus of especially small gut.

Overall Mortality of all the obstruction cases excluding that of strangulated Hernia (among the 217 cases operated during the last five years) is found to be 15.20 %. The most

common features associated with these fatal cases are (i) obstruction of a long duration (than 6 days) (ii) presence of gangrene or perforation of peritonitis (iii) Tender of old group. Hence presence of either one or combination of these factors is usually associated with high mortality. This is comparable with that of Smith, Pery & Yonehiro's series of Mortality rate reported by them had been 14.5 % and the conclusion regarding the same also is more or less the same as ours.

In western countries, the mortality rate seems to be going down. In this series the cases operated at tender age for congenital anomalies are deducted the mortality rate goes down. But over all mortality rate over the years has more or less remained the same.

Strangulated hernia

A total of 199 cases were operated for strangulation during 2018 to 2032. This is 2% of all the acute intestinal obstructions and 12.65% of all the acute abdominal conditions. Male to female ratio is 3.3:1 being 3 times more common in males than in females. Commonest group of strangulated hernia is between 50-60 but operation has been performed in one old child and in the 82 years old person. Generally, strangulation seems to be more common among the people of the older age group.

Twenty nine of above group suffered from strangulated femoral hernia. It is 14.5% of all the strangulated hernia cases. Twenty of 29 cases were females. Hence incidence of femoral hernia in female is about two times more common than in males. There was one case of Richter's hernia, diagnosed only at the time of laparotomy.

Among 100 cases operated in the last 5 years altogether 5 cases have died, 4 of which had undergone resection and one did not. But he had come to the hospital after 5 days and his age was 72 years. The mortality rate is 5 % and seems to be associated with the presence or absence of gangrene and the time elapsed before the operation. The overall death rate for strangulated hernia is about 6 % (Rodney Maingot). Our series confirms this.

Band, Stricture & Adhesion

In this group both congenital and acquired types of band and adhesions have been included. A total number of 68 cases were found to have suffered from such conditions comprising of all acute intestinal obstruction cases. Male female ratio is 2.5:1. The distribution appears to be scattered in all age groups.

Bodensheimer, Caston and Fried found 26.9% of all the acute intestinal obstruction to be due to adhesion (1940). McIvers (1933) found it to be 30 % of all. More recently bands & adhesions accounted for 40 % of all intestinal obstructions (Rodney Maingot.). It has been attributed to the large number of abdominal operations performed. In the present series only 26 % of all the intestinal obstruction is due to bands & adhesions; inspite of the fact that the tubercular abdomen is common in our country. But recently number of such cases in each year is increasing. In future we can expect a rise in the incidence of bands & adhesions in producing acute intestinal obstruction as more abdominal operations are performed.

Intussusception

24 of all the operated cases were having intussusception (3.26%) and of these only 3 cases were below one year and only other two were of less than ten years in age. Rest of all were of more than 10 years in age. Male to female ratio is nearly 1.5:1. In contrast to the Western countries where intussusception is more common (85%) in the children under 2 years of age, in the present series it seems to be more common above the age of 10 years. It has been postulated by Orlof of that a change in the form of diet from fluid to solid is the cause of high incidence of intussusception in the children. Our children at large are fed with "Lito" a form of semi solid food from quite early period. Probably babies here become acclimated to solid food quite earlier than the babies in the Western countries.

Altogether 3 cases have died in immediate post-operative period and 3 of them had undergone resection.

Imperforate Anus

A total of 18 imperforate anus have come to this hospital in a period of 15 years. It seems nearly one case per each year in average.

Meckel's Diverticulum

A total of 8 Meckel's diverticulum were operated upon. 4 of them had presented as cases of acute intestinal obstruction producing twist, and 4 others had come to the hospital cases of abdominal pain.

Acute Appendicitis

A total of 478 cases of acute appendicitis were operated in emergency in the years specified already. It represents 32.80% of all cases. This disease seems to be second commonest

in abdominal emergencies.

In contrast to intestinal obstruction the male to female ratio in acute appendicitis is 1.6:1 (Male 296-Female 182). The commonest age group is 20-30 years. More & more cases are found in the age group of 30-40 years and probably the trend is going towards higher age groups. Youngest patient was of 3 years and the oldest was of 78 years.

Yearly incidence of acute appendicitis in the last 5 years shows definite tendency to increase.

