



STUDY OF CHARACTERISTICS OF PATIENTS UNDERGOING INCISIONAL HERNIA IN HADITHA GENERAL HOSPITAL FOR SURGERY DURING THE PERIOD FROM 2005 TO 2018

¹*Dr. Mohammed Saeed Hasan and ²Dr. Jameel Abdul Jabbar Salman

¹M. B. Ch. B, Diploma, College of Medicine Mosul, College of Medicine Kufa.

²M. B. Ch. B, Diploma, College of Medicine -AL Mustansiriya, College of Medicine Anbar.
Department of General Surgery -Haditha General Hospital for Surgery Haditha -Anbar /Iraq.

*Corresponding Author: Dr. Mohammed Saeed Hasan

M. B. Ch. B, Diploma, College of Medicine Mosul, College of Medicine Kufa. Department of General Surgery -Haditha General Hospital for Surgery Haditha -Anbar /Iraq.

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ABSTRACT

Incisional hernia is a frequent complication of abdominal surgery. Its incidence varies between 2 and 15% of patients, and some authors indicate that it can reach 23% when it is related to an infection of the surgical wound. This retrospective descriptive observational study aimed to describe the characteristics of patients operated by incisional hernia in the Haditha General Hospital for surgery / Iraq during the period from 2005 to 2018. The total 200 patients with preoperative diagnosis of incisional hernia were operated between January 2005 and December 2018. incisional hernia, operated between January 2005 and December 2018. Demographic parameters, toxic habits, personal pathological history, previous surgeries, location of the anterior incision, surgical technique, use and location of prosthesis, antibiotic therapy and postoperative complications were analyzed. Results showed that 85% of the patients were female, 40.6% were between 50 and 61 years of age, 58.3% had toxic habits, 66.0% of the hernias had infra umbilical location, and the highest incidence corresponded to hysterectomies and cesarean sections. The Stoppa technique was the most applied in hernioplasty and the Mayo technique in herniorrhaphy. It can be concluded from our study that obesity and diabetes were the most frequent diseases. The majority of the patients were smokers. The infra umbilical surgical incisions for abdominal hysterectomies were the most frequent location of the incisional hernias. Infection of the surgical wound was the complication found most frequently. Postoperative recurrence occurred in 3.7% of patients.

KEYWORDS: Incisional hernia, Herniorrhaphy, Hernioplasty, Prosthesis.

INTRODUCTION

By definition, an incisional hernia is a defect of the abdominal wall, with or without an increase in volume, in the area of a postoperative scar perceptible or palpable by clinical or imaging examination. It represents the failure in the reconstruction of the wall in abdominal surgery, and it reaches frequency of presentation that vary between 11% (for patients undergoing general abdominal surgery) and 23% when it is accompanied by infection of the operative wound.^[1-3] These high recurrence rates have led to numerous studies and meetings of experts, without standardization in the treatment of incisional hernia. A wide spectrum of surgical techniques have been developed and recommended as effective, ranging from the simple suture of the defect to the use of different types of synthetic prosthesis.^[4,5]

In addition, at present, the incisional hernia represents a source of major morbidity, which includes clogging

between 6 to 15% of patients, and strangulation by about 2%. Because of the above, the treatment cannot be considered easy, since it is not uncommon to have to perform large surgeries with poor results, and reach recurrence rates, according to different authors, between 25-52%.^[5]

Recently, the rate of recurrence of incisional hernias has decreased, mainly due to the adequate use of synthetic prostheses, understanding that they must be tension-free, ideally in contact with tissues, well-irrigated, to which can be integrated and fixed with monofilament 6 non-absorbable material, including the mesh and the entire thickness of the aponeurotic plane.^[6]

METHODS

The current retrospective descriptive observational study was carried out in Haditha General Hospital for Surgery between 2005 and 2018. The total number consisting of 200 patients operated on with the diagnosis of incisional

hernia was taken. We included those over 18 years operated with this diagnosis regardless of the place of origin. A spreadsheet for the collection of data was prepared, which were extracted from the patient's medical records and stored in an automated database created in Microsoft Excel, which was subsequently processed in the statistical program SPSS version 20.0.

Statistical analysis

The statistical analysis was based on descriptive statistics techniques. Absolute and relative frequency distributions

were made. Chi-square test was carried out to establish a relationship between variables with a confidence level of 95%.

