



THE AGA KHAN UNIVERSITY



Mortality Attributed to Ileal Perforations: Prospective Data From a Multi-Center Surveillance for Enteric Fever in Asia Project (SEAP)

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Introduction



- SEAP is a prospective study design to estimate burden of enteric fever in Pakistan, Nepal and Bangladesh
- Reliable and up-to-date data on enteric fever complications and deaths are often absent
- Significant challenges remain in measuring complications and death due to typhoid fever
- There is no universally accepted definition of severe or complicated typhoid fever to assist in collecting standardized data



Objective

- To describe the frequency and sequelae of cases of enteric perforations and its associated mortality in SEAP project



Methods



- Surgical ward surveillance for enrollment of patients with pathognomonic ileal perforations
 - even in the absence of microbial confirmation
- Ileal perforations due to TB, trauma or any other etiology were excluded



Methods



- Surgical data was collected from:
 - Aga Khan University hospital (AKUH),
 - Jinnah Post Graduate Medical Center (JPMC),
 - Karadar General Hospital (KGH)
 - National Institute of Child Health (NICH) Karachi.



Methods



- A trained full time research nurse and research assistant under the supervision of a surgeon screened and enrolled the participants.

- Samples were collected for
 - Blood culture
 - Tissue samples during surgery
- Data was recorded in tablets using a structured questionnaire



Results



- From September 2016 to February 2019, a total of 201 cases of ileal perforation were enrolled
- # of deaths -12

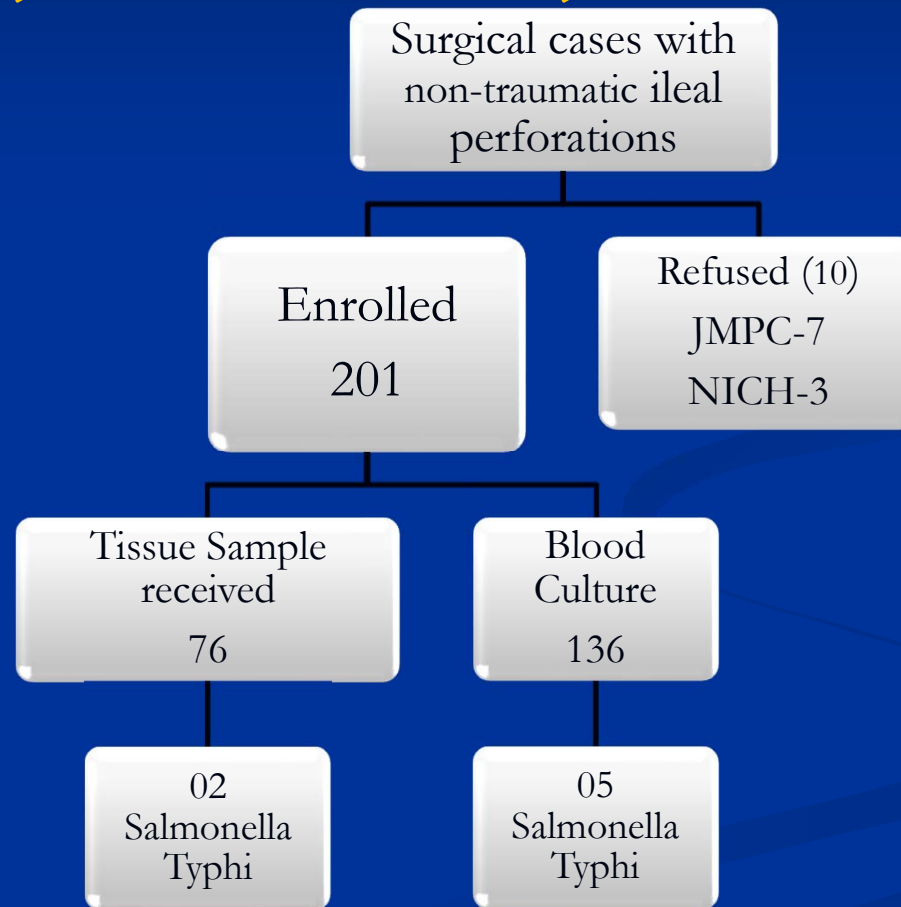


Site wise number of the cases - ileal perforation

Site	n (%)
JPMC	97 (48.02)
National Institute of Child Health	88 (43.56)
Aga Khan University Hospital	16 (7.92)
Kharadar General Hospital	1 (0.50)



