

Groin Hernia in Mulago Hospital, Kampala.

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A prospective descriptive study based on 208 cases of groin hernia that had surgery at Mulago Hospital over a 12-months period beginning on 1st January 2000 was undertaken. There were more males than females. The mean age was 35.4 years with the mode and median of 40 and 33 years respectively. Patients under 15 years were 37 (17.8%) and had a peak incidence in the 1-3 years age group while in adults the peak was in the 24-34 years age group. Only 2 girls were seen in the under 15 years old group. Most females (86%) who presented with groin hernias were aged above 34 years. There were 195 (93.7%) inguinal hernias of which 159 (81.5%) were indirect inguinal hernias and 34 (17.4%) were of the direct inguinal variety. Busoga hernias were diagnosed in only 4 (2.05%) of inguinal hernias. There were only 13 (6.2%) femoral hernias. Post-operative complications occurred in 41.8% of the cases. There was one death. (0.48% mortality).

Introduction

Although hernia is one of the most common diseases which man suffers from, there continues to be debate among clinicians about many points ranging from aetiology to proper management. Even the definition of a hernia remains a matter of discussion¹. The rejuvenation of the surgeon's interest related to herniorrhaphy is partially attributable to the controversy regarding the application of laparoscopic techniques to this disease entity. Alterations in health care economics have also contributed to the renewed scrutiny with which the surgical treatment of hernias is viewed².

For several reasons, the prevalence of abdominal hernias is difficult to estimate. If a hernia is small, it may not be readily detected on any one examination. If findings from anatomic dissections are used, the incidence will be higher than if figures are drawn from routine physical examination. In certain borderline lesions, not all surgeons will agree as to whether or not a hernia is present¹. Zimmeman and Anson³ in their monograph on hernias concluded that the frequency of hernia could be placed at 5 percent of the total male adult population.

It is also generally agreed that the most common hernia in either sex is the indirect inguinal variety, that direct hernias are very unusual in females, that femoral hernias as a class are more common in females than males, and that hernias in general are over five times more common in males¹.

This study was designed to investigate the pattern and outcome of management of groin hernias in Mulago Hospital, Kampala.

Patients and methods

The study was conducted at Mulago National Referral and Teaching Hospital in Kampala, Uganda between 1st January and 31st December 2000. Patients who presented to the surgical wards and clinics with groin hernias and subsequently underwent surgery were included in the study.

Patients presenting with groin hernias associated with obstructive uropathy, chronic obstructive airway disease or chronic intestinal obstruction were excluded from the study. Patients with recurrent groin hernias or those who refused to give consent were also excluded from this study.

All patients who were accepted for inclusion in the study were assessed preoperatively using specified scheme. Thereafter, each patient was followed up during surgery and during the postoperative week. Postoperative complications that occurred were recorded.

Data collected was recorded on a pre-tested standardized questionnaire already coded for ease of storage in the computer software. Statistical measures of the discrete and continuous of the discrete variables

were done using statistical scales to estimate data summary measures (e.g. means, medians, modes and tables). The data was analysed using EPI-6 statistical programme and counter checked using stata.

Results

A total of 256 patients were eligible for the study but only 220 patients gave consent to be included in the study. Twelve of the 220 patients were lost to follow up leaving a study population of 208 patients. The majority (76.9%) presented as emergency cases. Only 48 patients had elective surgery (Table 1).

During the period under review, a total of 2160 emergency operations were done at the Accident and Emergency theatre at Mulago Hospital out of which 7.45% were due to emergency groin hernia surgery. The elective primary groin surgery represented only 7.8 % of the elective operations performed at Mulago. There were 195 (93.7%) inguinal and only 13 (6.3%) femoral hernias.

The commonest type of the inguinal hernia was the indirect variety seen in 159 (81.5%) of patients. The direct types were seen in 34 (17.4%) of cases. Only 2 patients had a Busoga type of hernia. The pantaloon hernias were diagnosed in two patients (1.1%). One hundred and fifty (76.9%) of the inguinal hernias presented as emergencies and 45 (23.1%) as electives.

Tables 2 and 3 show the age distribution of the patients with groin hernias. Their ages ranged between 3 weeks and 88years. In the under 15 years, the peak incidence was in the 1-3 years age group and these accounted for 30% of children. In the adults, the peak incidence

(23%) was in the 24-34 years age group. The overall mean ages was 35.4 years while the mode and median were 40 and 33 years respectively. Most females (86%) who had primary groin hernias were aged above 34 years. Only two females, aged 6 and 8 years, respectively were in the under 15 years age group. Eleven (84.6%) of the 13 patients with femoral hernias were aged above 44 years. All the 37 patients aged less than 15 years had indirect inguinal hernias. A total of 116 (55.8%) of groin hernias presented with strangulation. Ten (76.9%) of the 13 femoral and 106 (54.5%) of the 195 inguinal hernias were strangulated at the time of admission (Table 4).

