

PATTERN OF SURGICAL ABDOMINAL EMERGENCIES IN SOKOTO, NIGERIA

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Abstract

Background Acute surgical abdominal emergencies are common reasons for admission into accident and emergency units in most hospitals. This study was undertaken to look at the spectrum of such presentations to a tertiary hospital in North Western Nigeria. The management and outcome were also highlighted.

Method A retrospective review of case notes of patients with emergency surgical abdominal conditions between 2004 -2008 was carried out. Parameters studied included demographic characteristics, diagnosis, management and outcome.

Results A total of 1330 patients were studied. Out of this, 849(63.8%) were males and 481 (32.2%) were females; giving a male: female ratio of 1.77:1 (χ^2 2:1). The mean age was 33.56 (\pm 15.31) (16-85) years. Acute appendicitis was the commonest emergency, 375 (55.26%), followed respectively by acute intestinal obstruction, 245(18.42%), typhoid ileal perforation, 180(13.53%), abdominal trauma, 95(7.14%) and perforated peptic ulcer, 45(3.38%). Wound infection, incisional hernia and hypertrophic scar were the main postoperative complications. A total of 100 patients died, giving an overall mortality of 7.52%. Typhoid ileal perforation was the single leading cause of death at 36(20%), followed by intestinal obstruction, 40(16.33%) and abdominal trauma, 15(15.79%).

Conclusion Acute appendicitis was the commonest surgical abdominal emergency in our study. This was followed by intestinal obstruction and typhoid ileal perforation respectively.

Keywords Emergency, Surgical, Abdominal

Introduction

Surgical abdominal emergencies are clinical conditions of sudden onset that may require urgent operative intervention. They represent a spectrum of surgical conditions with varying etiological agents, depending on the environment. Acute appendicitis tops the list in most published series as the leading cause for which patients present to emergency units.^{1,2,3}

Even though the management outcome for simple appendicitis is good in most centres, same cannot be said of other common causes of acute surgical abdomen like intestinal obstruction, abdominal trauma and typhoid ileal perforation which unfortunately still carries high morbidity and mortality in our environment due largely to delay in presentation and operative intervention.^{4,5,6} Most patients undergo surgery to achieve definitive treatment but a few may respond to non surgical management. In this study, all except the five patients that died preoperatively had surgery.

It is hoped that this study will stimulate efforts at improving the outcome of emergency surgical conditions as seen commonly in our environment.

Materials & Methods

It was a retrospective study in which the case notes of all patients with abdominal surgical emergencies between 2004 to 2008 were collected. Demographic characteristics, diagnosis, management and outcome were the parameters studied.

Results

The total number of patients in the 5year study period was 1,330. This was made up of 849 (63.8%) males and 481 (36.2%) females giving a male: female ratio of 1.77:1 (2:1). Table 1 shows the sex distribution of surgical abdominal emergencies in Sokoto, Nigeria. The age of the patients ranged from 16 to 85 years with mean age 33.56 (15.31) years. Table II shows the age distribution with modal age in the third decade.

Acute appendicitis was the most commonly diagnosed emergency, 735 (55.26%), followed by acute intestinal obstruction, 245 (18.42%) and typhoid ileal perforation, 180 (13.53%). Obstructed/strangulated groin hernia accounted for 46.90% (n=115) of the causes of intestinal obstruction. A total of 95 patients (7.14%) had

abdominal trauma, out of which penetrating trauma accounted for 68.40% (n=45), while blunt trauma accounted for 31.50% (n=30). A total of 45 patients (3.38%) had perforated peptic ulcer while 20 patients (1.50%) had intra abdominal abscess and 10 patients (0.75%) had spontaneous peritonitis.

Table III and Fig. 1 showed the overall trend of abdominal surgical emergencies in Sokoto over a five year period. This gives an annual hospital average of 266 patients (20%).

Wound infections, incisional hernia and hypertrophic scar were the main post operative morbidity. A total of 100 deaths were recorded, out of which 5 deaths were before surgery. This gives an overall mortality of 7.52%. Typhoid ileal perforation was the single leading cause of death at 20% (n=36), followed by intestinal obstruction, 16.33%(n=40) and abdominal trauma, 15.79% (n=15) respectively.

Table IV showed overall/individual mortality of abdominal surgical emergencies in Sokoto.

Table 1: Sex distribution of the different surgical emergencies seen from 2004 - 2008 in Sokoto, Nigeria.

