Original Article

Changing pattern of adult external abdominal hernias in Zaria

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Abstract

Background: External abdominal hernias are very common diseases encountered in surgical practice. A previous report from this centre 21 years ago documented the pattern of adult external abdominal hernias. However, there is an observed changing pattern. The aim of the study was to document the changing pattern, mode of presentation, treatment and outcome.

Methods: It was a 5-year prospective study from January 2011 to December 2015. Adult patients with external abdominal hernia at our institution were studied. Information documented included patients' sociodemographic information, type of hernia, mode of presentation, treatment and outcome.

Results: Six hundred and thirty-seven out of 4,083 patients with general surgical cases had external abdominal hernias (15.6%), with a male:female ratio of 3.1:1. The types of hernia were inguinal (451 [70.8%]), umbilical (83 [13.0%]), incisional (54 [8.5%]), epigastric (31 [4.9%]), femoral (14 [2.2%]) and others (4 [0.6%]). The common modes of presentation for inguinal hernias were simple (364 [80.7%]) and strangulated (42 [9.3%]). The most common mode of treatment for inguinal hernias was modified Bassini (265 [58.8%]). The common post-operative morbidities for groin hernias were wound infection (18 [3.9%]) and acute urinary retention (10 [2.2%]). The 3-year recurrence rate for groin hernias was 14 (3.0%). Mortality was three (0.5%) patients.

Conclusion: The pattern of external abdominal hernias in our institution has changed with the descending order of occurrence as follows: inguinal, umbilical, incisional, epigastric and femoral. This is in contrast to previous reports where femoral was the second most common. Modified Bassini was the preferred method of repair of inguinal hernia due to its simplicity.

Keywords: Changing pattern, external abdominal hernia, Zaria

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INTRODUCTION

External abdominal wall hernias are very common diseases encountered in surgical practice.[1-11] They constitute a significant proportion of the surgical workload of doctors in Nigeria.[4,7,8,12] A previous report from this centre 21 years ago reported the pattern of adult external hernia in decreasing order of occurrence as follows: inguinal, femoral and incisional.[6] This is in contrast to the pattern of occurrence reported in other studies in Nigeria.[3,13]

The aim of the study was to document the changing pattern, mode of presentation, treatment and outcome of

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management of external abdominal wall hernias among patients in our hospital.

METHODS

This was a 5-year prospective study from January 2011 to December 2015. Patients 15 years old and above that presented with any form of external abdominal hernia at our institution were studied. Ethical clearance was obtained from the health research and ethical committee of the institution. Eligible patients were counselled and informed consent was obtained. The information documented included patients' sociodemographic data, type of hernia, mode of presentation, treatment and outcome of management. The patients were followed up in the surgical outpatient department or through their phones for 3 years to document the outcome. The data obtained were analysed with SPSS version 21.0 (IBM 2012, Armonk, NY, USA). The results were presented as percentages, tables and charts.

RESULTS

Six hundred and thirty-seven out of 4,083 general surgical cases with external abdominal wall hernias (15.6%) were seen during the 5-year period of this study. Three hundred and ninety-nine (62.6%) patients were between the ages of 20 and 49 years, and for inguinal hernia, 258 (57.2%) were right, 169 (37.5%) were left and 24 (5.3%) were bilateral. Table 1 shows the age and type of hernia. Four hundred and eighty patients were male and 157 were female, with a male: female ratio of 3.1:1. Table 2 shows the sex and type of hernia. The types of hernias were inguinal hernia (451 [70.8%]), umbilical (83 [13.0%]), incisional (54 [8.5%]), epigastric (31 [4.9%]), femoral (14 [2.2%]) and others (4 [0.6%]), that is three spigelian and one post-traumatic following cow-gore injury. Three hundred and sixty-seven (80.7%) patients with inguinal hernia presented with a simple hernia. Table 3 shows the mode of presentation of inguinal hernia. Femoral hernia had the highest rate of strangulation (4 [28.6%]). Table 4 shows the mode of presentation of other non-inguinal hernias.

The most common method of inguinal repair was modified Bassini repair (265 [58.8%]). Table 5 shows the type of hernia and method of repair. The cadre of surgeons for the hernia repair was as follows: consultant (293 [46.0%]), senior registrar (251 [39.4%]) and registrar (93 [14.6%]). Wound infection was the most common post-operative morbidity in 18 (3.2%) patients after groin hernia repair. Figure 1 depicts the post-operative morbidity. The recurrence rates after 3 years of follow-up were as follows: inguinal hernia – 14 (3.0%), umbilical – 2 (2.4%), incisional – 2 (2.7%) and epigastric – 1 (2.2%). The mortality rate was 3 (0.5%).