Modified Bassini's repair was performed on 133 (68.2%) of inguinal hernias. Only one Shouldice repair was carried out in the whole series. A figure of eight stitch to the femoral canal was the most common procedure done for repair of the femoral hernias (Table 5). The commonest suture used for posterior wall repair was nylon in 100 (48.1%) of cases followed by silk in 63 (30.3%) of cases. Table 6 shows the post-operative complications that occurred following groin hernia repair. Significant complications developed in 87 (41.8%) of cases. In 76 (87.4%) of these patients, the complications were local. Scrotal oedema and haematoma were the commonest postoperative complications and occurred in 29 (13.9%) and 25 (12.0%) of the patients respectively. Fourteen patients (6.7%) developed superficial wound sepsis. Two patients were re-operated on, one for inguinal hernia recurrence and the second for evacuation of a large scrotal haematoma. One patient aged 70 years died 24 hours after surgery. The patient had presented with intestinal obstruction due to strangulated obstructed groin hernia.

Table 1. Types of groin hernia in 208 patients.

Type	Emergency	Elective	Total	%
INGUINAL				
Indirect	121	38	159	76.4
Direct	28	6	34	16.3
Pantaloon	1	1	2	1.0
FEMORAL	10	3	13	6.3
Total	160	48	208	100.0

Table 2 Age distribution among children with groin hernia.

Age in years	Number	%
0-1	7	19.0
1-3	11	29.7
3-5	4	10.8
5-9	8	21.6
9-11	3	8.1
11-15	4	10.8
Total	37	100.0

Table 3. Age distribution according to type of groin hernia

AGE (Years)	Indirect Inguinal	Direct Inguinal	Pantaloon Inguinal	Femoral Hernia	Total	
					Number	%
15-24	28	1	0	0	29	17.0
24-34	31	8	1	0	39	22.8
34-44	19	12	0	2	33	19.3
44-54	19	2	0	4	25	14.6
54-64	8	6	0	4	18	10.5
64-74	14	4	1	3	22	12.9
Above 74	3	2	0	0	5	2.9
Total	122	34	2	13	171	100.0

Table 4 pre-operative diagnoses in patients with groin hernias

Diagnosis	Indirect Inguinal		Direct Inguinal		Pantaloon %	Femoral	
	No	%	No	%		No.	%
Reducible	39	24.5	5	14.7		3	23.1
Irreducible	28	17.6	16	47.1	1	0	0
Strangulated	79	49.7	11	32.3	1	7	53.8
Strangulated obstructed	13	8.2	2	5.9	0	3	23.1
Total	159	100	34	100	2	13	100

Table 5 Type of repair performed for Inguinal Hernias

Type of repair	No. Patients	%
Modified Bassini's	133	68.2
Herniotomy	33	16.9
Nylon darn	22	11.3
Inguinal canal obliteration	4	2.1
Simple closure of defect	2	1.0
Shouldice	1	0.5
Total	195	100

Table 6 Postoperative complications of Groin hernia surgery

Complication	Emergency	Elective	Total	%
Scrotal oedema	25	4	29	13.9
Scrotal haematoma	17	8	25	12.0
Wound infection	12	2	14	6.7
Prolonged ileus	5	1	6	2.9
Poor wound apposition	1	2	3	1.4
Respiratory complications	1	2	3	1.4
Wound haematoma	2	0	2	1.0
Wound haemorrhage	1	1	2	1.0
Thrombo-embolism	0	1	1	0.5
Others	3	3	6	2.9

The duration of post-operative stay ranged from 1 to 36 days. The longest was in a 40-year old male who had presented with features of intestinal obstruction due to a strangulated groin hernia. At operation, his peritoneal cavity was found to have been grossly soiled with faecal material. Post-operatively he developed severe wound sepsis, which remained discharging pus for over three weeks.

Discussion

This study confirmed work done by Mutumba⁹ that Modified Bassini's repair was the most frequent hernia repair performed followed by Nylon darn. Only one Shouldice repair was done in the period under review.

The commonest suture used for posterior wall repair was Nylon followed by silk. It probably was simply more available than silk and more suitable in the presence of strangulation. Nylon is the suture recommended for Nylon darn repair. Unlike silk, it is stronger and being a monofilament, it is more impervious to bacteria. However, it is not as flexible as silk and therefore difficult to handle and knot. However, with the development of strong, long lasting flexible synthetic absorbable monofilament sutures like polypropylene, maxon and polydioxanone, the absorbable sutures are increasingly being used in aponeurosis closure and hernioplasty⁷. The definition of non-absorbable suture has now become controversial.

Local complication constituted up to 36.5% of all post-operative complications noted in this study. Wound or scrotal haematoma formation can spell disaster for any hernia repair. Haematoma being the precursor of infection must be avoided at all cost.

Sepsis after simple clean repair can cause unnecessary prolonged hospital stay.

Fourteen cases (6.7%) of superficial wound infection were seen in this study, making it the commonest wound complication. Wound infection rates ranging from 0% in Nairobi Hospital⁶ to 12% in Kenyatta National Hospital⁴ have been reported in Kenya.

Poor technique resulting in tissue ischaemia or unnecessary mobilization of the inguino-scrotal sacs can cause haematoma formation. This would ensure inhibition of local defences while providing the bacteria with a perfect milieu for division³.

