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AN AUDIT OF LAPAROTOMIES;

Carried out in combined military hospital Panno Aqil over three years period

Dr. Tahir Ahmad Khan, Dr. Safdar Hussain Awan, Dr. Safdar Ali Khan, Dr. Shahbaz Amin

ABSTRACT… Objective: To make an audit of laparotomies carried out at Combined Military Hospital Pano Aqil over a three year period. **Study design:** Cross sectional, retrospective study. **Place and duration of study:** Study was carried out at surgical department of combined military hospital Panno Aqil over a period of three years from Jan 2009 to Dec 2011. **Patients and methods:** Patients with significant intra-abdominal pathology presenting as acute abdomen and who underwent laparotomy were included in study. Patients were either electively admitted via outpatient department or through Accident and Emergency (A&E) department. Patient charts and records were used to collect data. **Results:** All 174 patients underwent laparotomy. In (27.6%) cases, intestinal perforation was the underlying cause; gynaecological pathology was found in (21.2%) patients. In 19.5% cases blunt and penetrating abdominal trauma was the cause of acute abdomen. Acute intestinal obstruction was found in (21.3%), tumors were found in (7.9%) and miscellaneous causes were identified in (2.3%) cases. **Conclusions:** Laparotomies carried out at Combined Military Hospital Pano Aqil fulfilled the evidence based medicine criteria.

Key words: Laparotomy, causes, clinical audit

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INTRODUCTION

A laparotomy is a surgical procedure involving a large incision through the abdominal wall to gain access into the abdominal cavity[1]. It is also known as celiotomy. In diagnostic laparotomy (most often referred to as an exploratory laparotomy and abbreviated Ex-Lap), the nature of the disease is unknown, and laparotomy is deemed the best way to identify the cause[2]. The procedure may be recommended for a patient who has abdominal pain of unknown origin or who has sustained an injury to the abdomen. In therapeutic laparotomy, a cause has been identified (e.g. peptic ulcer, colon cancer) and laparotomy is required for its therapy. Exploratory laparotomy also plays an important role in the staging of certain cancers[3]. The most common incision for laparotomy is the midline incision, a vertical incision which follows the linea alba. Midline incisions are particularly favored in diagnostic laparotomy, as they allow wide access to most of the abdominal cavity[4].

Clinical audit and patient outcomes monitoring are two closely related activities that seek to improve patients' experiences and health outcomes through the systematic review of healthcare delivery. They aim to ensure that all patients receive the most effective, up-to-date and appropriate treatment, delivered by clinicians with the right skills and experience[5]. We searched the Pakistani medical literature but could not found any appreciable efforts to carry out audits of laparotomy being done in any tertiary health care facility. To assess our practice and to identify any weaknesses and bring it at par with international standards, we carried out this study.

PATIENTS AND METHODS

This retrospective cross sectional study was carried out at surgical department combined military hospital PannoAqil over a period of three years from Jan 2009 to Dec 2011.Hospital ethics committee approved the study.

Patients with significant intra-abdominal pathology presenting as acute abdomen and who underwent laparotomy were included in study. Patients were either electively admitted via outpatient department or

through Accident and Emergency (A&E) Department. Patient charts and records were used to collect data regarding clinical presentation, signs and symptoms, laboratory investigations, operation procedure, diagnosis, management and complications of patients. All the relevant information was recorded on a patient performa.

Patients with incomplete documents were excluded from the study. Data was then segregated according to the group of disorder. Statistical program SPSS version 14.0 was used to analyze the data and calculate frequencies.

After the compilation of relevant data patients were categorized into following groups depending upon the pathology:

- Intestinal obstruction (adhesions, volvolus, intussusceptions, artesia, obstructed hernias)
- Intestinal perforations (enteric, tuberculous, duodenal and peptic)
- Gynaecological pathology (ruptured ectopic pregnancy, cyst, uterus, large fibroids)
- Tumors (Colonic, renal, rectal, testicular)
- Blunt and penetrating abdominal trauma
- Miscellaneous (hydatid cyst).

