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Inguinal Hernia: A 7 – Year Experience in a Secondary Hospital Damaturu North Eastern Nigeria

Aliyu S.[1], Ibrahim A. G[2], Ali N.[3], Lawan A. M.[4]

Department of Surgery College of Medical Sciences University of Maiduguri North Eastern Nigeria

Abstract: ***Background:*** ***Globally, inguinal hernia is the most common type of abdominal wall hernias. Inguinal hernia repair is one of the most common general surgical operations second only to appendicectomy. Access to surgical repair is limited resulting in many patients developing long- standing inguinoscrotal hernias associated with higher morbidity and mortality. Patient and Methods: The study reviewed inguinal hernia patients aged 10years and above managed between January 2007 and December 2013. Results: A total of 424 patients had inguinal hernial repair age ranged from 10 – 90 years with a median of 37 years. Four hundred and four were males while 20 were females with a male to female ratio of 20.2: 1. Two hundred and eighty seven were farmers, 59 were laborers and artisans. The duration of symptoms ranged from 3 weeks to 26 years. Coexisting medical conditions were hypertension in 46 and diabetes in 21. There were 317 indirect hernias, 78 were direct hernias. At diagnosis, 84 were obstructed while 9 were strangulated. Complicated hernias were operated as emergencies. Anesthetic techniques were local in157, spinal 113. Nylon Darning in 444 hernias and in 3 mesh used. There were 6 bowel resection and anostomosis. The postoperative complications included surgical site wound infection, and scrotal hematoma. There were 3 deaths. Conclusion: Inguinal hernia is one of the commonest problems encountered by general surgeons in developing countries. Late presentation, large hernias often associated with complications making open surgery the mainstay. There is the need for raising public awareness of etiological factors and early treatment to prevent complications. There is the need to make available facilities for laporoscopic techniques of hernial repair.***

Keywords: Inguinal Hernia, open surgery, Outcome, Developing Country.

1. Introduction

Globally, inguinal hernia is the most common type of hernia accounting for about 75% of all abdominal wall hernias [1-3]. Inguinal hernia repair is one of the most common general surgical operations worldwide accounting for 10 – 15 % of all surgical procedures and is the second most common surgical procedure after appendicectomy[3-4]. In parts of Africa the annual incidence of inguinal hernia is as high as 175per 100 people[5]. However few have access to surgical repair resulting in many patients developing long- standing inguinoscrotal hernias associated with higher morbidity and mortality. The diagnosis of inguinal hernia is mainly clinical. Since bassini published his original description of inguinal hernia repair in 1887, many techniques for hernia repair such as Shouldice, Darning, Desarda, modified Bassini, Lichtenstein mesh repair and the more recent laparoscopic repair have been published[6-9]. Laparoscopic and Lichtenstein mesh repair are popular in developed countries as they are associated with low recurrence rates and shorter hospital stay[10]. In developing countries because of non availability of mesh and laparoscopic facilities in most centres open surgery and the traditional suturing techniques still play a major role[11-12]. This study was undertaken to describe our experience in open surgical management of inguinal hernia in a resource - limited secondary hospital.

2. Patients and Methods

The study reviewed all patients aged 10years ad above that presented with inguinal hernia and managed between January 2007 and December 2013. Data was obtained from clinical and laboratory records and analyzed using SPSS version 16. Permission for the study was given by the hospital authority and written informed consent obtained from patients. The diagnosis was based on clinical features of groin swelling, discomfort/pain, dragging sensation, with or without features of complications of incarceration, obstruction, or strangulation. Patients were evaluated for aetiogenic factors that caused raised intraabdominal pressure. Investigations carried out included packed cell volume (PCV), urinalysis, blood chemistry, full blood count, ultrasound scan, chest x-ray, and electrocardiography (ECG). Complicated presentations (intestinal obstruction / strangulation) were resuscitated with intravenous fluids, electrolyte replacements, blood transfusion where necessary, antibiotics (ceftriaxone and metrponidazole). All patients had open hernia repair, as day-case procedure, or admitted for in- patient care. Anesthetic techniques were local, regional (spinal), or general. Surgical hernia repair techniques were all nylon Darning except 3 that had mesh repair. Bladder outlet obstruction (BPH/Urethral stricture) was dealt with at the same time except in emergencies where urethral catheterization and suprapubic cystostomy were done and definitive surgery deferred.

3. Conclusion

Inguinal hernia is one of the commonest problems encountered by general surgeons in developing countries, where laparoscopic facilities and mesh are not readily available. Late presentation, large hernias often associated with complications in patients with intercurrent medical conditions makes open surgery to have a prime place. To reduce morbidity and mortality public enlightenment towards early presentation is essential.