RESULTS

In table (1), we can see that the female gender was the most prevalent (170, 85.0%) of the total of patients, whose ages ranged between 18 and above 70 years. The male gender constituted 15.0% (30 patients of the series).

Table 1: Distribution of patients operated on incisional hernia according to age and sex.

Age in Years	Female		Male		Total	
	No.	%	No.	%	No.	%
18-30	12	6.0	3	1.5	15	7.5
21-40	22	11.0	3	1.5	25	12.5
41-50	31	15.5	4	2.0	35	17.5
51-60	82	41.0	11	5.5	93	46.5
61-70	21	10.5	5	2.5	26	13.0
Older Than 70	2	1.0	4	2.0	6	3.0
Totals	170	85.0	30	15.0	200	100.0

Table (2) showed that the most frequent location of the incisional hernia was infra-umbilical in 132 patients (66.0%), and the surgical interventions that originated them were the gynecological ones (87 hysterectomies,

43.5%), followed by the cesarean section in 42 patients (21.0%) and cholecystectomies in 24 patients (12.0%) of the total. These operations were those that led to the appearance of the largest number of incisional hernias.

Table (2): Distribution of patients according to the location of the hernia and previous surgeries.

Location of hernia	No.	%
Infra-umbilical	132	66.0
Supra-umbilical	58	29.0
Supra-infra-umbilical	10	5.0
Total	200	100.0
Previous Surgeries		
Prostatectomy	5	2.5
Hysterectomy	87	43.5
Cholecystectomy	24	12.0
Cesarean section	42	21.0
Repair of epigastric hernia	17	8.5
Appendectomy	11	5.5
Repair of umbilical hernia	11	5.5
Others	3	1.5

Table (3) showed that 146 hernioplasties were performed (73.0%), and that Stoppa technique was the most frequently applied (44.5%). Of the 54 herniorrhaphies performed, the Mayo technique in 40 patients (20.0%) was the most applied.

Table (3): Distribution of patients according to the applied surgical technique.

Surgical Technique		No.	%
Hernioplasty	Stoppa	89	44.5
	Lichtenstein	57	28.5
Subtotal		146	73.0
Herniorrhaphy	Mayo	40	20.0
	Catell	11	5.5
	Dasilva	3	1.5
Subtotal		54	27.0
Total		200	100.0

Table (4) showed that 148 patients (74.0%) did not present complications and 52 patients (26.0%) did. Complications are also seen according to the applied surgical technique, herniorrhaphy or hernioplasty. It is good to say that in both groups there were patients who

presented more than one complication, and that peritonitis in 4 patients, the enterocutaneous fistula in 1 patient and in 2 patients rejection of mesh used only appeared in patients who underwent a hernioplasty.

Table (4): Number of postoperative complications and relationship between the applied surgical technique and complication.

Complicated Patients	No.		%			
No	148		74.0			
Yes	52		26.0			
Total	200		100.0			
Complications	Surgical techniques					
	Herinoplasty		Herniorrhaphy		Total	
	No.	%	No.	%	No.	%
Infection of the wound	22	78.6	6	21.4	28	41.7
Seroma	12	75.0	4	25.0	16	23.8
Hematoma	5	62.5	3	37.5	8	12.0
Peritonitis	4	100	-	-	4	6.0
Recurrence	3	37.5	5	62.5	8	12.0
Enterocutaneous Fistula	1	100	-	-	1	1.5
Rejection of Mesh	2	100	-	-	2	3.0

Table (5): Showed the complications presented by the patients who underwent hernioplasty, in relation to the place where the prosthesis was placed (supraponeurotic or pre peritoneal). It is evident that the greatest number of complications occurred in those who underwent preperitoneal prosthesis, including 8 peritonitis, 2 enterocutaneous fistula and 2 rejection of prostheses.

Complication	Location of the mesh					
	Supraapneurotica		Pre peritoneal		Total	
	No.	%	No.	%	No.	%
Wound infection	7	30.4	16	69.6	23	44.2
Hematoma	2	28.6	5	71.4	7	13.5
Peritonitis	1	12.5	4	87.5	5	9.7
Seromas	1	9.1	10	90.9	11	21.1
Recurrence	1	33.3	2	66.7	3	5.8
Enterocutaneous fistula	1	100.0	-	-	1	1.9
Rejection of meshes	1	50.0	1	50.0	2	3.8

DISCUSSION

Our casuistry is made up of a total of 200 patients, of which 170 (85.0%) are women and age groups between 51 and 60 years are the most committed, with an average age of 41%. This is due to greater weakness and flaccidity of the abdominal wall tissues in women, caused by less physical activity, a history of pregnancy

and a greater frequency of interventions in relation to men.^[8,9]

The prevalence of female sex coincides with other national hernias foreign reports.

