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ASSESSMENT OF THE PAIN & HYPOESTHESIA AFTER OPEN AND LAPAROSCOPIC INGUINAL HERNIA REPAIR

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Abstract:

Objective: *The incidence of pain is very important result after the inguinal hernia repair and objective procedures are not able to assess this variable. The aim of this research work is to examine the hypoesthesia & pain after the inguinal hernia repair with the utilization of different kinds of surgeries as laparoscopic, open suture & open mesh.*

Methodology: *A sum of total ninety-six patients were the part of this research work with follow-up median of 4.70 years. We performed the procedure of open suture in forty patients forming Group-A, repair procedure of open mesh in twenty patients forming Group-B & procedure of laparoscopic repair in thirty-six patients as a part of Group-C. The assessment of the pain & hypoesthesia carried out with the utilization of the von Frey mono-filaments. Short Form 36 was in use for the investigation of the QoL (Quality of Life).*

Results: *The occurrence of pain minimum once in a week was present in 17.50% (n: 7) patients of Group-A, in 25.0% (n: 5) participants of Group-B & in 16.60% (n: 6) subjects of Group-C. Site & seriousness of the hypo-sensibility were available with increased values after repair of open non-mesh & mesh in comparison to those after the repair through laparoscopy. Hypo-sensibility in the patients who underwent laparoscopic hernia repair was available with association with the pain after the surgery. Kinds of the pain after surgery were somatic in 61.0% (n: 19), neuropathic in 29.0% (n: 9) & visceral in 10.0% (n: 3) patients with no important disparities among 3 groups.*

Conclusions: *Prevalence of the hypoesthesia in the subjects who experienced hernia repair using laparoscopy was much lower as compare to the patients who underwent hernia repair by open procedure. The incidence of hypoesthesia after the laparoscopy but not after the method of open-repair as much association with the pain after surgery. The most vital standards for the evaluation of the hypoesthesia as well as pain in the patients who underwent hernia repair allowing the comparison of various operational procedures.*

KEY WORDS: *Hypoesthesia, Surgery, Hernia, Laparoscopy, Inguinal, Visceral Pain.*

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INTRODUCTION:

With the innovation in the field, the rate of re-occurrence of the repair of inguinal hernia by open & laparoscopic procedures can be below 5.0% [1, 2]. Discomfort after the surgery for long duration like severe pain of scrotal & numbness has obtained emphasis during past few years and it has taken the place as most significant outcome variable in addition with the rate of re-occurrence [3, 4]. The occurrence of pain is possible in 54.0% patients after the repair of inguinal & in 12.0% patients, pain interrupts the routine activities of daily life [5-8]. There are 3 main methods for the repair of the inguinal hernia as open repair with the utilization of the suture or mesh and repair by laparoscopy.

