

A Clinical Study on the Outcomes in the Preservation and Elective Division of the Ilioinguinal Nerve in Open Mesh Repair of Inguinal Hernia

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Abstract: *Background:* Chronic post herniorrhaphy groin discomfort is characterised as a pain that persists for more than three months following surgery. Ilioinguinal nerve entrapment is thought to be the primary cause for persistent pain. The current study's goal is to assess the impact of routine ilioinguinal nerve excision while doing Lichtenstein hernia repair on persistent groin pain and other sensory symptoms. *Method:* Between January 2021 and June 2022, 50 patients with Inguinal hernias were hospitalised to Narayana Medical College and Hospital in Nellore and underwent Lichtenstein hernia repair to correct the hernia. 25 patients in group A had their ilioinguinal nerve retained, while another 25 underwent elective ilioinguinal nerve division (group B). At POD - 1, one month and three months after surgery, patients were assessed using a four point verbal scale for pain and other sensory complaints. *Results:* A total of 47 out of 50 patients finished the study; 24 patients were in group A and 23 patients were in group B. Results demonstrated that in the nerve excision group, postoperative chronic groin discomfort was less when compared to group A. At POD - 1, one month and three months following surgery, group A and B, respectively, had pain 58.3% vs.52.1%, 54.1% vs.43.4%, and 50% vs.39.1%. Both groups experienced neurosensory problems such as hypoesthesia and numbness, with no discernible difference between them. *Conclusion:* The incidence of persistent groin discomfort following Lichtenstein hernia repair is reduced without causing any additional morbidities when the ilioinguinal nerve is surgically divided as a preventative measure. Therefore, ilioinguinal neurectomy has better outcomes in hernia surgery.

Keywords: Ilioinguinal nerve, Lichtenstein, and inguinal hernia

1. Introduction

A hernia is the term used to describe any viscus that protrudes from its normal cavity. A membrane that the cavity is naturally invested with often holds the protruded pieces in a bag.

— Sir Astley Cooper, 1804.

One of a general surgeon's most frequent procedures is hernia repair.

However, because of side effects such as nerve damage, infection, postoperative pain, and recurrence, no surgeon achieves the best results after hernia repair.²

Groin discomfort following a hernia repair that lasts longer than three months is referred to as chronic post herniorrhaphy pain. According to research done between 1987 and 2000, 10% of individuals experienced chronic groin pain following herniorrhaphy on average moderate to severe discomfort³ The incidence of long - term (1 year) postoperative neuralgic discomfort following Lichtenstein surgery of inguinal hernia ranged from 6 to 29%⁴ Chronic groin discomfort following hernia repair is best described as inguinodynia⁵. Inguinal hernia surgeries are not the only ones that routinely involve neurectomy. When the Intercosto - brachial nerve and neck are involved in axillary dissections

are frequently performed. Long - term post - herniorrhaphy neuralgia is a bothersome consequence that has been suggested to be avoided by routine ilioinguinal nerve excision^{8, 9}. The likelihood of inflammatory neuralgia resulting from neuroma, entrapment, and fibrotic reactions would theoretically be eliminated by ilioinguinal nerve excision, however there are still issues with this treatment, and it is not frequently recognised. The current study sought to assess the effectiveness of elective ilioinguinal nerve excision vs nerve preservation in reducing persistent groin pain and other sensory problems during Lichtenstein inguinal hernia surgery.

2. Materials and methods

50 inguinal hernia patients participated in this prospective trial over a period of 18 months. In this study, patients admitted with uncomplicated inguinal hernias (both males and females) in the Department of General Surgery at Narayana Medical College and Hospital, Nellore, served as the clinical material. The study was conducted (over an 18 - month period) from January 2021 to June 2022 with a 3 - month follow - up.

Sample size: The size of the sample: 50 cases.

25 cases with ilioinguinal nerve preservation (group A) 25 cases with elective division of the nerve (group B).

Inclusion criteria: Patients admitted with an uncomplicated inguinal hernia (Direct & Indirect hernias). Includes both sexes. Adults over 18 years who are capable of providing proper, informed consent.

Exclusion criteria: Those who have diabetes mellitus. Recurrent hernia sufferers. Inguinal surgery that has already been performed. Mesh allergy, followed by hernia repair, during the observation period. Prior injuries and pain in the inguinal area.

Follow up: Three months after the operation date is the time for follow - up.

Comparative parameters: Pain (using 4 point verbal scale), hypoesthesia and numbness.

Statistical analysis: The outcomes of the two groups were compared and analysed using SPSS software, version 22, in this study.

3. Results

Total of 50 patients, 47 patients were included, as 3 patients were excluded, 1 in group A and 2 in group B as they were lost follow up. So 24 patients in Group A and 23 patients in Group B were considered for the study.