Enrollment status of ileal perforation cases September, 2016 to March, 2019





Socio-demographic characteristics of cases of ileal perforation

Variables	n (%)
Age in years; mean (SD)	18.13 (12.80)
0-15 Year	98 (48.51)
16-25 Years	62 (30.69)
>25 Years	41 (20.79)
Gender	
Males	145 (72.14)



Socio-demographic characteristics of cases ileal perforation

Level of Education - Female head of the household	
None	117 (58.21)
Primary	34 (16.92)
Secondary/ Post-secondary	34 (16.92)
Other (Vocational training, religious)	16 (7.97)
Level of Education- Male head of the household	
None	105 (52.24)
Primary	43 (21.39)
Secondary-Post-secondary	40 (19.9)
Other (Vocational training, religious)	13 (6.47)



Clinical characteristics of cases prior to ileal perforation

Variables	n (%)
Fever	192 (95.52)
Abdominal pain	187 (93.03)
Vomiting	122 (60.70)
Constipation	89 (44.28)
Diarrhea	43 (21.39)
Headache	33 (16.50)
Patient had other symptoms	106 (52.73)



Number of weeks case unable to conduct activities prior to ileal perforation

1 week	90 (44.78)
2 weeks	39 (19.40)
3 weeks	40 (19.90)
4 weeks	32 (15.92)



Health seeking behavior and treatment prior to perforation

Variables	n (%)
Health Seeking Behaviour	
Care from other than hospital	197 (98.0)
Treatment from any hospital	138 (77.09)
Treatment from any clinic/ physician	126 (62.6)
Treatment	
Antibiotic	113 (56.22)
Antipyretic	160 (79.60)
Analgesic	96 (47.76)
Antidiarrheal	13 (6.47)



Management of cases of ileal perforation

Variables	n (%)
Patients received antibiotics	177 (88.06)
Type of antibiotics	
Ceftriaxone	66 (37.28)
Piperacillin & Tazobactam	23 (12.99)
Ciprofloxacin	26 (14.68)
Metronidazole	22 (12.42)
Imipenem & meropenem	20 (11.29)
Cefixime	9 (5.08)
Others	13 (7.34)
Got antipyretics/analgesics	12 (5.96)
Chest X-ray	
Performed	136 (67.66)
Indicated but not performed	4 (1.99)
Not indicated	61 (30.35)

* In 12 cases, there was bronchitis, pneumonia and pleural effusion



Management of cases of ileal perforation

Abdominal ultrasound	
Performed	120 (59.70)
Indicated but not performed	51 (25.37)
Not indicated	30 (14.93)
Ultrasound findings	
Internal bleeding	11 (10.89)
Intestinal perforation	40 (33.33)
Hepatomegaly	19 (15.83)
Splenomegaly	12 (10.0)
Peritonitis	33 (27.5)
CT performed	12 (5.97)



Final outcome of cases after ileal perforation

Discharged	179 (89.0)
Died	12 (5.97)
Consent withdrawn	2 (1.00)
Other (ongoing treatment)	8 (3.98)
Duration of illness in days, mean (SD)	
	31.47 (26.95)