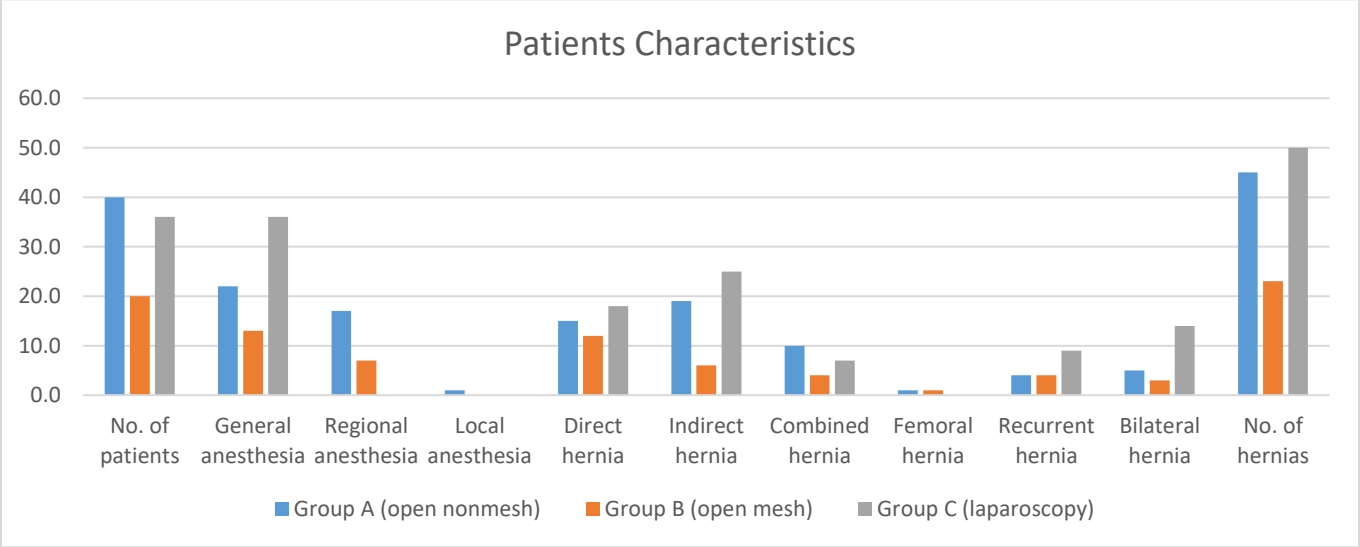
The repair of the inguinal hernia with the utilization of the mesh or laparoscopy have very low occurrence of the pain [5, 9, 8]. Most of the research works identified the pain with the usage of well-organized questionnaire. Of fifty-nine articles talking about the pain after the repair of the inguinal hernia, only 4 assessed some kinds of sensory function [5] and only single work utilized tools for the objective evaluation of the repair by the procedure of open hernia [10]. Poobalan introduced the three various kinds of the pain [8]. Most frequent kind is the somatic pain, following neuropathic pain & visceral pain.

METHODOLOGY:

Patients having at least twelve moths follow up were the part of this research work. The duration of this research was from March 2017 to March 2018, total three hundred and sixteen patients experienced repair of inguinal hernia in our institute. The grouping of the patients carried out accord to the method of the hernia repair as Group-A for repair through open suture, Group-B for Open mesh repair & Group-C for mesh repair through laparoscopy. The selection of the procedure was depending upon the wish of the surgeon. Clinical & demographic information is present in Table-1. The ethical committee gave the approval to conduct this research work clinical assessment after the surgery carried out with the help of interview. Standard international definition was in use for the elaboration of the pain [11]. VAS scale containing 0 to 10 was in use for the measurement of the intensity of the pain. SF-36 was in use for the assessment of the QoL of the patients. For the categorical evaluation of the pain & hypoesthesia after the surgery we utilized the von Frey mono-filaments.

Table 1. Patients Characteristics

Characteristics	Group A (open nonmesh)	Group B (open mesh)	Group C (laparoscopy)
No. of patients	40.0	20.0	36.0
Male:Female	38:2	20:0	31:5
Age, median (range)	61.0 (28.0-77.0)	62.0 (45.0-83.0)	57.0 (28.0-70.0)
Operative time, median (range)	78.0 (40.0-120.0)	68.0 (40.0-125.0)	66.0 (25.0-150.0)
General anesthesia	22.0	13.0	36.0
Regional anesthesia	17.0	7.0	0.0
Local anesthesia	1.0	0.0	0.0
Direct hernia	15.0	12.0	18.0
Indirect hernia	19.0	6.0	25.0
Combined hernia	10.0	4.0	7.0
Femoral hernia	1.0	1.0	0.0
Recurrent hernia	4.0	4.0	9.0
Bilateral hernia	5.0	3.0	14.0
No. of hernias	45.0	23.0	50.0