Table 1: Showing comparison of different variables between groups as per Age, Sex and Location

Parameters	Group A (n=24)	Group B (n=23)
Age (years)	20 - 70 years	20 - 70 years
Sex		
Male	17	15
Female	7	8
Location		
Right	14	12
Left	10	11
Type		
Direct hernia	7	5
Indirect hernia	17	18

Table 2: Showing comparison of variables between groups with respect to Mode of onset, Duration of illness, Predisposing factors

Parameters	Group A (n=24)	Group B (n=23)
Mode of onset		
Swelling	16	18
Swelling with pain	8	5
Duration of illness		
<6months	3	5
6 to 12months	11	4
>1 year	10	14
Predisposing factors		
Associated	18	17
Not associated	6	6

Table 3: Showing followup period in both groups

Follow up	Group A (n=24)	Group B (n=23)
POD 1	14	12
1 month	13	10
3 months	12	9

4. Discussion

Chronic groin discomfort after open hernia repair is a serious issue. Despite the fact that pain is frequently rather mild in nature, research on quality of life have shown that chronic pain can considerably hinder daily activities. The goal of the current study was to assess the effects of ilioinguinal nerve division and ilioinguinal nerve preservation during hernia mesh repair on postoperative groin discomfort, hypoesthesia, and numbness.

In the present study, number of patients evaluated for pain, hypoesthesia and numbness are 47, in two study groups patients (group A – 24 patients and group B - 23patients).

In group A ilioinguinal nerve was carefully protected throughout the operation and also extreme care was taken during surgery to avoid inclusion of nerve during suturing and mesh placement.

In group B the ilioinguinal nerve was divided lateral to the deep inguinal ring.

In the present study, with respect to age more number of patients were present between 51 - 60 years in both the groups {group A (29.16%) and group B (34.7%)}. Males were 40 (85%) and females were 7 (14.8%). Duration of illness were 10 (21.2%) in <6months, 20 (42.5%) in 6 - 12months, 17 (36.17%) in >1 year. Patients with direct hernia was 13 (27.6%), indirect hernia was 34 (72.3%). Right sided hernias were more 26patients (55.3%), left sided hernias were 21 patients (44.6%). Regarding occupation, patients doing heavy work were 28 (59.5%), moderate work was 14 (29.7%), light work were 5 (10.6%).

The incidence of postoperative chronic groin pain 58.3% vs 52.1%, 54.16% vs 43.4%, 50% vs 39.1% at POD - 1, 1 month, 3 months. This showed the incidence of chronic groin pain is lower in ilioinguinal nerve division (group B) compared to nerve preservation (group A) at 3 months follow up visit.

5. Conclusion

The current prospective comparative analysis showed that ilioinguinal nerve prophylactic division during Lichtenstein mesh hernia repair reduces the occurrence of chronic groin discomfort following surgery.

References

- [1] Normans S. Williams, Bailey & Love's Short Practice of Surgery 27th Edition.
- [2] Courtney M. Townsend, Sabiston Textbook of surgery vol - 2, 18th edition.
- [3] A. S Poobalan, J. Bruce and W. C Smith et al, A Review of Chronic Pain After Inguinal Herniorrhaphy, Clin J Pain 2003; 19: 48 - 54.
- [4] M. BayNelsen, F. M Perkins et al, Pain Functional Impairment 1year After Herniorrhaphy, Ann Surg 2001; 233: 1 - 7.

- [5] P. GeisK. sing and G. K. Gillion, An Algorithm for the Treatment of Chronic Pain After Inguinal Herniorrhaphy, P A 2002; 307 - 16.
- [6] R. Frei, Differential Diagnosis and Treatment of Post Herniorrhaphy Groin Pain, Gen Surg News 2004; feb.
- [7] T. I Abdullah, J Iddon et al, Prospective Randomized Controlled trial of Preservation of Intercosto - brachial Nerve during Axillary node clearance for Breast cancer, Br J Surg 1998; 85: 1443 - 45.
- [8] G. W Dittrick and K. Ridl et al, Routine Ilioinguinal Nerve excision in Inguinal Hernia Repair, Am J surg 2004; 188: 736 – 40.
- [9] D. Ravichandran. B. G. Kalambe et al, Pilot Randomized controlled study of Preservation or Division of Ilio - Inguinal Nerve in open Mesh Repair of Hernia, Br. J. Surg 2007; 87: 1166 - 67.
- [10] Cunningham W. J Temple and P. Mitchell et al, Co - operative Hernia study: Pain in the Post Surgical Patient, Am J Surg 1996; 224: 598 - 02.
- [11] M. Picchio P. Marcello and D. Palimento et al, RCT of Preservation or Elective division of Ilio inguinal nerve on Open Mesh Repair, Arch Surg 2004; 139: 755 - 58.
- [12] Amid P, Shulman AG, Lichtenstein I. The Lichtenstein open tension - free Hernioplasty. In: Arregui ME, Nagan RF. eds. Inguinal hernia. Advances or Controversies? Oxford & N. York: Radcliffe Medical Press, 1994; p.185 - 190.
- [13] Bendavid R. The TSD classification: a nomenclature for groin hernias. In: Arregui ME, Nagan RF eds. Inguinal hernia. Advances or Controversies? Oxford & N. York: Radcliffe Medical Press, 1994; p.343 - 349.
- [14] Nyhus and Condons Hernia, Robert T. Fitzaibbons, 5 th edition: "Historic aspects of groin hernia Repair" Page; 29 - 42.