

Original Research Article

To compare and correlate the therapeutic effectiveness of triple neurectomy versus nerve preservation with respect to Post-operative groin pain

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Abstract

Background & Methods: The aim of the study is to compare and correlate the therapeutic effectiveness of triple neurectomy versus nerve preservation with respect to Post-operative groin pain. 30 cases each for the purpose of the study were selected on the basis of the random sampling method and after taking valid informed consent. Polypropylene mesh was used in all cases for hernia repair.

Results: Pain at rest was present in 8.3% of the patients in nerve preservation group & 1.7% in neurectomy group after 6 months. Pain at rest was present in 16.6% of the patients in nerve preservation group & 3.3% in neurectomy group after 6 months.

Conclusion: In our study, we found that chronic groin pain is a significant and debilitating complication following hernia repair. The incidence of pain as well as the severity of pain is far higher in the nerve preservation study group as opposed to the neurectomy study group. This indicates that prophylactic neurectomy can be an appropriate solution in the prevention of chronic groin pain following inguinal hernia repair and can be considered as an ideal inclusion into the standard hernia repair procedures.

Keywords: correlate, therapeutic, effectiveness, triple, neurectomy & groin pain.

Study Design: Comparative Study.

1. Introduction

The International Association for the Study of Pain (IASP) defines pain as an “unpleasant sensory” and emotional experience associated with actual or potential tissue damage or described in terms of such damage”. This definition declares that pain, as well as having physiological basis has a very real psychological or subjective component[1].

The Clinical Standards Advisory Board for the National Health Service (NHS) defines chronic pain “as that which persists beyond the expected time frame for healing or that which occurs in disease processes in which healing may never occur”. The Practice Guidelines of

the American Society of Anaesthesiologists for Chronic Pain Management considered chronic pain as a “persistent or episodic pain of a duration or intensity that adversely affects the function or wellbeing of the patient, attributable to any non-malignant a etiology[2]. Thus chronic pain may be as a result of the healing process gone awry. It may be persistent and unrelenting and conveys no benefit to the individual who experiences it[3].

Chronic groin pain, as well as being a consequence of inguinal hernia repair, may also be as a result of a previously undiagnosed hernia[4]. A small bulge in the posterior wall of the inguinal canal may not be large enough to be clinically detected but may account for chronic groin pain. Surgical mesh repair of this small direct hernia has been reported to alleviate in 87% and improve in the remainder of cases, previously unexplained chronic groin pain[5]. The majority of patients that present with an uncomplicated hernia report a protruding mass and /or pain or discomfort in the groin. As many as 66% report pain at the time of initial presentation and this increases to 90% in those patients that have their hernia for 10 years or more[6].

2. Material and Methods

The present study is a randomized study of 60 cases of inguinal hernias admitted in Index Medical College Hospital & Research Centre, Indore from June 2018 to July 2019. 30 cases each for the purpose of the study were selected on the basis of the random sampling method and after taking valid informed consent. Polypropylene mesh was used in all cases for hernia repair.

The inclusion criteria:

All admitted patients with direct and indirect inguinal hernia in the age group of 18 to 80 yrs who gave consent for elective Lichtenstein hernia repair with triple neurectomy /nerve preservation were included in the study.

The exclusion criteria:

Irreducible/strangulatedhernia. Peripheral neuropathy Impaired cognitive function. Limited mobility recurrent hernia Connective tissue disorder lumbosacral disorder Avascular necrosis of femurh\oprevious hernioplastyherpeszoster\viral infection any neurological disorder prostatitise pididymytislymphangitis bilateral inguinal hernia History of previous lower abdominal incision. h/o of psychiatric illness.