The measurement of the hypoesthesia score carried out with the utilization of the von Frey mono-filaments. All the patients used prophylactic antibiotics after surgery. The open non-mesh surgery carried out like a modified 2 layers Shouldice repair 2-0 utilizing a poly-propylene suture [12]. In the repair through open mesh, Lichtenstein method with the utilization of the polypropylene mesh performed [13]. For hernia repair through laparoscopy a trans-peritoneal or pre-peritoneal procedure was in use [14]. SPSS software was in use for the statistical analysis of the collected information. Kruskal-Wallis method was in use for the statistical analysis of the SF-36 questionnaire. 0 score was describing the worst health & 100 score was for good health in the questionnaire. Chi square method was in use for the comparison of different variable among all 3 groups.

RESULTS:

Ninety-six patients who filled the questionnaires and underwent surgical procedures were the part of this research work. Group-A contained forty patients with forty-five hernias, Group-B consisted twenty patients with twenty-three hernias and Group-C consisted thirty-six patients with fifty hernias. The characteristics of the patients are present in Table-1. The average follows up duration for the Group-A was 5.20 years, for Group-B as 2.40 years & for Group as 6.30 years. During the follow-up assessment, recurring hernia was present once in every group. Overall pain after surgery was available in 26.70% (n: 12) patients of Group-A, 26.10% (n: 6) patients from Group-B & 26% (n: 13) in Group-C. The average values of pain of patients calculated with the utilization of VAS were 1.80 in Group-A, 2.70 in Group-B & 1.90 in Group-C. There was no important disparity between all 3 groups. The relative occurrence of somatic, visceral & neuropathic pain in all the patients with after surgical pain is present in Figure-1 [8].

