

Original Article

Clinicopathological Features of Abdominal Complaints that Require Exploratory Laparotomy: A Five-Year Experience in Aefutha

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Abstract - Background: An exploratory laparotomy, also known as a celiotomy or "ex-lap," is a type of major surgery that involves opening the abdomen with a large incision in order to visualize the entire abdominal cavity. An exploratory laparotomy is done to diagnose and possibly treat related abdominal complaints arising from any of the intra-abdominal contents that cannot otherwise be treated through less-invasive methods. The surgery can be done in adults and children and may be performed as an emergency or an elective. The precise timing of the surgery depends on the indication, and definitive treatment depends on the intra-operative findings. Aim: To analyze the clinicopathological features of abdominal complaints that required exploratory laparotomy and identify the commonest indication for exploratory laparotomy in Alex Ekwueme Federal University Teaching Hospital Abakaliki Ebonyi State, Nigeria, from May 2016 to April 2021. Method: This was a 5-year analytical descriptive prospective study. Data were collected using a proforma over a 5-year period from May 2016 to April 2021. The details of the proforma comprised of age, sex, presenting complaints, diagnosis, and definitive procedure performed; all patients aged 16 years and above who gave consent and presented to the institution with abdominal complaints and had exploratory laparotomy were recruited in the study. The results of their diagnosis and definitive procedures performed were analyzed using a Chi-square for categorical values and a T-test for continuous variables. Result: A total of 488 patients had exploratory laparotomy over the study period. Three hundred and six (62.7%) patients were males, while 182 (37.3%) patients were females. Four hundred and sixteen cases (85.2%) were done as emergency surgery, while 72 (14.8%) cases were done as elective surgery. Benign pathologies were 413 (84.6%) in numbers, while malignant pathologies were 75 (15.4%) in numbers. Of all benign pathologies, infective cases outnumbered, recording 195 (47.2%) out of 413 cases seen during this period. Out of the 75 malignant pathologies operated upon during the study period, large bowel malignancy outnumbered others, representing 48 (64.0%) of them. Conclusion: In Alex Ekwueme Federal University Teaching Hospital Abakaliki, large volumes of exploratory laparotomy are being performed annually. A greater number of those surgeries are for benign pathologies; however, amongst those that are malignant, colonic origins still dominate.

Keywords - Abdominal complaints, Clinicopathological features, Exploratory laparotomy, Five years experience.

1. Introduction

An exploratory laparotomy, also known as a celiotomy or "ex lap," is a type of major surgery that involves opening the abdomen with a large incision in order to visualize the entire abdominal cavity.[1] An exploratory laparotomy can be diagnostic or therapeutic for related abdominal complaints arising from any of the intra-abdominal contents that cannot

otherwise be treated through less-invasive methods.[1,2] The surgery can be done in adults and children and may be performed as an emergency or an elective. The precise timing of the surgery depends on the indication, and definitive treatment depends on the intraoperative findings. Once the underlying pathology is determined in emergency conditions, an exploration may continue as a therapeutic procedure. The



increasing availability of sophisticated imaging modalities and other investigative techniques has recently reduced the indication and scope of exploratory laparotomy. However, the importance of exploratory as a rapid and cost-effective means of managing acute abdominal conditions cannot be overemphasized.[2] Indications for emergency exploratory laparotomy vary from region to region; within the same region, factors like socioeconomic status, culture and geographic location still alter the etiology.[3] Previously, intestinal obstruction from strangulated hernia was the leading cause; currently, intestinal perforations and trauma have also become common causes of emergency laparotomy.[4,5] Though majorly used in emergencies as seen in perforations, trauma and infective cases like abscess, Kevric and Sanei et al. have reported that peritoneal breach does not necessarily equate to visceral injury mandating surgery; such patients can be managed conservatively, especially when Computed Tomographic (CT) scan is normal.[6,7] In elective indications of exploratory laparotomy, once the underlying pathology is determined prior to the surgery, it can continue as a therapeutic procedure. Occasionally, the indication may be to confirm diagnosis as seen in diagnostic laparotomy for inoperable masses. Elective exploratory laparotomy can be used for specific treatment when the surgeon plans and executes a therapeutic procedure.[2]

On rare occasions, exploratory laparotomy has been performed on a pregnant woman with a torsed ovarian cyst.[1] Exploratory laparotomy has also been used to remove fishbones from the porta hepatis that migrate through the gastric wall into the peritoneal space.[1]

In recent times, laparoscopy has played a role in trauma, penetrating abdominal trauma. Following a systematic review, it has been found useful in identifying diaphragmatic injuries and less in hollow viscus injuries.[1]

Since the onset of this centre quite a number of exploratory laparotomies have been performed, and none has taken the time to know the commonest aetiology. Hence, the of this study.

In this study, we aim to analyze the clinicopathological features of abdominal complaints that required exploratory laparotomy and identify the commonest indication for exploratory laparotomy in Alex Ekwueme Federal University Teaching Hospital Abakaliki Ebonyi State, Nigeria, from May 2016 to April 2021.

2. Method

This was a 5-year analytical descriptive prospective study conducted in the Department of Surgery, Alex Ekwueme Federal University Teaching Hospital Abakaliki, Nigeria.

Data were collected over 5 years from May 2016 to April 2021 from adult patients aged 16 years and above who gave written and signed consent approved by the hospital ethical committee for exploratory laparotomy either as an emergency or as an elective following presentation in our center. Patients who were unfit for general anaesthesia from inoperability, end-organ failure, and advanced cancers were excluded. The proforma details comprised age, sex, presenting complaints, diagnosis, and definitive procedure performed. The results of their diagnosis and definitive procedures performed were analyzed using \pm standard deviation/median and range. Categorical data are expressed by using Chi-square for categorical values and continuous. Data are presented as mean frequencies.