Surgical emergencies	Sex		Total(%)	Sex ratio (M:F)
	Male	Female		
Acute Appendicitis	445	290	735 (55.26%)	1.5:1
Acute intestinal obstruction	145	100	245 (18.42%)	1.4:1
Ileal typhoid perforation	130	50	180 (13.53%)	2.6:1
Abdominal trauma	75	20	95 (7.14%)	3.7:1
Perforated Duodenal Ulcer	44	1	45 (3.38%)	44:1
Intra abdominal abscess	5	15	20 (1.5%)	0.3:1
Spontaneous peritonitis	5	5	10 (0.75%)	1:1
Total	849	481	1330 (100%)	(1.77:1)

Table 2: Age distribution of patients seen with Surgical abdominal emergencies from 2004 - 2008, in Sokoto, Nigeria. The age of the patients ranged from 16 - 85 years with a mean of 33.56 (± 15.31) years

Age (years)	Frequency	Percentage (%)
<20	175	13.15
20 - 29	520	39.09
30 - 39	260	19.54
40 - 49	150	11.27
50 - 59	130	9.77
60 - 69	60	4.51
70 - 79	20	1.50
80 - 89	15	1.12
Total	1330	100

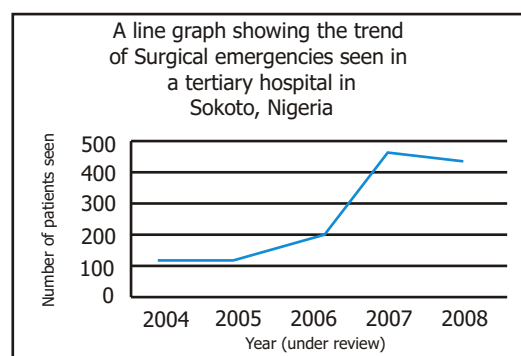
Table 3: Trend of Surgical emergencies during the study period in a tertiary hospital in Sokoto, Nigeria.

Year	Number of cases seen
2004	120
2005	115
2006	200
2007	455
2008	440
Total	1330

Table 4: The overall / individual mortality of abdominal surgical emergencies in Sokoto, Nigeria

Surgical emergency	Total	Mortality(%)
Typhoid ileal perforation	180	36(20.00%)
Intestinal obstruction	245	40(16.33%)
Abdominal trauma	95	15(15.79%)
Peptic ulceration	45	5(11.11%)
Intra abdominal abscess	20	2(10.00%)
Spontaneous peritonitis	10	1(10.00%)
Appendicitis	735	1(0.14%)
Total	1330	100(7.50%)

Fig 1: Trend of Surgical emergencies in Sokoto, Nigeria. This gives an annual average of 266 patients



Discussion

Results of our study showed that acute appendicitis was the most common abdominal emergency accounting for 55.26% (n=735). Acute intestinal obstruction and typhoid ileal perforation followed at 18.42% (n=245) and 13.53% (n=180) respectively (Table 1). Most published series shows similar trend.^{7,8} Adamu et'al in Zaria, Nigeria reported that acute appendicitis accounted for 26.8% of all emergency surgical admissions, while non-specific abdominal pain and intestinal obstruction followed at 23.4% and 13.4% respectively.⁸ Ohene Yeboah in Kumasi, Ghana however reported that acute appendicitis, 698 (22.4%) was followed by typhoid ileal perforation, 506 (16.2%) and acute intestinal obstruction, 391 (12.6%).² This pattern is slightly different among children as reported by Abantanga et al in Kumasi, Ghana where typhoid perforation of the gastro intestinal tract was the leading cause of surgical

abdominal emergency at 68%, followed by acute appendicitis, 16% and abdominal trauma and intestinal obstruction at 4.7% each.⁹

In our study, strangulated groin hernia was the commonest cause of intestinal obstruction, accounting for 46.9% (n=115). Works by Ajao in Ibadan, Nigeria, Lebeau in Abidjan, Ivory Cost and Adhikari in Calcutta, India all showed that strangulated groin hernia still remained a leading cause of intestinal obstruction in developing economies.^{7,10,11}

It is also a major cause of surgical emergencies among the elderly.^{12,13,14}

However, post operative adhesion is the chief cause of intestinal obstruction in developed countries.^{15,16,17,18} Penetrating abdominal injury was unexpectedly high in our study (68.40% compare to 31.50% of blunt abdominal injury). This might be due to high rate of assault and violent clashes as occurs during political rallies or communal disputes in our environment. More than 50% of blunt abdominal injuries were due to motor vehicular accidents. Males in their third decade of life were the most frequently affected age group in our study.

The overall trend is that of increasing emergency admissions over the 5 year study period with an annual average of 266 patients (20%) (Table 3 and Fig 1). This might be due to increased patient awareness or improvement in data collection. Presentation to hospital and surgical intervention are often delayed due to financial difficulties. This may account for the high overall mortality of 7.52% (n=100). Most studies in developing economies shows similar figures.^{9,11,19} The leading cause of death in our study was typhoid ileal perforation, 20% (n=36), followed respectively by intestinal obstruction, 16.33% (n=40) and abdominal trauma, 15.795 (n=15) (Table 4). Adesunkanmi and Ajao in Ibadan, Nigeria recorded 28% (n=14) mortality for typhoid ileal perforation in their study.²⁰ This shows that typhoid ileal perforation continues to carry poor prognosis in our environment despite some improvement in health care facilities. The commonest post operative complications included wound infection, wound dehiscence and incisional hernia. They accounted for more than 90% of post operative morbidity.