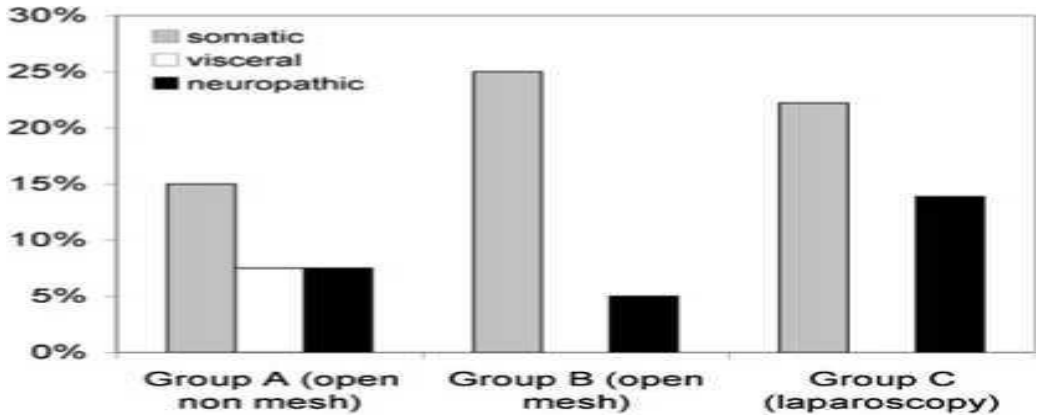
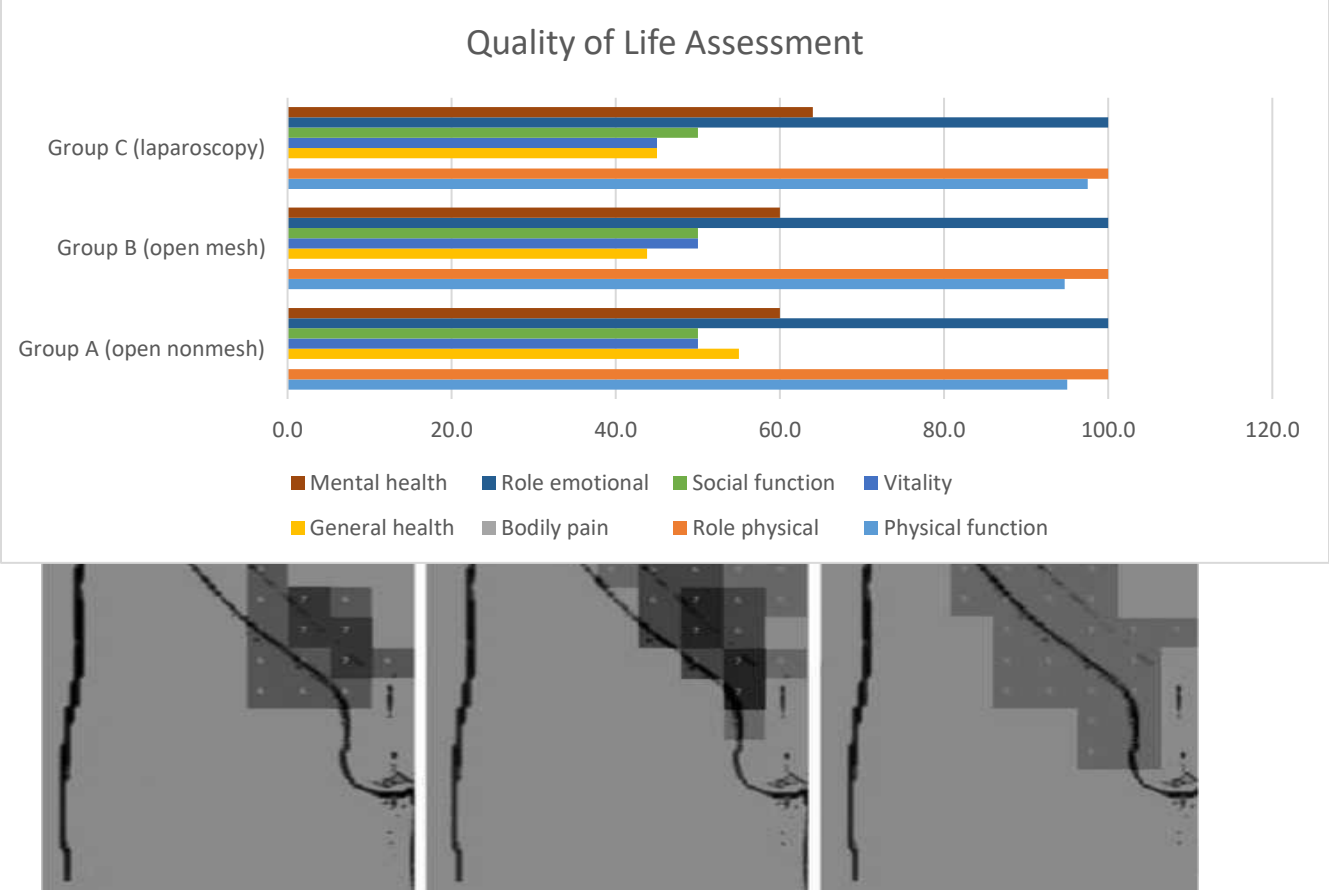


Figure 1

The findings of SF-36 are present in Table-2. Hypoesthesia was present by 67.0% patients who experienced open non-mesh operation, by 65.0% patients who faced open mesh method & 54.0% who experienced laparoscopic operation.

Table 2. Quality of life Assessment by Short Form 36 (SF-36)

QoL Assessment	Group A (open non-mesh)		Group B (open mesh)		Group C (laparoscopy)	
	Median	Range	Median	Range	Median	Range
Physical function	95.0	70 to 100	94.7	87.5 to 100	97.5	90 to 100
Role physical	100.0	100 to 100	100.0	100 to 100	100.0	100 to 100
Bodily pain	0.0	0 to 35	0.0	0-0	0.0	0 to 5
General health	55.0	42.5 to 62.5	43.8	40 to 52.5	45.0	40 to 50
Vitality	50.0	45 to 55	50.0	45 to 52.5	45.0	42.5 to 55
Social function	50.0	50 to 50	50.0	50 to 50	50.0	50 to 50
Role emotional	100.0	83.3 to 100	100.0	100 to 100	100.0	100 to 100
Mental health	60.0	56 to 64	60.0	57.40 to 64	64.0	56 to 64