This study showed that the type of repair carried out had a very significant statistical ($P=0.009$) relationship with wound complications. Whether this was mainly due to the type of repair or due to how the repair was carried out most probably depended on the rank of the surgeon. This issue could provide a base for future research.

Genital oedema is a common sequel to groin hernia repair in men. It generally settles spontaneously within 72 hrs of operation. In this study, scrotal oedema was noted in 13.9% of cases and was thus the commonest postoperative complication in hernia repair.

The neuralgias, when they do occur are best tackled with judicious nerve block or division of the sensory nerve at a higher level. Persistent pain at or adjacent to the tubercle and nearby bone is sometimes a complaint after successful hernia surgery. Periostitis of the pubis, adductor strain, nerve entrapment, strain of the origin of abdominal muscles, the rectus, pectineus or conjoint tendon are all mentioned. The

differential diagnosis between each of these entities is almost impossible.

Up to 30% of male patients in the immediate aftermath of a groin hernia repair operation tend to develop urinary retention². Only two cases of post surgery urinary retention were seen in this study. Usually, simple methods such as mobilization and the upright posture or standing by running-water tap, resolve the problem. However, if retention persists a once only catheterisation is advised before the bladder becomes too distended.

Compression of the femoral vein can occur if sutures or prosthesis are placed too far laterally in repair of a femoral hernia or in a Cooper's ligament type repair of an inguinal hernia. Oedema of the lower limb and pulmonary embolism could be the presenting signs of femoral vein compression. The diagnosis can be confirmed by phlebography. Systemic anticoagulation and re-operation should thus be undertaken immediately. There is a real risk of major pulmonary embolism occurring in these circumstances.

No operation for repair of any abdominal wall hernia is free of recurrence. The risk of recurrence is related to the experience of the operator. The causes of recurrence as a complication of hernia surgery can broadly be divided into two groups. Those related to:- Technical failure at the time of operation and Tissue failure over the years after successful surgery due to:-

1. Inadequate collagen replacement as the repair heals or
2. Inadequate tissue spread causing the development of another adjacent defect, e.g. a femoral hernia years after an inguinal hernia repair.

Operative mortality in Africa varies widely, from less than 1% in elective uncomplicated cases to nearly 30% in those with strangulated gangrenous bowel that requires resection¹⁰. The low mortality rate observed in our study could be due to the prompt attention given to emergency cases or due to the exclusion of all recurrent hernias.

Conclusion

Patients expect good results from hernia surgery. They expect:

1. Minimal perioperative discomfort; the patient should be able to walk immediately postoperatively.
2. A clean, quickly healed wound with no sepsis.

3. No, or minimal, genital morbidity.
4. Early discharge from hospital; most hernias can be repaired as day cases, often under local anaesthesia.
5. Expect no recurrence. A recurrence rate of less than 1% at 5 years.
6. Early return to full physical activity and work. With modern non-absorbable sutures and good surgical technique it should be possible to resume full, heavy manual work within 6 weeks.

References

1. Condon R E. *The anatomy of the inguinal region and its relationship to groin hernia*, in *Hernia*, 2nd ed. Nyhus L.M; Condon R.E (Eds) Lippincott, Philadelphia. 1978.
2. Devlin-HB. *Management of abdominal hernias*. Butterworth and Co, (Publishers) Ltd. 1988.
3. Gilmore O J A, Martin T D M. The aetiology and prevention of wound infection after appendicectomy. *Brit J Surg*. 1974; 64:281-7.
4. Jani P G, Kodwawala M V D. Wound infections in Kenyatta National Hospital. *Proc Assoc East Afr Surg* 1991; 14:36-38.
5. Kish and Leslie. *Survey Sampling*. Published by John Wiley and Sons, N.Y. 1965.
6. Loeffler I J P. Wound complications in 1000 abdominal incisions. *East-Cent Afr J Surg*. 1996; 2: 71-75.
7. Morris-Stiff G J. The outcomes of non-absorbable mesh placed within the abdominal cavity: literature review and clinical experience. *Am Coll Surg*. 1998; 352-367.
8. Mugisa D B. *Complications following laparotomy in Mulago*. A dissertation presented for the award of the degree of M.Med Surgery MUK. 1988.
9. Mutumba S K. *The pattern of inguinal herniae recurrence in Mulago Hospital*. A dissertation presented for the award of the degree of M.Med Surg. 1983.
10. Onukak E E et al. *Hernia in Northern Nigeria*. *J Royal Coll Surg Ed*. 1983; 28: 147 - 150.
11. Platt R et al. Perioperative antibiotic prophylaxis for herniorrhaphy and breast surgery. *N Engl J Med*. 1990; 322: 153-160.
12. Wandira R N K S. *Dynamic intestinal obstruction in Mulago*. A dissertation presented for the award of the degree of M. Med Surgery MUK.1987.
13. Watya S G. *Non-traumatic acute abdomen in Mulago hospital*. M.Med Surgery dissertation, Makerere University, 1992.