



Clinical Presentation and Management of Recurrent Inguinal and Incisional Hernia in Khartoum Teaching Hospital

By Dr. Wael Mohialddin Ahmed Doush & Mohamed Almakki Ahmed Abdalla

Sudan Medical Specialization Board

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Aim: This study aimed to review and assesses the clinical presentation of recurrent hernia and predisposing factors to recurrent hernia deal with the therapeutic options for management of recurrent hernia and evaluate the postoperative complications.

Patients and methods: Patients with incisional hernia and recurrent hernia referred for the surgical department at Khartoum Teaching Hospital, during the period for 15 months were prospectively studied using a structured questionnaire.

Results: Fifty patients were treated during study period. M: F ratio is 2:3. The age range was range between 21 to 80 years with mean age of 47 years. The majority of cases were incisional hernia n=34(68%).

Keywords: *incisional hernia; recurrent hernias; inguinal hernia; sudan.*

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Results: Fifty patients were treated during study period. M: F ratio is 2:3. The age range was range between 21 to 80 years with mean age of 47 years. The majority of cases were incisional hernia n=34(68%). The index surgeries leading to the incisional hernia were caesarian section n=19 (38%), exploratory laparotomy n=13 (26%). The only significant factor associated with development of the incisional and recurrent hernia was physical activity such as heavy lifting n=34(68%) P-value= 0.011. Other factor like overweight, multiple surgeries and when operator was a junior registrar were not significant. Seroma formation was the most common postoperative complication seen in about n=47 (94%) of the patients.

Conclusion: Incisional hernia is more common in lower segment caesarean sections and exploratory laparotomy. Recurrent inguinal hernias are more common with heavy lifting and conventional non mesh repair P-value=.005.

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I. INTRODUCTION

Abdominal wall hernia is regarded as a mechanical problem with a local defect which has to be closed by technical means. Despite the introduction of several therapeutic improvements, recurrent hernias still appear in 10-15%. A failure mainly depends on the quality of the repair. Regarding outcome curves after hernia repair, the cumulative

incidences for recurrences of both incisional and inguinal hernia show a linear rise over years. Considering the configuration of outcome curves of patients with hernia disease, it may therefore be insufficient to explain a recurrence just by bad technical repair. Furthermore, the quality of life and chances for employment are reduced in patients suffering from recurrent hernias. The present study aimed to evaluate patients were presenting with incisional hernia and recurrent hernia at Khartoum Teaching Hospital. Specifically our study aimed to review the current knowledge of predisposing factors to incisional hernia and recurrent hernia, as well as to review patient's data including age, sex, clinical symptoms and clinical signs of incisional hernia and recurrent hernia, furthermore to deal with the therapeutic options for the management of incisional hernia and recurrent hernia, and finally evaluate the early postoperative complications of incisional hernia and recurrent hernia [1].

II. PATIENTS AND METHODS

This is descriptive, prospective, small scale hospital-based study carried at Khartoum Teaching Hospital; Sudan for 15 months. All patients presenting with incisional hernia and recurrent hernia were included in this study. Data including demographic characteristic, clinical presentation, provisional diagnosis, modalities of investigation, previous history of surgery, risk factor of hernia recurrent, indications for surgery, types of hernia repair and post-operative complications were collected by a questionnaire. The diagnosis was done by clinical examination including visible swelling, visible cough impulse, presence of previous scar and reducibility.

The indication of hernia surgical repair in this study was recurrence. Open suture repair technique and open prolene mesh technique were used. All collected data were analyzed using a computer IBM SPSS program.

III. RESULT

Fifty patients of incisional hernia and recurrent hernia were treated during study period. Patients who underwent elective surgery at surgical department are n=48 (96%). Incisional hernias were more common in female than males (3:2) represent about (60%) of cases.

Author α: MD, MRCSEd, Assistant Professor of General Surgery, Sudan Medical Specialization Board, Sudan.

e-mail: dr.wael.doush@gmail.com

Author ο: Department of surgery, faculty of medicine, University of Khartoum, Sudan.

