Aetiologies and outcomes of Abdomino-Pelvic surgical Mergencies at iten county referral Hospital, Kenya

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Abstract

Background: Abdomino-pelvic surgical emergencies represents more than half of all emergency surgical admissions. Acute appendicitis tops the list in most published series as the leading aetiology of abdomino-pelvic surgical emergencies followed by intestinal obstruction. Abdomino-pelvic surgical emergencies are associated with a high mortality estimated at 5% to 25%. This study is meant to describe common aetiologies and the mortality rate associated with abdomino-pelvic emergencies at iten county referral hospital (ICRH).

Methodology: This study was a retrospective descriptive study, carried out at the ICRH, Elgeyo marakwet county, Kenya and included patients who were operated due to abdomino-pelvic surgical emergencies at the ICRH between January 15th 2019 to January 15th 2020. Sample size was determined by census sampling.

Results: The age of patients ranged from 4 months to 82 years old, with a mean of 35.8 and SD of ±1.9 and a median of 34.5 and SD of ±2.2 years. Children comprised 12 (22.64%) out of the 53 patients. The male to female ratio was 2.53:1. Non-traumatic aetiologies comprised of 94.3%. Intestinal obstruction was the commonest aetiology in both adults and children. Mortality rate was 5.7%, morbidity rate was 3.77% and length of hospital stay was 6.7 ± 2.4 days.

Conclusion: Intestinal obstruction is the commonest aetiology of abdomino-pelvic surgical emergencies in both adults and children. Mortality rate and morbidity rate is low.

Introduction

Surgical abdomino-pelvic emergencies are clinical conditions of sudden onset that may require urgent operative intervention. Abdomino-pelvic surgical emergencies represents more than half of all emergency surgical admissions(1). Non traumatic abdominal surgical emergencies represent bulk of these(2). It comprises of 54% of the admissions in Saudi Arabia(3) while in United kingdom it represents about 50 % (2). In Kenya, we still do not have data regarding abdomino-pelvic emergencies as a whole, however studies about abdominal emergencies seperatately have been published. In adults, acute appendicitis tops the list in most published series as the leading aetiology of abdomino-pelvic surgical emergencies followed by intestinal obstruction(4) while in children, intussusception is the leading aetiology(5). Abdomino-pelvic surgical emergencies are associated with a high mortality estimated at 5% to 25%(6) especially in developing countries where health systems are not adequately functioning(7). Factors responsible for surgical morbidity and mortality include age of the patient, increased time between the onset of symptoms and the hospital admission, the hospital admission and surgery, nature of operation, haematocrit level, malignant disease with metastasis, presence of peritonitis, a delayed diagnosis, management, complication detection time and postoperative stay(8). This study is meant to describe common aetiologies and the mortality rate associated with abdomino-pelvic emergencies at Iten county referral Hospital.
Objectives

Specific Objectives

1. To describe the demographic characteristics of patients with abdomino-pelvic surgical emergencies at Iten county referral hospital.

2. To describe the common aetiologies of abdomino-pelvic surgical emergencies at Iten county referral hospital.

3. To determine the overall morbidity and mortality rates associated with abdomino-pelvic surgical emergencies and children and adults separately at Iten county referral hospital.

Methodology

A retrospective descriptive study of patients aged above 1 month who present with abdomino-pelvic surgical emergencies at Iten county referral hospital between January 15th 2019 to January 15th 2020 was carried out.

This study was carried out at the Iten county referral hospital, Elgeyo marakwet county, Kenya. This is about 35 kilometers, Northeast from Eldoret. It serves the whole of Elgeyo marakwet people in the North rift as it is the only hospital with general surgeon (approximately 1 million people). It accommodates about 30 surgeries per month (electives and emergencies).

The study included all patients above 1 month old operated on for abdomino-pelvic surgical emergencies at Iten county referral hospital between January 15th 2019 to January 15th 2020 who met the inclusion criteria.

The sample size was determined by census sampling as the calculated sample size using fischer’s formula was not achieved.

Inclusion Criteria:

- patients operated on for abdomino-pelvic surgical emergencies at the Iten county referral hospital.

Exclusion Criteria:

- Patient who had been operated elsewhere (eg MTRH) and then referred to ICRH.
- Patients managed conservatively for intestinal obstruction, appendicitis, peritonitis secondary to tuberculosis or pancreatitis.

Data Collection

Patients were identified from the theatre register and files traced. Patients who met the inclusion criteria were consecutively enrolled in the study. Data collection was conducted by the investigator and relevant data on demography, clinical presentation, investigations, intra-operative findings and outcomes were entered into the data collection sheet.

Outcome evaluation parameters were in terms of complications, hospital stay and death. Data was then entered into access database and exported to SPSS version 22.0 statistical software for analysis. Continuous data was analysed using means and SD and medians and IQR.

Categorical data was presented in the form of frequency tables and charts. For continuous data, Student T-test was used to compare means. For binary data, Chi-square test and Fisher’s exact test was used for analysis.

Ethical statement

This study was approved by Institutional research and ethics committee (IREC), file approval number (FAN) 4052.

Results

The age of patients ranged from 4 months to 82 years old, with a mean of 35.8 and SD of ±1.9 and a median of 34.5 and SD of ±2.2 years.