3. Results

A total of 488 patients had exploratory laparotomy over the study period. Three hundred and six [306] (62.7%) patients were males, while one hundred and eighty-two [182] (37.3%) patients were females at a ratio of 1.7:1 (figure 1). The age group ranges from 16 - 80 years with a mean age of 39.26 ± 16.86 and peak incidences occurring at 26-35 years, followed by 16-25 years (table 1).

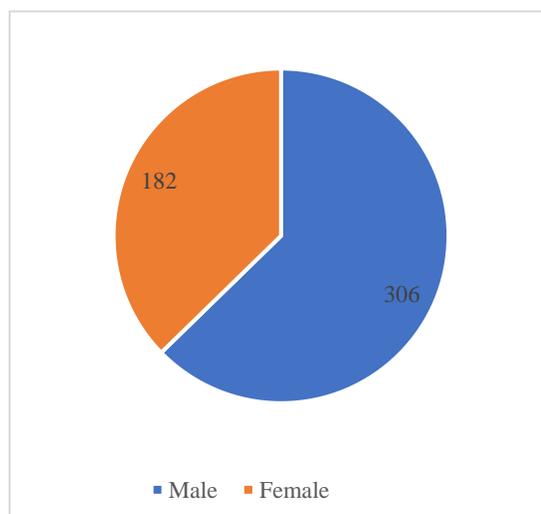


Fig. 1 Sex distribution

Table 1. Age distribution

Age Range(years)	Frequency	Percentage(%)
16-25	126	25.8
26-35	127	26.0
36-45	83	17.0
46-55	57	11.7
56-65	55	11.2
66-75	29	5.9
76-85	9	1.8
86-95	3	0.6
Total	488	100

Table 2. Distribution of various diagnoses

Diagnosis	Frequency(N)	Percentage(%)
Benign	413	84.6
Trauma	91	18.6
Infective perforation	195	40.0
Intestinal Obstruction	119	24.4
Others	8	1.6
Malignant	75	15.4
Gastric Cancers	12	2.5
Small Bowel Cancers	1	0.2
Large Bowel Cancers	48	9.8
Others	14	2.9
TOTAL	488	100

Table 3. Distribution of various procedures

Procedure	Emergency	Elective
Repair of primary gut perforation	145	0
Adhesiolysis	67	0
Appendectomy	62	0
SI Resection and anastomosis	51	0
Stomas	23	7
Hemicolectomy	30	0
Splenectomy	18	0
Gastrectomy	0	13
Stoma reversal	0	13
Bypass surgery	0	12
Herniorrhaphy	9	0
Diagnostic laparotomy	0	8
Cholecystectomy	0	6
Abdominal wall closure	6	0
Foreign body	5	0
Sigmoidectomy/Anterior resection	0	13
Total	416	72

Benign pathologies were the commonest diagnosis accounting for 413 (84.6%) in numbers. Of all the benign pathologies, intestinal perforation 119 (47.2%) arising from infective causes was the commonest, followed by intestinal obstruction 119 (28.8%) (table 2).

Malignant pathologies were 75 (15.4%) in numbers (table 2). Out of the 75 malignant causes, large bowel malignancy outnumbered others, representing 48(64.0%) of them (table 2).

Emergency surgeries, 416 (85.2%) were the most commonest, while 72 (14.8%) cases were done as elective surgery (table 3). Primary repair of gut perforation was the commonest procedure, accounting for 145 (29.7%), followed by adhesiolysis 67 (13.7%), and all were done as emergency procedures.

4. Discussion

Indications for exploratory laparotomy in general surgical practice are commoner in males. Zhang et al. reported more male incidence of small bowel adenocarcinoma.[11] Nahar et al. also reported male preponderance in small bowel perforation.[12] Lotfollahzadeh et al. reported that approximately 90% of patients with penetrating trauma are male.[13] Chalya et al. have also reported in their study that typhoid perforation is more common in males than females.[14]. These correspond with our findings.

In our findings, benign causes were commonest, younger age groups were more involved, and infective intestinal perforations were outnumbered. This corresponds to the reported literature in the West African region, as typhoid ileal

perforation is higher and affects mostly young adults with perforation rates of 10%-33%. [15,16,17,18]

Emergency surgeries are the most common indications for exploratory laparotomy in general surgical practice in our center. Amongst the emergencies, perforated bowel is the most common, followed by adhesive bowel obstructions. Kumar et al. reported that peritonitis due to hollow viscus perforation has become the leading cause of emergency laparotomy.[5] This contrasts with what has been reported previously in the tropics by other authors. Adesunkanmi et al. [19] have reported adhesive bowel obstruction as the commonest. Otu et al. have also reported acute intestinal obstruction from external hernias as the commonest cause of tropical abdominal emergencies.[20]

In this study, large bowel resection, gastric resection and stoma reversal were the common elective procedures done. At the same time, the most common malignant diagnosis made was from large bowel tumors. Colorectal cancers are the most

common large bowel neoplasia, accounting for 60%-70%. Colorectal cancer also remains the most common cause of large bowel obstruction in adults, and about 20% of patients with colorectal cancer will present with a surgical emergency[21,22, 23]. This could explain the findings of our study.

5. Conclusion

In Alex Ekwueme Federal University Teaching Hospital Abakaliki, large volumes of exploratory laparotomy are performed annually. The majority of those cases are operated as emergency exploratory laparotomy, and their clinicopathological features are largely benign.

This study has also identified a changing pattern in the usual cause of emergency laparotomy in the tropics, from adhesive bowel obstruction to intestinal perforations. It has also identified colonic malignancies as the commonest malignancy for exploratory laparotomy in the center.

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