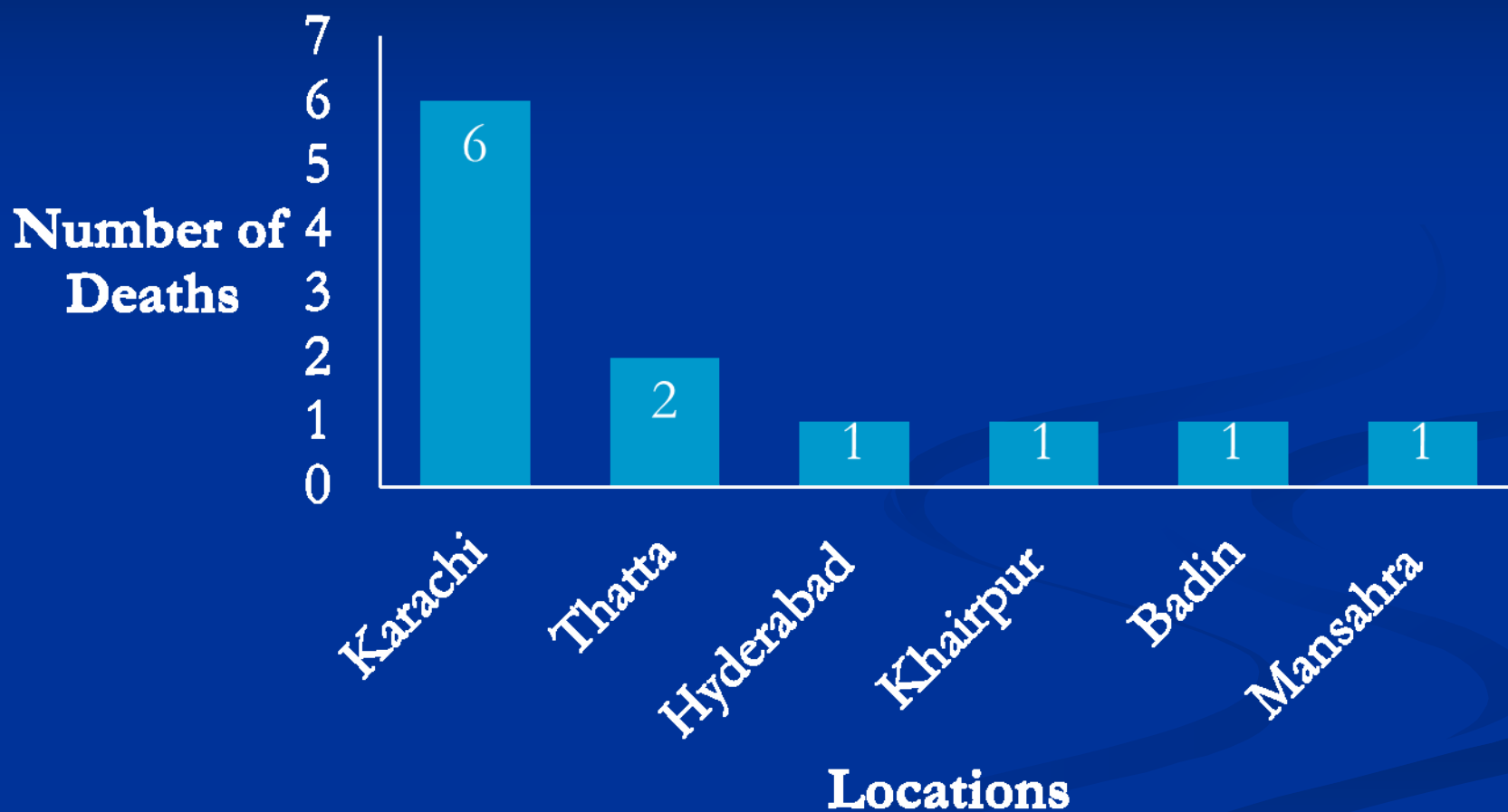


Mortality of cases of ileal perforation - Causes of death

- Cardio-pulmonary arrest & septic shock



Deaths of Surgical patients





Limitations



- Lack of culture confirmation for most cases of perforation
- Difficulties in collection of tissue samples
- Data from only few major hospitals in city



Conclusion



- Ileal perforation as a complication of typhoid is not un-common in Pakistan.
- Patients with ileal perforation are at high risk of mortality
- Introduction of typhoid vaccine in the national program, availability of safe drinking water and environmental sanitation are essential for the control of typhoid .

THANK YOU