3. Result

Table 1: Mean Age and Standard Deviation

| Group | N | Mean | Std. Deviation | Min | Max |
|--------------------|----|----------|----------------|-----|-----|
| Neurectomy | 30 | 50.3 | 15.20923 | 18 | 80 |
| Nerve Preservation | 30 | 45.1333 | 14.19503 | 21 | 72 |
| Total | 60 | 47.71665 | 14.70213 | 18 | 80 |

CC=0.113, P=0.855

Table 2: Diagnosis – Type of Inguinal Hernia

| Inguinal hernia | Surgery n (%) | |
|-----------------|---------------|--------------------|
| | Neurectomy | Nerve preservation |
| Right Direct | 06 (20.0) | 08 (26.7) |
| Left Direct | 05 (16.7) | 03 (10.0) |

| | | |
|----------------|-----------|-----------|
| Right Indirect | 12 (40.0) | 13 (43.3) |
| Left Indirect | 07 (23.3) | 06 (20.0) |
| Total | 30 (100) | 30(100) |

CC= 0.12, P= 0.825

In our study, the incidence of right indirect hernia was the highest, being 40% in neurectomy group and 43.3% in nerve preservation group. The least was of left direct hernia.

Table 3: Pre-operative Pain

| Pre-operative Pain | Surgery n (%) | |
|--------------------|---------------|--------------------|
| | Neurectomy | Nerve preservation |
| Absent | 13 (43.3) | 17 (56.7) |
| Present | 17 (56.7) | 13 (43.3) |
| Total | 30 (100) | 30 (100) |

CC=0.132, P= 0.302

Pain at rest was present in 8.3% of the patients in nerve preservation group & 1.7% in neurectomy group after 6 months.

Table 4: Pain at Rest

| Pain at rest | | Follow-up N (%) | | |
|--------------------|---------|-----------------|-----------|-----------|
| | | 1 Month | 3 Month | 6 Month |
| Neurectomy | Absent | 27(90) | 29 (96.7) | 29 (96.7) |
| | Present | 03(10) | 01(3.3) | 01(3.3) |
| | Total | 30(100) | 30(100) | 30(100) |
| Nerve Preservation | Absent | 20(66.7) | 24(80.0) | 25(83.3) |
| | Present | 10(33.3) | 06 (20) | 05(16.7) |
| | Total | 30(100) | 30(100) | 30 (100) |

CC= 0.206, P= 0.053

Pain at rest was present in 16.6% of the patients in nerve preservation group & 3.3% in neurectomy group after 6 months.

4. Discussion

In our study, the mean age of the individuals in the neurectomy group was 50 years and the mean age of the individuals in the nerve preservation group was 45 years. This is comparable with the randomized controlled study, wherein the mean study age was 45 ± 18 years[7].

In our study, 44 patients had direct hernias and 76 patients had indirect hernias. These patients were equally divided into the neurectomy and the nerve preservation groups. The incidence of different types of hernia in our study is consistent with the analysis, in which the majority of the patients had an indirect hernia (542/813)[8].

In the present study, pre-operative pain was present in 56.7% of the patients in the neurectomy study group and in 43.3% of the patients of the nerve preservation study group. Pre-operative pain was of dragging nature and not similar to the chronic post-operative pain experienced by the patients. In our study, the association of pre-operative pain with the development of chronic pain was not evaluated[9]. However, the study found a significant predictive value ($P < 0.005$) between pre-operative pain and chronic pain. In contrast, another

randomized trial of 994 patients conducted[10], found no significant relation between pre-operative pain and the development of chronic pain ($P=0.2$).

Our study revealed that four patients (13.3%) in the neurectomy study group and two patients (6.7%) in the nerve preservation study group had groin numbness pre-operatively. This observation is consistent with the observations[11], where 4% (2/50) in the neurectomy group and 10% (5/50) in the nerve preservation group had groin numbness. The difference was found to be insignificant ($P=0.44$) and was not associated with the development of post-operative paraesthesia.

5. Conclusion

In our study, we found that chronic groin pain is a significant and debilitating complication following hernia repair. The incidence of pain as well as the severity of pain is far higher in the nerve preservation study group as opposed to the neurectomy study group. This indicates that prophylactic neurectomy can be an appropriate solution in the prevention of chronic groin pain following inguinal hernia repair and can be considered as an ideal inclusion into the standard hernia repair procedures.

6. References

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