The age range was between 21 to 80 years with mean age of 47 years. The majority of cases were incisional hernia n=34 (68%) gave a history of a lump or bulging=34 (68%) with dragging sensation n=17 (34%) that, elicited by physical activity such as heavy lifting or coughing, **Figure1, Table 1**. The index surgeries leading to the incisional hernia were caesarian section n=19 (38%), exploratory laparotomies n=13 (26%) are highly frequent in perforated duodenal ulcer n=4 (28.6%) and perforated appendix n=3 (21.4%), **Table 2, 3**. The only significant factor associated with development of the incisional and recurrent hernia was physical activity such

as heavy lifting n=34(68%) *P-value= 0.011*. Other factor like overweight, multiple surgeries and when operator was junior registrars were not significant [**Table 4**]. The indications of hernia surgical repair in this study are recurrence represent n=48(96%) of cases. Surgical treatments of recurrent hernia in this study include open suture repair technique, represent n=15 (30%) and open prolene mesh technique represent n=35 (70%)

P-value=.005. In this study seroma formation was the most common postoperative complication seen in about n=47 (94%) of the patients.

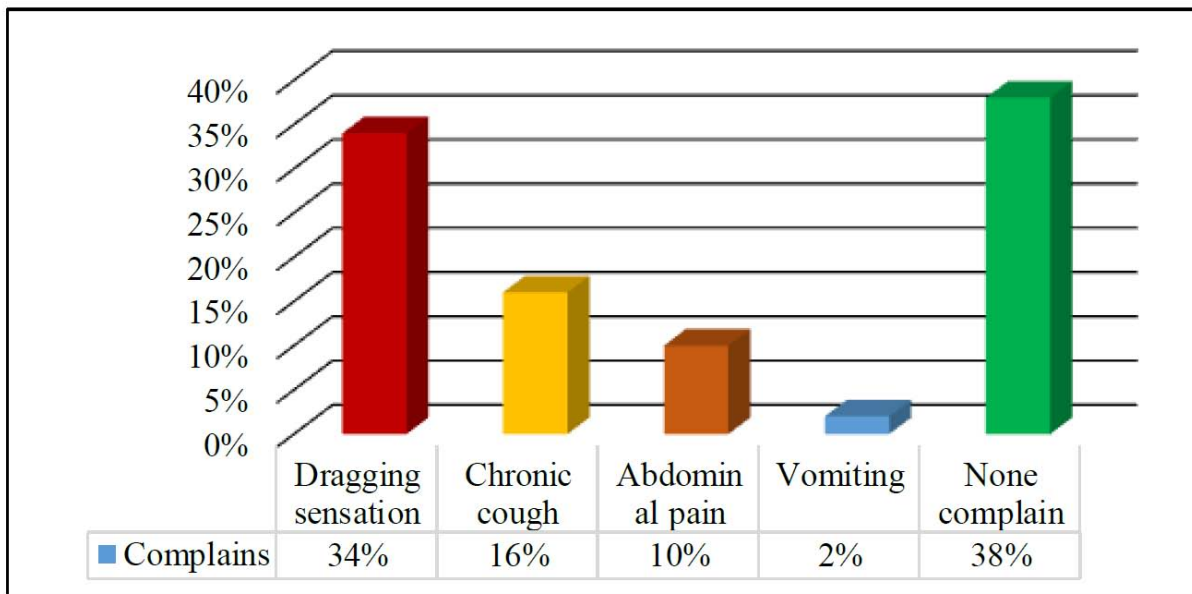


Figure 1: Associated complaints of patients with recurrent incisional and inguinal hernia

Table 1: Physical examinations of patients with recurrent incisional and inguinal hernia

Physical examinations		Frequency	Percentage
Visible swelling At: (n=50)	Recurrent hernia region	16	32.0%
	Abdominal wall	34	68.0%
Side of recurrent hernia(n=16)	Left Inguinal	5	31.2%
	Right Inguinal	5	31.2%
	Bilateral	1	0.6%
	Paraumbilical	5	31.2
Size of hernia (n=50)	1-2 cm	3	6.0%
	>2<5 cm	26	52.0%
	>5 cm	21	42.0%