In conclusion, acute appendicitis remains the commonest cause for emergency surgical admissions in Sokoto, followed respectively by intestinal obstruction and typhoid ileal perforation which has the highest individual mortality rate.

References

1. Navarro Fernandez JA, Tarraga Lopez PJ, Rodriquez Montes JA, Lopez Cara M.A. Validity of tests performed to diagnose acute abdominal pain in patient admitted at an emergency department, *Rev Esp Enferm Dig.* 2009; 101(9): 610-8.
2. Ohene-Yoboah M. Acute Surgical admissions for abdominal pain in adults in Kumasi, Ghana. *ANZJ Surg.* 2006; 76(10): 898-903.
3. Hawthorn IE. Abdominal pain as a cause of acute admission to hospital. *JR Coll Surg. Edinb.* 1992; 37(6):389-93.
4. Mbah N, Opara WEK, Agwu NP. Waiting time among acute abdominal emergencies in a Nigerian teaching hospital: causes of delay and consequences. *Nig J. Surg Research.* 2006; 8(1-2): 69-73
5. Yenon KS, Lebeau R, Koffi E. Diane B, Kassi BF, Kouassi JC Post-operative morbidity and mortality in non-traumatic colon emergencies. *Mali Med.* 2008, 23(2): 38-42.
6. Fomaro R, Stabilini C, Picori E, Frascio M, Ricci B, Canaletti M, et al. Abdominal emergency surgery in the geriatric patients. Our experience. *G Chir,* 2006; 27(4): 137-44.
7. Oluwole G. Ajao. Abdominal emergencies in a tropical African population. *BJS.* 1981; 68(5): 345-347
8. Adamu Ahmed, Mohammed Dauda, Stephen Garba, Yahaya Ukwenya. Emergency abdominal surgery in Zaria, Nigeria SAJS, 2010. 48(2) 59-62
9. Abantanga FA, Nimako B, Amoah M. The range of abdominal surgical emergencies in children older than 1 year at the Komfo Anokye Teaching Hopsital, Kumasi, Ghana. *Ann Afr Med.* 2009 8(4); 236-42.
10. Lebeau R, Kassi FB Yenon SK, Diane CB, Kouassi JC. Strangulated groin hernia still frequent in tropical milieu. *Rev Med Brux.* 2011; 32(3): 133-8.
11. Adhikari S, Hossein MZ, Das A. Mitra N, Ray U. Etiology and outcome of acute intestinal obstruction: A Review of 368 patients in Eastern India. *Saudi J Gastroenterol.* 2010; 16(4):285-7.
12. Gunay Gurleyik, Emin Gurleyik, Selcuk Unalmiser. Abdominal surgical emergency in the elderly. *Turkish J Gastroenterol.* 2002; 13(1): 47-52.
13. Lebeau R, Diane B, Kassi AB, Yenon KS, Kouassi JC. Non-traumatic abdominal surgical emergencies in elderly patients at the cocody university Hospital centre in Abidjan, Cote d'ivoire: etiology and outcome. *Med Trop (Mars).* 2011, 71(3): 241-4.
14. Alvarez JA, Baldonado RF, Bear IG, Solis JA, Alvarez P, Jorge JI. Incarcerated groin hernias in adults: presentation and outcome. *Hernia.* 2004; 8(2); 121-6.
15. Pomata M, Erdas E, Casu B, Pinna G, Licheri S, Pisano G. et al. Small bowel obstruction caused by postoperative adhesions: personal experience and review of the literature. *Chir Ital.* 2006; 58(4): 449-58.
16. Menzies D, Parker M, Hoare R, Knight A. Small

- bowel obstruction due to postoperative adhesions: treatment patterns & associated costs in 110 hospitals admissions. *Ann R. Coll Surg. Engl.* 2001; 83(1): 40-6.
17. McEntee G, Pender D, Mulvin D, McCullough M, Naeeder S, Farah S, et al. Current spectrum of intestinal obstruction. *Br. J. Surg.* 1987; 74(11): 976-80.
 18. Arshad MM, Madiha S, Rafique P, Kirshan S. Pattern of acute intestinal obstruction: Is there a change in the underlying Etiology? *Saudi J. Gastroenterol* 2010; 16(4): 272-274.
 19. Ahmed A. Trends in emergency surgical admissions in a tertiary health centre in Nigeria. *West Afr. J. Med.* 2009; 28(2): 106-9.
 20. Adesunkanmi ARK, Ajao O.G. The prognostic factors in typhoid ileal perforation; a prospective study of 50 patients. *J.R Coll. Surg. Edinb.* 1997; 42:395-399.