Laparotomy was performed in all patients using following incisions depending upon the intra-abdominal pathology i.e either: Midline, Right paramedian, Transverse,or Pfannensteil, incision.

Majority of the patients presented with abdominal pain, distension, vomiting and absolute constipation, dehydration and shock. Based on history and physical examination, a provisional diagnosis of intestinal perforation, intestinal obstruction, intra-peritoneal bleed or major organ injury was made which was confirmed by investigations including X-ray chest for pneumoperitoneum, abdominal X-ray for air fluid levels and ultrasound abdomen.

Patients were resuscitated after passage of two 16-gauge cannulas, nasogastric tube and Foley's catheter and received 2-3 liters of Ringer's lactate and third generation cephalosporin's (ceftriaxone) and quinolones (ciprofloxacin). After the confirmation of the initial diagnosis of intra-abdominal pathology, emergency laparotomy was performed.

Perforations in the gastrointestinal tract were treated either with primary double-layered closure, segmental resection and anastomosis or loop ileostomy, depending upon the operative findings and general status of the patients. Intestinal obstruction was treated by removing the adhesions and resecting and anastomosing the affected segment or by colostomy. Haemoperitoneum caused either by rupture ectopic pregnancy, rupture ovarian cyst, rupture uterus or by major organ damage due to blunt or penetrating trauma were treated by controlling the bleeding vessel and rapid transfusions followed by removal or repair of damaged organ.

The peritoneal cavity was irrigated with warm normal saline and drains were left in abdomen and wound was closed either as mass closure or in layers depending upon the operator's choice. Patients were monitored post-operatively for recovery and early detection and management of complications.

RESULTS

One hundred and seventy four patients with diagnosis of acute abdomen were included in this study. There were 89 (51.14%) males and 85 (48.85%) females. The age ranged from 2 days to 85 years with the maximum incidence in the third decade. Presenting symptoms included abdominal pain (97%), abdominal distension (91%), absolute constipation (65%) and vomiting (58%). Abdominal tenderness and rigidity were present in 85% and 83% of the patients respectively. Fifteen percent patients presented with

dehydration and shock.

All 174 patients underwent laparotomy. In 27.6% cases intestinal perforation was the underlying cause of perotinitis (Table I).

Acute intestinal obstruction was found in 21.26% (Table II).

	FREQUENCY	PERCENT
Enteric perforation	13	7.5
Perforated duodenal ulcer	10	5.7
Perforated Gangrenous Appendix	24	13.8
TB Perforation	1	.6

Table-I. Intestinal Perforations

	FREQUENCY	PERCENT
Adhesions	26	14.94
Ileo-ileo colic intussusception	2	1.15
Imperforate anus	1	.60
Jejunal atresia	1	.60
Obstructed hernias	5	2.87
Volvolus	2	1.15

Table-II. Intestinal Obstruction

Gynaecological pathology was found in 21.2% patients (Table III). In 19.5% cases blunt and penetrating abdominal trauma was the cause of acute abdomen; 12patients (6.9%) presented with blunt abdominal trauma, 20 (11.5%) with gun shot wound abdomen and two patients (1.15%) with mine blast abdominal injury. Tumors were found in (7.9%), commonest being colo-rectal cancer found in 3.0% cases. Hydatid cyst was found in 4 patients.

Fifty five percent cases were found to have generalized peritonitis. The most commonly used incision was midline (34.5%) followed by right paramedian incision (35.1%), Pfannensteil incision (17.8%) and transverse incision in (12.6%). Postoperative complications were encountered in 33 (%) cases especially in patients presenting late. The mean hospital stay ranged from 14 to 35 days. The morbidity and mortality in this series were 35.5% and 5.5% respectively.