DISCUSSION

Our research was to objectively assess the pattern of external abdominal wall hernias in our institution and confirm if it has changed from what was documented previously.

In this study, the pattern of occurrence of external abdominal wall hernia in adults in our institution was (in the descending order of occurrence) inguinal, umbilical, incisional, epigastric and femoral. This is in contrast to a previous report by Garba[6] from a study conducted in this

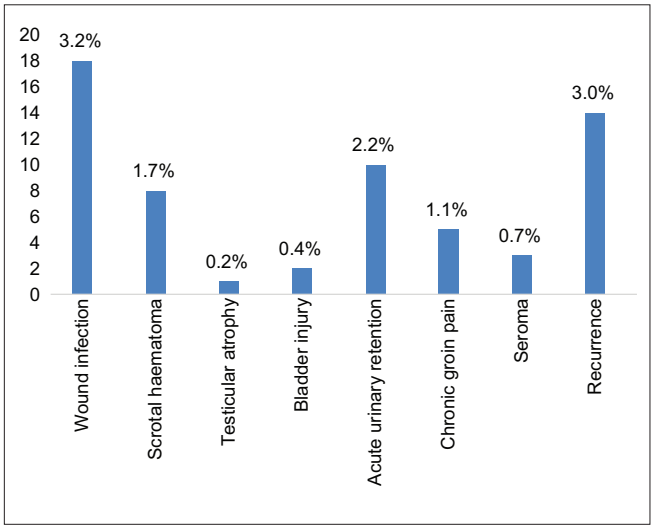

Figure 1: Post-operative morbidity (groin hernia, *n* = 465)

Table 1: Age and type of hernia

Age (years)	Right inguinal hernia	Left inguinal hernia	Bilateral inguinal hernia	Right femoral hernia	Left femoral hernia	Incisional hernia	Umbilical hernia	Epigastric hernia	Others
15-19	26	17	2	-	-	2	4	-	-
20-29	66	38	3	-	-	7	21	2	-
30-39	53	31	1	-	1	15	21	9	1
40-49	54	21	3	1	1	21	18	9	2
50-59	36	31	7	1	2	3	7	6	-
60-69	29	23	4	2	3	6	6	3	-
≥70	14	8	4	1	2	-	6	2	1
Total	258	169	24	5	9	54	83	31	4

centre 21 years ago where femoral was the second most common, although our finding of inguinal hernia being the most common hernia was similar to Garba's report.[6] The findings of incisional hernia as the third most common may be due to the increased number of laparotomies, caesarean sections and other gynaecological procedures compared to what was obtained 21 years ago. Our findings were also similar to those from a study by Ayandipo *et al*.,[3] who reported inguinal hernia as the most common hernia and femoral hernia as the fifth most common although incisional hernia (which was the third most common presentation in our study) was reported as the second most common hernia by Ayandipo *et al*.[3] The reason for this discrepancy may be related to the fact that the study by Ayandipo *et al*.[3] was conducted in Ibadan, southwestern part of Nigeria, where the population, because of the high literacy level, are more willing to consent to surgical procedures compared to the population in the institution where our study was conducted. This may explain the higher number of incisional hernias noted in their study compared to ours. However, the rate of incisional hernias seen in our study (8.5%) is similar to the rate (9.0%) reported by Ayandipo *et al*.[3]

The male: female ratio noted in our study (3.1:1) is also lower than that reported by Garba[6] (6.5:1) but is similar to the ratio (4.5:1) reported by Ayandipo *et al*.[3] This discrepancy may be explained by the fact that more women with external abdominal wall hernia are now willing to seek for help. The number of females with hernias was more than the males in all the hernias except for inguinal hernia. This may be explained by the anatomy of the female pelvis, obesity, pregnancy and caesarean sections being done in females, predisposing them to developing more non-inguinal external abdominal wall hernias. In addition to this, women are more concerned about their body shape and are more likely to seek for medical assistance even when the hernia is asymptomatic; males, on the other hand, tend to be more stoic and are more likely to only present when the hernia becomes symptomatic.[6]