Table 2: Previous original operation leading to development of recurrent hernia

Type of previous surgery	Frequency	Percentage
Multiparity (previous multiple caesarean section)	19	38.0%
Exploratory laparotomy	13	26.0%
Paraumbilical hernia suturing repair	5	10.0%
Open prostatectomy	3	6.0%
Cholecystectomy- laproscopic port hernia	2	4.0%
Vasicolithotomy	1	2.0%
Appendicular abscess open drainage	1	2.0%
Open appendicectomy	2	4.0%
Incisional hernia anatomical repair without mesh	4	8.0%
Total	50	100%

Table 3: Indications of laparotomy

Exploratory laparotomy indications (n=11)	Frequency	Percentage
Perforated duodenal ulcer	4	28.6
Perforated appendix	3	21.4
Sigmoid volvulus	1	7.1
Ruptured appendicular abscess	1	7.1
Perforated ileal typhoid ulcer	1	7.1
Partial Gastroectomy	1	7.1
Ruptured ectopic pregnancy	1	7.1
Uterine fibroid red degeneration excision	1	7.1
Penetrating abdominal injury (staping)	1	7.1

Table 4: Associated risk factors of incisional and inguinal hernia

Risk factors of hernia recurrence	Frequency	Percentage	P-value
Overweight (body mass index > 25 kg/m ²)	29	58.0%	0.258
Heavy lifting	34	68.0%	0.011
Multiple surgeries	26	52.0%	0.777
Asthma	8	16.0%	
Constipation	6	12.0%	
Prostatism signs (Urine retention)	1	2.0%	
Wound infection	13	26.0%	
Smoking	2	4.0%	
Surgical technique done by:			
- Registrar	14	77.8%	
- Consultant	4	22.2%	



Figure 2: Patients with incisional hernias (A) and (B) Huge visible lump, (C) and (D) long healed scar that weak abdominal wall [6]

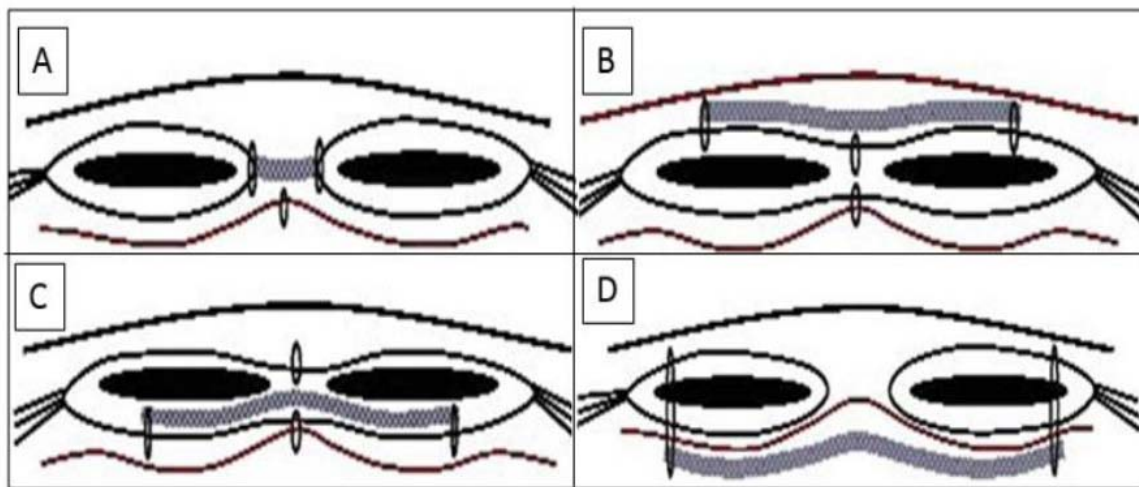


Figure 3: Mesh positions within the abdominal wall for open incisional hernia repair (A) Prosthetic bridging repair, (B) Onlay prosthetic repair, (C) Sublay prosthetic repair, (D) Inlay prosthetic repair [6]

IV. DISCUSSION

Fifty patients with incisional and recurrent hernias who underwent elective surgical repair were studied. There were 34 cases of incisional hernia complicated 672 cases of laparotomies done during the study period given rough estimate of incisional hernia about (5%). There were 16 cases of recurrent hernia and during the study 283 cases of hernia done during the study period given rough estimate of recurrent hernia about (5.6%).