4. Results

A total of 609 external hernial patients out of which 424 (69.62%) patients had inguinal hernial repair age ranged

from 10 – 90 years **Table 1** with a median of 37 years. Four hundred and four were males while 20 were females with a male to female ratio of 20.2: 1. Two hundred and eighty seven (67.69%) were farmers, 59(13.92%) were laborers and artisans and 56(13.21%) were civil servants while 22(5.19%) were school children. The clinical features were groin swelling in all patients (100%) **table 2.** The duration of symptoms ranged from 3 weeks to 26 years, with 72 (16.98%) less than 5 years of symptoms, 144(33,96%) with symptoms from 5 – 10 years duration and majority 208 (49.06%) presenting with over 10 years of symptoms. Coexisting medical conditions were hypertension in 46 (10.85%), diabetes 21 (4.95%), SCD in 11 (2.59%) and asthma in 7 (1.65%). There were 447 hernias of which 290 (64.88%) were on the right, 111 (24.83%) were on the left while 23 patients had bilateral hernias that is 46 hernias (10.29%). There were 317 (70.92%) indirect hernias, 78 (17.45%) were direct hernias while 26 patients had both direct and indirect (pantaloon) that is 52 hernias (11.63%). There were 27 recurrent hernias of which 21 were direct and 6 indirect. At diagnosis 238 (53.24%) were reducible, 116 (25.95%) were incarcerated, 84 (18.79%) were obstructed while 9 (2.01%) were strangulated. Those with obstructed and strangulated hernias, 93 (20.80%) were operated as emergencies. Anesthetic techniques were local in157 (37.03%), spinal 113 (26.65%) and general 154 (36.32%). Nylon Darning in 444 hernias (99.33%) and 3 (0.67%) mesh were used. Out of the 9 strangulated hernias 6 had bowel resection and anostomosis. The content of the sac were peculiar in 3. One each containing entire omentum, bladder sliding and appendix (Amyand's). The postoperative complications included surgical site wound infection **table 3.** There were 3 (0.71%) deaths 1 a 70 year old male from pulmonary embolism following deep vein thrombosis, 1 a 53 year old man from septicemia and multiple organ dysfunction while the third patient a 58 year old diabetic who died of diabetic ketoacidosis. The median hospital stay was 7 days with range of 3 – 21days.

5. Discussion

Inguinal hernia is the commonest external abdominal hernia accounting for 75% external abdominal hernias. This study found inguinal hernia constituting 69.62%. No age or sex is exempt, though is commoner in the male with male to female ratio of 20:1R2 which is in keeping with the findings in this study with male to female ratio of 20.2: 1. The median age of 37 was similar to that reported by other studies[13]. The management of inguinal hernia poses therapeutic challenges to the general surgeons practicing in resource – limited countries[14]. Inguinal hernia is more prevalent ion people with low socioeconomic status[15]. This study found the same where 67.69% of the patients were peasant farmers from the rural areas. Concomitant medical conditions were found to be associated with poor outcome[16]. This study was in keeping with such findings as diabetic ketoacidosis contributed to mortality. The length of hospital stay was longer in patients with co morbid medical conditions. The clinical presentation of inguinal hernia in our patients is similar to those in other developing countries[17]. A long standing history of inguinal hernia is common and presentation at bubonocele and funicular stages are rare[18]. This finding was reflected in this study where most of the patients presented late with inguinoscrotal hernia and some presented for the first time with obstructed or strangulated hernia. The findings that inguinal hernias were more preponderant on the right side are in agreement with similar observations in previous studies[19]. The ratio of right to left inguinal hernia was 2.6:1. Late presentation coupled with lack of modern facilities such as laparoscopy and mesh were among the reasons of open traditional suturing techniques of hernia repair in this study only 3 patients had mesh repair. In many parts of Africa many patients developed large inguinoscrotal hernia as a result of delayed presentation, and the need for emergency surgery with its attendant mortality is not uncommon. In these countries approximately 65% of inguinal hernias are repaired as emergencies with bowel resection rate of 24% and mortality of 87% in those not reaching hospital. These study findings were in complete variance, as emergency surgeries were done in 20.80%, with bowel resection rate of 6.45%, and mortality rate of 0.71%. The median hospital stay was 7 days similar to findings by Mbah[19]. The mortality rate of inguinal hernia repair ranged from 1 – 14%[20]. This study had a mortality rate of 0.71%. The follow up period was 18 months shorter than in developed countries[21] and therefore not possible to assess long term complication of nylon Darning.

Table 1: Age distribution

Age group(yrs)	No	(%)
10 – 19	73	17.22
20 – 29	62	14.62
30 – 39	61	14.39
40 – 49	59	13.92
50 – 59	61	14.39
60 – 69	62	14.62
70 – 79	36	08.49
80+	10	02.36
Total	424	100.00

Table 2: Clinical features

Clinical features	No	(%)
Groin swelling	424	100
Groin pain/Discomfort	397	93.63
Dragging sensation	191	45.05
Interference with coitus	79	18.63
Intestinal obstruction	93	21.93
RAISED INTRAABDOMINAL PRESSURE		
Chronic cough	47	11.08
Chronic constipation	27	06.37
Bladder outlet obstructions	69	16.27
PREVIOUS LOWER ABDOMINAL OPERATIONS	67	15.80

Table 3: Post operative Complications.

Complications	No	(%)
Scrotal edema	27	6.37
Scrotal hematoma	21	4.95
Surgical site infection	17	4.01
Keloid/hypertrophic scar	11	2.59
Recurrence	09	2.12
Ileus	03	0.71
Death	03	0.71

Figure 1: Large inguinoscrotal hernia

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Legend of tables and figure

Table 1. Age distribution
Table 2. Clinical features
Table 3. Post operative complications
Fig 1. Large inguinoscrotal hernia