The most common mode of presentation for all the hernias was a simple reducible bulge. This is similar to what has been reported by other studies of external abdominal wall hernias in Nigerians.[3,14-16]

Femoral hernia had the highest rate of strangulation (50.0%). This is related to the fact that the borders of a femoral hernia comprise of more rigid (fascioskeletal) structures than most of the other external abdominal wall hernias.[13,17,18]

Modified Bassini and nylon darning were the preferred methods of repair of inguinal hernia due to their simplicity. Other reasons that may explain this finding are that the modified Bassini repair and nylon darning had lower cost implications for the patient as well as the ease of training, speed of execution and the fact that some surgeons still prefer it to the more novel technique of mesh repair.[3,4,6,10,19]

Mesh repair is becoming more common in recent times. Our study reported that 7.3% of inguinal hernias had mesh repair compared to the 5.0% reported by Ayandipo *et al*.[3] This may be due to the increased availability of the prosthesis as well as coverage of the surgical expenses by the National Health Insurance Scheme. Training more surgeons on mesh usage may see this figure rise even higher.

The 3-year recurrence rate for inguinal hernia was 3.0% following the modified Bassini repair, nylon darning and mesh repair. Ayandipo *et al*.[3] reported a lower figure (2.1%) as 1-year recurrence rate in their study but failed to report the 3-year recurrence rate for their study, which may

Table 2: Sex and type of hernia

Type of hernia	Male	Female	Total	Percentage
Unilateral inguinal	386	41	427	67.0
Bilateral inguinal	19	5	24	3.8
Femoral	4	10	14	2.2
Umbilical	37	46	83	13.0
Incisional	20	34	54	8.5
Epigastric	13	18	31	4.9
Others (three spigelian, one post-traumatic)	1	3	4	0.6
Total	480	157	637	100.0

Table 3: Mode of presentation for inguinal hernias

Mode of presentation	*n* (%)
Simple	364 (80.7)
Strangulated	42 (9.3)
Obstructed	27 (6.0)
Irreducible	14 (3.1)
Giant	4 (0.9)
Total	451 (100.0)

Table 4: Mode of presentation for other hernias

Mode of presentation	Umbilical (%)	Incisional (%)	Epigastric (%)	Femoral (%)	Others (%)
Simple	57 (68.7)	36 (66.7)	12 (38.7)	7 (50.0)	3 (75.0)
Strangulated	4 (4.8)	2 (3.7)	-	4 (28.6)	-
Obstructed	14 (16.9)	3 (5.6)	5 (16.1)	2 (14.3)	1 (25.0)
Irreducible	8 (9.6)	5 (9.2)	14 (45.2)	1 (7.1)	-
Giant	-	8 (14.8)	-	-	-
Total	83 (100.0)	54 (100.0)	31 (100.0)	14 (100.0)	4 (100.0)

Table 5: Type of hernia and method of repair

Type of hernia	Method of repair	Number of patients (%)
Inguinal hernia	Modified Bassini	265 (58.8)
	Nylon darning	153 (33.9)
	Lichtenstein repair	33 (7.3)
Umbilical hernia	Primary closure	67 (80.7)
	Mesh repair	16 (19.3)
Incisional hernia	Primary closure	36 (66.7)
	Mesh repair	18 (33.3)
Epigastric hernia	Primary closure	27 (87.1)
	Mesh repair	4 (12.9)
Femoral hernia	Low approach	7 (50.0)
	High approach	7 (50.0)

possibly have been higher than ours. The recurrence rate for the patients in our study was within the range documented by Agbakwuru *et al*.[20,21] and Gilbert and Felton.[22]

CONCLUSION

There is a change in the pattern of presentation of external abdominal wall hernia in our institution from what it was 21 years ago to presently (in descending order of occurrence) inguinal, umbilical, incisional, epigastric and femoral. The male: female ratio has also reduced from 6.5:1 to 3.1:1. This may be due to the increased number of caesarean sections and other gynaecological procedures compared to what was obtained 21 years ago. The most common mode of presentation for all the hernias was a simple reducible bulge. Femoral hernia had the highest rate of strangulation. Modified Bassini repair is still the most common method of repair for inguinal hernia. Mesh repair is becoming more common in recent times because of increased availability and coverage by the National Health Insurance Scheme. More surgeons need to be trained on mesh usage.

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Conflicts of interest
There are no conflicts of interest.

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