	FREQUENCY	PERCENT
Ruptured ovarian cyst	11	6.32
Ruptured ectopic pregnancy	7	4.02
Ovarian tumors	8	4.60
Bilateral ovarian cysts	2	1.15
Fibroid uterus	2	1.15
Pelvic haematoma	3	1.72
Polymenorrhagia	2	1.15
Postpartum haemorrhage	1	.60
Septic abortion	1	.60

Table-III. Gynaecological pathology

DISCUSSION

The audit carried out with this study gives us an insight into the pattern of diseases for which laparotomy was carried out, the most commonly used incisions and the age groups of patients undergoing surgery. In our study 27.6% cases were diagnosed as cases of intestinal perforation which was the underlying cause for peritonitis. 55% of our patients had generalized peritonitis which was a significant cause of morbidity and mortality[6]. There is a predominance of males presenting with this life-threatening disease[7,8] and our series also show a similar trend, with a male to female ratio of 1.2:1 approximately. Majority of patients in our series presented with abdominal pain, anorexia, nausea, vomiting, constipation and abdominal distension. Langell JT and Mulvihill SJ report similar symptoms in their study[6]. Delay in seeking medical

treatment was the main reason for high morbidity and mortality. Kaur N et al., in their study also attribute delay seeking surgical treatment as an important cause for high morbidity[9].

Gynaecological pathology was found in (21.2%) patients. Commonest pathologies encountered were ruptured ovarian cysts in 6.3% , ruptured ectopic pregnancy (4.0%) and ovarian tumors in 4.6% patients which is similarly reported by Saira Yunus et al in their study[10]. Ruptured ectopic pregnancy cases had a mortality rate of approximately 1%. An almost similar mortality (1.6%) rate is reported by Ehsan m and Mahmmod A in their study[11].

Intestinal obstruction also remains one of the commonest surgical emergencies[12]. The diagnosis of intestinal obstruction is based on the classic quartat of pain, distension, vomiting and constipation. Acute intestinal obstruction was found in (21.3%) of our patients and the main pathology in majority were adhesions. This was also reported by Balouch M, Tufail M et al. and Sultan M in their study[13]. Obstructed hernias were found in 2.9% cases. Commonest obstructed hernia was paraumblical.

In 19.5% cases blunt and penetrating abdominal trauma was the cause. Mandatory exploratory laparotomy for all gunshot and for the stab wounds penetrating the peritoneal cavity proves to be safe and prudent policy[14]. Tumors were found in (7.9%) patients and commonly encountered tumors were colo-rectal which is also reported by JRGardezi in their study[15]. Miscellaneous causes (hydatid cyst) were found in (2.3%).

In our study, postoperative complications included wound infection (25%), septicaemia (15%) and electrolyte imbalance (7%). Postoperative complications in peritonitis reported by Jhobta RS[7] are wound infection (25%), septicaemia (18%) and electrolyte imbalance is (17%). Kim et al[16] in their study report mortality rate of 9.9%. This is related to the delayed presentation of the patient to a definitive care hospital. In our study mortality rate was 5.5%.

CONCLUSIONS

A careful approach is required to avoid the increased morbidity and mortality associated with delay in the diagnosis of the intra-abdominal pathology. This study suggests that the single most important antecedent of a grave prognosis in a case of acute abdomen is late presentation of the patient.

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AUTHOR(S):

1. **DR. TAHIR AHMAD KHAN**
   MBBS, FCPS (Surg), FRCS (UK)
   Consultant Surgeon,
   Combined Military Hospital Panno Aqil
2. **DR. SAFDAR HUSSAIN AWAN**
   Consultant Surgeon,
   Combined Military Hospital, Quetta
3. **DR. SAFDAR ALI KHAN**
   Consultant Anaesthesist,
   Combined Military Hospital Panno Aqil
4. ***Dr. Shahbaz Amin***
   Consultant Pathologist,
   PAF Hospital Mianwali

Correspondence Address:
Dr. Tahir Ahmad Khan
Consultant Surgeon,
Combined Military Hospital, Panno Aqil
tahirk64@yahoo.com

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Adversity makes men,
and prosperity makes monsters.

Victor Hugo