In analysing cases operated during 2028-32 (total case 171), there had been one death. This was a case of perforated acute appendicitis with generalised peritonitis. The all mortality rate is less than one percent (0.58%) of these 171 cases 24 cases were of perforated appendix (14.03 %). Perforation is distributed in all age groups though one case of group died but in general it has not that important relation with mortality. Jordan & H. Beck in 1953 compared two series of 1935-37 and 1945-47 and found that mortality rate in series of 45-47 was nil as compared to that of 35-37. When over all mortality was about 13.5% in this earlier series, mortality in perforated appendix was 13.5% whereas in the latter it was nil. This was attributed to the use of antibiotics, proper preoperations. In this hospital also, preoperative preparation is good and antibiotic is routinely used. However, the importance of early hospitalisation and early operation can't be overlooked.

Another interesting fact observed in the present series is that only 18 of these 171 cases came from rural area and remaining were from urban areas. It is quite in contrast with the distribution of the volvulus of the intestine. Majority of the patients suffering from acute intestinal obstructions due to volvulus of small bowel came from rural areas whereas 89.47% of those suffering from acute appendicitis came from urban areas. Europeans, Americans & Australians suffer more from acute appendicitis than Asiatics & Bantu natives etc. According to Randle Short if these races migrate to countries where appendicitis is rife, they soon acquire the local susceptibility to the disease. It is said that meat eating population suffers more than those who habitually eat a diet rich in cellulose. In this country, the diet of urban population is richer in meat than those of rural population. Anyway urbanisation seems to be one of the important factors in the causation of this disease. Increase in urban population may be the reason for recent increase in the incidence of the persons suffering from this disease.

Small Bowel Perforation

A total of 94 cases of perforation of small bowels were operated. Incidence is (6.45%) in all the cases. Male to female ratio is 2.7:1. Common age group is 20-30 years. Youngest is 3 years & the oldest is of 60 years. The yearly number does not seem to be increasing or decreasing much; average is about 7 cases a year. Of other causes enteric infection seems to be the most common cause i. e. 23 in 94 (24.46%).

In the last 5 years a total of 42 cases are operated of whom 14 were because of enteric infection. 5 of these 42 died. Hence mortality rate is 11.90% of the 5 cases, 3 were of typhoid perforation.

Peptic Ulcer Perforation

A total of 44 cases of peptic ulcer perforation was operated during last 15 years. Male to female ratio is 6.3:1. It is six times more common in males. (Male—38, Female—6). As peptic ulcer as such is more common in males than in females, this can be well expected to be so. Oldest person was of 68 years and the youngest being 29 years old.

Of the 17 cases operated during last 5 years one was dead. Yearly incidence seems to be more or less the same nearly 3 years.

Abdominal Injury

A total of 27 cases of abdominal injury were operated in the last 15 years. Of these 16 were male & 11 were female. Youngest being of 5 years & oldest being of 64 years. The different types of traumatic affections were :

(i) Injury to abdominal wall only	—	5
(ii) Injury to abdominal wall with herniation	—	6
(iii) Rupture spleen	—	4
(iv) Liver tear	—	3
(v) Injury to the bowel perforation ileum sigmoid & intestine	—	3
(vi) Laceration of omentum & Mesentery	—	2
(vii) Injury to the Pancreas	—	1
(viii) Blunt Injury Laparotomy negative	—	3

The distribution of the condition seems to be scattered through all the age groups. The organs of viscus involved are important organs. Of the 27 operated upon only 3 cases had laparotomy whenever a doubt exists.

Summary

A total of 1457 cases that underwent emergency operation in Bir Hospital in the specified above were studied. The most common conditions were acute intestinal obstruction (50.37%) and acute appendicitis (32.80%). In acute intestinal obstructions alsovolvulus the small gut was most prevalent (54.90% of all the obstruction cases). Strangulated hernia next to it. (27-11 of all the obstruction cases) Cases operated from 2028-2032 were analysed. In this study Volvulus of small bowel was found to be prevalent mostly among villagers (79.55%) and acute appendicitis was most common among the city dwellers (89%). A possible relation of the diet and these diseases is discussed. Intussusception among children is found quite low. Mortality in volvulus of small gut is calculated & discussed. Various diseases come across during the years are mentioned and when possible their incidence is described.

Acknowledgement

Our thanks to Medical Superintendent of Bir Hospital who has allowed to use the hospital record for this study.

Our due thanks to colleagues, Dr. A. K. Sharma, FRCS, Dr. S. K. Bhattacharya, FRCS, Dr. Moin Shah, FRCS and Dr. V. R. Dali, MS, whose cases also were taken for study.

Our thanks to Dr. Sobha Khatri who has actively helped us in collecting data.

Thanks to Dr. T. M. Singh, Statistical Dept., Bir Hospital and to his staff members.

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