Incisional hernias were more common in female than males (3:2) represent about (60%) of cases. This was due to fact that caesarean sections were more than 50% of cases, and this is in agreement with Williams M. study of hernia at USA noticed inguinal hernias more common in males than females (7:1) and incisional hernias affecting mainly females (2:1) [2].

The prevalence of incisional and recurrent hernia increases with age. Age range was between 21 to 80 years with mean age of 47 years. A similar finding was reported by Dtsch Arztebl that incisional hernia

patient's age was above 45 years and Agbakwuru EA. From Nigeria reported ages ranged from 25 to 70 years with median of 35 years. This can be explained by delayed wound healing in older individuals, with changes in fibroblast migration and structural changes with reduced collagen formation as well as the high prevalence of concomitant diseases [3, 6].

Patients with incisional and recurrent hernia commonly presents with unremarkable clinical symptoms, in the first instance. Most patients in this study with incisional hernia gave a history of a lump or bulge with dragging sensation (34%) that was elicited by physical activity such as heavy lifting (68%) or coughing (16%), and disappearing after stopping the activity. The acute cases of painful irreducible swelling associated with incarceration rare (10%). A similar finding was reported that discomfort and/ or a heavy dragging sensation associated with the hernia bulge, **Figure 2 [5, 6]**.

The high incidence of incisional hernia following lower midline incision of caesarean sections can partly due to the fact that, pregnant ladies are always subjected to prolonged or repeated stretching and weakness of the abdominal muscular tendinous structure. Furthermore, the lower midline incision anatomically has thinner anterior sheath with virtually no posterior sheath support of the linea alba. It has also been attributed to the orientation of the incision, which is parallel to the line of forces acting on it. This is in agreement with study of Agbakwuru EA. et al. from Nigeria and Waseem M. from Pakistan [3,7]. The major possible predisposing factor identified in our study are physical activity such as heavy lifting (68%) most commonly in housewives followed by overweight (58%). Wound sepsis account (26%) of patients. Perhaps the usual reduced immune state of pregnancy and, combined with the emergency nature of the surgeries could account for this frequent involvement of sepsis. This has agreement with study of Dare FO. from Nigeria, Isrealsson. LA. from UK and Shaikh NA from Pakistan, that found the major predisposing factors included wound sepsis 79.5% and overweight 27.3% [8,9,10,11].

The indication of hernia surgical repair in this study was recurrence (96%). Thirty percent of the patients with incisional and recurrent hernias were operated using the open suture repair technique, while 70% using open prolene mesh technique. This was due to fact that, traditional defect repair using continuous or interrupted suture technique is now getting less popular due to a high relapse rate and wound infection, this is in contradistinction to the mesh repair which has low recurrence rates, less postoperative pain, and quicker return to regular activities. In 2002 a study from Europe showed that, inguinal hernia surgery recurrence rates was found to be higher in the non-mesh group (4.4%) than in the mesh group (1.4%) [4]. The gold standard

surgical repair for incisional hernia today is the sublay technique with relapse rates (2-12%), **Figure 3 [6]**.

In this study seroma formation was most common complication seen in all patients with incisional hernia. This was more than was reported in the literature where seroma affects (20%) of cases [7]. This can be explained by the less frequent use of wound surgical drain in patients with incisional hernia.

In this study wound infection was lower in patients with incisional and recurrent hernia (2%) than findings in literature which showed infection rate up to (14%) of cases. This was due to well respond of patients to prophylactic single dose of antibiotic and wound dressing [12, 13, 14].

V. CONCLUSIONS

Incisional hernia is more common in lower segment caesarean sections and exploratory laparotomy. Recurrent inguinal hernias are more common with heavy lifting and conventional non mesh repair.

VI. RECOMMENDATIONS

Mesh repair is superior to the conventional suture repair in inguinal hernia. Before any surgical operations, reduction of weight should be encouraged when appropriate. Future studies need to have larger sample size to determine the role of gender, race, age, molecular-biological study, financial cost and work abstinence in the development of recurrent hernias.

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