The hernias of the abdominal wall are no longer considered as the result of only a mechanical defect of

this, to establish at present an equal or more important added factor, as is the adequate metabolism of the tissue that will be part of a healing normal, because there are well-established diseases, others less defined and some associated factors that interfere with tissue metabolism.^[7] Specifically, according to some authors,^[8] there is a complex interrelation between the induction of cell death, the aberrant functional properties of fibroblasts, and a loss of tissue that causes poor healing, and, consequently, the breakdown of abdominal wall repair after surgery. The knowledge of the mechanism by which these hernias are produced can have an impact on the therapeutic area when optimizing the design of new intelligent materials (meshes, sutures, etc.) with instructive capacity, and improving biocompatibility and applications.^[8] Another important aspect to consider in the pathogenesis of incisional hernias is the location of the surgical incisions, since they appear, more frequently, after midline laparotomies, as indicated by Dur,^[10] and others in a study published in 2009, which, working with a sample of 77 patients, reported 100% of the previous incisions as means, and of them, 18 were supraumbilical (23.4%), 14 infraumbilical (16.9%) and 46 supra and infraumbilical (59.7%) 9 Similarly, Halm,^[11] and others found a significant reduction in the rate of incisional hernia appearance, from 14.5% to 1.7% with the use of transverse incisions in the upper abdomen, with respect to the middle incisions,^[12]

The greater incidence in the female sex is related to the weakness and greater flaccidity of the tissues of the abdominal wall, due, fundamentally, to the lower physical activity and the antecedents of pregnancies and greater frequency of surgical interventions in relation to the man, as well as, the hormonal action of estrogens on tissues and healing.^[7] As for the most affected age group, it corresponded to the sixth decade of life, due to its association with the poor synthesis of collagen fibers and their metabolism with inversion of the Collagen I-III ratio and its accelerated destruction.

It should be noted that among the toxic habits that predispose the appearance of an incisional hernia, smoking plays an important role.^[7,8,12] because this toxic habit accelerates the destruction or degradation of collagen by interfering with the protease system, antiprotease. This was pointed out by Abrahamson J in his study.^[12] Of the associated diseases, obesity is the one that most predisposes the operated patients to develop an incisional hernia, which is in correspondence with the higher fat content of the tissues, since it increases the intra-abdominal pressure in the postoperative period, but in addition, it is known that in these there is often a decrease in muscle tone and resistance. As observed, the infra umbilical location was the most frequent which is due to the high incidence of gynecological operations, mainly hysterectomies and cesarean sections.^[13] This is related to a greater weakness of the wall abdominal at this level, since the transversalis fascia does not have the muscle-aponeurotic structures

that protect it above the umbilical region, especially in the area below the Douglas arch. The most commonly used prostheses today are non-absorbable, and within them, particularly, the of marlex (polypropylene), mersilene (dacron) and goretex (polytetrafluoroethylene), introduced by Gore in 1950. New absorbable materials have also been commercialized, such as the synthetic meshes of dextran (polyglycolic acid) and vicryl (polyglactin) (Ultrapro).^[13] Infection of the wound, peritonitis and enterocutaneous fistula and rejection of the prosthesis, were observed more frequently in the hernioplasties. We consider, like other authors,^[6,13,18] that it is of great importance to avoid contamination of the prosthesis and surgical wound, so it is carried out in our service as a policy, in this type of intervention surgical, to achieve a satisfactory evolution of patients. In laparoscopic repair the mesh can be placed intraperitoneally,^[14,15] or in the preperitoneal space.^[16] The edges should be surpass the defect, at least, from 3 to 5 cm, 15 but, regarding the location of the mesh, preperitoneal or supraponeurotic and the relationship with complications and the lower rate of recurrence, it is indicated that the preperitoneal location offers a lower index of recurrences, both in the open and laparoscopic way;^[17-20] however, in our study, these complications were observed more frequently with the placement of the preperitoneal prosthesis, in both ways there was a rejection of the prostheses and enterocutaneous fistula was found in the preperitoneal route, which may be related, in part, to the learning curve and the way of fixing the mesh.^[21,22]

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