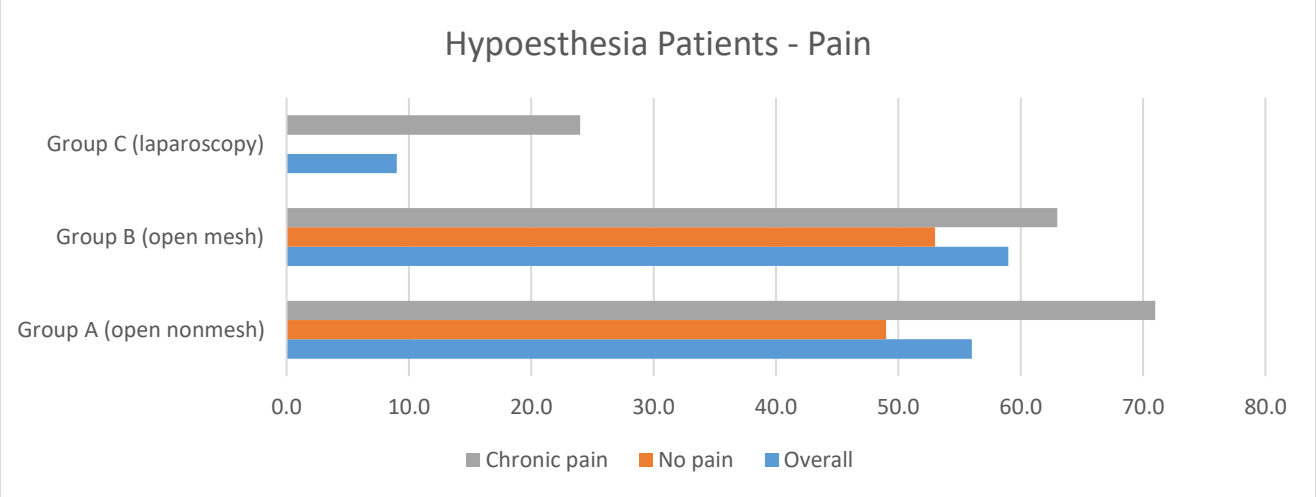
Hypoesthesia's localization is present in Figure-2.

Figure 2

The median score of hypoesthesia in the Group-A was fifty-six, in Group-B as fifty-nine & Group-C as nine as available in Table-3.

Table 3. Hypoesthesia in Patients with and Without Chronic Pain

Pain	Group A (open nonmesh)		Group B (open mesh)		Group C (laparoscopy)		p Value
	Median	Range	Median	Range	Median	Range	
Overall	56.0	0 to 198	59.0	0 to 231	9.0	0 to 506	0.010
No pain	49.0	0 to 198	53.0	0 to 231	0.0	0 to 506	0.030
Chronic pain	71.0	0 to 165	63.0	0 to 150	24.0	0 to 72	0.070



Allodynia was present in 2 patients. Hypoesthesia's localization of the patients suffering from pain after surgery is present in Figure-3.