Table 1: Demography

<table>
<thead>
<tr>
<th>Age group</th>
<th>total</th>
<th>male</th>
<th>female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9 yrs</td>
<td>8</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>10-19 yrs</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>20-29 yrs</td>
<td>10</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>30-39 yrs</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>40-49 yrs</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>50-59 yrs</td>
<td>9</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>60-69 yrs</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>70-79 yrs</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>80-89 yrs</td>
<td>1</td>
<td>1</td>
<td>0</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>non-traumatic</th>
<th>blunt trauma</th>
<th>penetrating trauma</th>
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<tbody>
<tr>
<td>Percentage</td>
<td>94.3%</td>
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</tbody>
</table>

Figure 1: traumatic vs non traumatic distribution

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Children (0-18 yrs) comprised 12 (22.64%) out of the 53 patients. Majority of patients were young adults (20-50 years) (n=22, 41.5%) followed by elderly (n=18, 33.96%).

The male to female ratio was 2.53:1.

The aetiologies were identified and are shown in figure 1 and 2 below.

Majority of the cases were non-traumatic (n=50, 94.3%)

Intestinal obstruction (n=37, 69.8%) was the most common aetiology of abdomino-pelvic surgical emergencies, followed by peritonitis (n=9, 16.98%). The most common cause of intestinal obstruction was hernias (n=10) in both adults and children. The most common cause of peritonitis was perforated/ruptured appendix (n=4).

All the mortalities and morbidities were in patients with intestinal obstruction.

Common causes of acute abdominal pain include acute appendicitis, acute cholecystitis, intestinal obstruction, urinary colic, peptic ulcer disease, acute pancreatitis, and nonspecific, nonsurgical abdominal pain (11).

Acute appendicitis is the most common acute surgical condition of the abdomen as reported in various studies (4,12,13). Intestinal obstruction is another common cause of a surgical acute abdomen in which patients commonly present with abdominal pain, distension, vomiting and constipation. In young children commonest cause of intestinal obstruction is intussusception(14) while in older children and adults, it is hernias(15). However in developed countries adhesion is reported to be the commonest(16,17). In one study, the most common operative findings were peritonitis (41.5%), intestinal obstruction (28.4%) and acute appendicitis (11.8%)(1).

In this study, intestinal obstruction is by far the leading aetiology of abdomino-pelvic surgical emergencies. The main aetiology of intestinal obstruction in this study is hernias in both adults and children which differs from what was found at Moi teaching and referral hospital (MTRH) in Eldoret, Kenya(18). Acute appendicitis in this study is quite low probably because of patients being managed conservatively with antibiotics and anti-inflammatories in emergency department and private clinics or by herbal therapy. Intestinal obstruction on the other hand has to be managed at Iten hospital with all cases being seen by medical officer and consultant surgeon and require admission. Hernias are commonest aetiology in Iten as majority of male are farmers or casual labourers hence require abdominal effort that can cause hernias.

Abdomino-pelvic surgical emergencies are associated with a high mortality estimated at 5% to 25% (6,19,20) especially in developing countries where health systems are not adequately functioning(7). In a study regarding intestinal obstruction at MTRH, the overall mortality rate was 15% (18.8% in children and 12.6% in patients > 12 years) and bowel gangrene was the only factor among those evaluated that significantly influenced outcome (18). This is higher than the mortality rate in this study. Iten is a county referral hospital and thus limited to county referrals only therefore the duration of presentation to treatment might be less than what MTRH receives as referrals. Also MTRH being a provincial referral hospital, receives referrals from various counties and towns and probably more complicated and serious cases thus a higher mortality is expected than Iten.

Discussion

Abdomino-pelvic pain is one of the most common emergency presenting to emergency department and continues to provide a large workload for the general surgeon. It poses a diagnostic challenge for the emergency physicians as the causes are numerous, ranging from benign to life threatening conditions (9).

A detailed history and physical examination are paramount to developing the differential diagnosis for patients presenting with an acute abdomen. The diagnosis is aided by laboratory data and radiographic studies when required (10).

Table 2: Outcomes

<table>
<thead>
<tr>
<th>Mortality rate</th>
<th>5.7% (n=3)</th>
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<tbody>
<tr>
<td>Morbidity rate</td>
<td>3.77% (n=2)</td>
</tr>
<tr>
<td>Length of hospital stay</td>
<td>6.7 ± 2.4 days</td>
</tr>
</tbody>
</table>

Conclusion

Intestinal obstruction is the commonest aetiology of abdomino-pelvic surgical emergencies in both adults and children. Mortality rate and morbidity rate is low.
Recommendations

Further detailed studies on intestinal obstruction and peritonitis ought to be studied in this region. Also there is need for clinicians to record and store data well so as to help in future retrospective studies which can help co-relate factors with mortality.

Limitations

Since it was a retrospective study, some information that would have been relevant for example clinical presentation, reasons for late presentation, laboratory and radiological investigation results, immediate treatment and post operative treatment data were missing and therefore the study could only feature on aetiologies and outcomes of abdomino-pecvic surgical emergencies.

Conflicts of Interest: None

Funding: None

References

14. Harunani S, Kuremu T. Intestinal obstruction in the pediatric age group at Moi Teaching and Referral Hospital, Kenya. East african medical journal.2019;96(3)