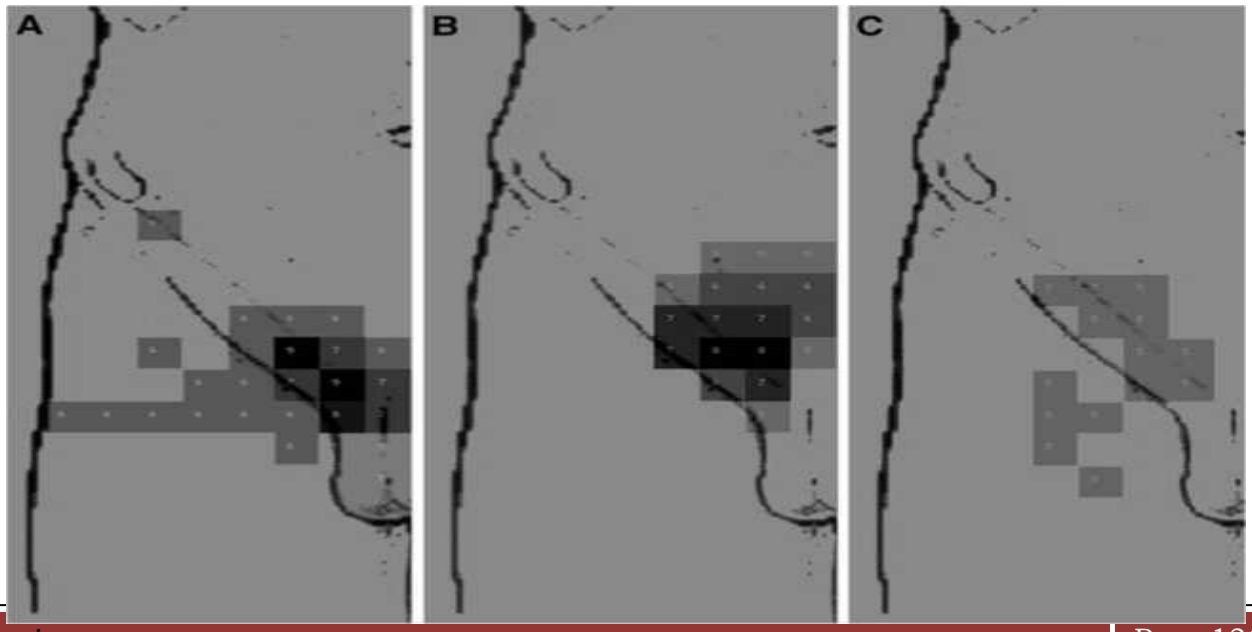


Figure 3

DISCUSSION

The objective evaluation of the inguinal sensations after the repair of the inguinal hernia showed disparities in kind & site of the pain & hypoesthesia between 3 dissimilar kinds of hernia repair. Hypoesthesia in hernia repair of laparoscopy was not much localized close to the inguinal tendon & not much serious as compared to open procedure, displaying the significance of the incision of inguinal skin for development of well-established region of hypoesthesia distal of incision. But, if there is development of the hypoesthesia in the patients who underwent hernia repair by laparoscopy, it has an association with the pain after surgery different from the patients who had open surgery. Hypoesthesia in the patient's groin who experienced hernia repair by laparoscopy may be the outcome of the abrasions of subcostal, genitofemoral, geiliohypogastric & ilioinguinal nerves.

Overall occurrence of the pain after-surgery after open suture, laparoscopic & open mesh repair of inguinal hernia is 26.30%. We found no disparity among all 3 groups of study. The outcome of this research work is similar to the current case works that provided the comparison between repair methods of open mesh & open suture in which they discovered no disparity between these two groups [15-17]. Comparing the hernia repair with open & laparoscopic procedures, the prevalence in research work on large scale displayed a decrease of the pain after the hernia repair by laparoscopy [18-20]. But, these research works required the objective evaluation of the pain as well as the description of the pain type. Objective calculation of the after surgery inguinal sensations are very significant for current & future examinations, particularly in the research works that emphasis on the features of surgical methods & entrenched materials. The tissue adhesives which are absorbable for the fixation of the mesh are recently compared with standard fixation of suture in the open & laparoscopic procedures of surgery [21-24]. There is need of monitoring the other modifications to decrease the discomfort for a long duration.

CONCLUSION:

The objective evaluation of the pain & hypoesthesia with the utilization of von Frey mono-filaments before and after the operations will permit the professionals to assess the surgical aspects of the individual with precision.

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