Original Article

Pattern of visual analogue scale in the treatment of hernia patients

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Abstract

Introduction: Postoperative pain following mesh hernioplasty is one such complication that has been a significant, albeit possibly underreported issue. Mild pain lasting a few days is common following mesh inguinal hernia repair. It is imperative to differentiate this pain from chronic groin pain or inguinodynia. **Aims and Objectives:** To study the Pattern of Visual Analogue Scale in the Treatment of Hernia Patients **Methodology:** The study included 100 consecutive patients (both men and women) who presented to Department of General Surgery, Yenepoya Medical College, Mangalore during the above mentioned time period. Patients referred with inguinal hernia from other departments were also included were selected All patients underwent Lichtenstein's tension free mesh inguinal hernioplasty by an experienced surgeon Patients were followed up for 3 months and pain was assessed in each patient at end of 1st, 2nd and 3rd month respectively Pain was assessed using Pain Assessment Visual Analogue Scale [6] The scale is filled by patients themselves. Using a ruler, the score is determined by measuring the distance (mm) on the 10-cm line between the "no pain" anchor and the patient's mark, providing a range of scores from 0–10. **Result:** The mean VAS score was 3.6 Most of the patients had a VAS score of 2 (26%) and 3 (25%). Only 12 patients had a score above 5. At the end of 2 months, more patients had a score of 4 (22%) with the mean score being 3.24 After 3 months, the mean was 3.19 with the commonest score being a low 1 (29%). **Conclusion:** We concluded in our study that inguinodynia is prevalent in all hernia surgeries. Efforts should be made to apply possible preventive measures intraoperative. Also, more studies with longer follow up periods need to be performed to find the actual impact of the problem.
Keywords: Visual Analogue Scale, Hernioplasty.

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INTRODUCTION

Postoperative pain following mesh hernioplasty is one such complication that has been a significant, albeit possibly underreported issue. Mild pain lasting a few days is common following mesh inguinal hernia repair[1]. It is imperative to differentiate this pain from chronic groin pain or inguinodynia. Inguinodynia is described by the International Association for the Study of Pain (IASP) as "groin pain reported by the patient at or beyond 3-months following inguinal hernia repair"[2]. Incidence varies among studies, ranging between 0% and 62.9%[3,4,5] and has significant impact on quality of life. Chronic groin pain varies from a dull ache to sharp shooting pain along the distribution of inguinal nerves. There have been several theories put forward about the cause of inguinodynia. They have been broadly classified as neuropathic and non-neuropathic pain. The three nerves potentially involved are the Ilioinguinal Nerve (IIN), Iliohypogastric Nerve (IHN) and genital branch of the Genitofemoral Nerve (GFN). These nerves can be damaged either by trauma during dissection or retraction of tissues, or nerve entrapment from post-operative fibrosis, mesh-related fibrosis or sutures used to fix the mesh[1].Non-neuropathic causes are excessive scar formation resulting from prosthetic mesh reaction, periosteal reaction from sutures or staples inserted into the pubic tubercle or due to rolled-up bulky mesh leading to mechanical pressure. However, there is no single test to pinpoint the etiology of inguinodynia. Studies have compared chronic groin pain with the mesh *vs* non-mesh repair, use of different types of meshes and various

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methods of mesh fixation like glue, sutures and staples. Likewise, there is controversy about the most optimal form of management of chronic groin pain. There is a need to study inguinodynia, its prevalence and manifestations, considering the sheer volume of hernioplasties performed in hospitals worldwide. A proper awareness of the magnitude of this postoperative complication will lead the way to finding preventive measures and solutions for the same. International Association for the Study of Pain (IASP) described chronic groin pain as "groin pain reported by the patient at or beyond 3 months following inguinal hernia repair" [2] the main reasons hypothesized for chronic groin pain have been classified as either neuropathic or non-neuropathic pain. *Neuropathic causes:* by trauma during dissection or retraction of tissues, or nerve entrapment from post-operative fibrosis, mesh-related fibrosis or sutures used to fix the mesh[1]. During open hernia repair, the ilioinguinal, iliohypogastric, and the genitofemoral nerves are most commonly injured, while the lateral femoral cutaneous nerve is more commonly injured during laparoscopic herniorraphy. *Non-neuropathic causes:* are excessive scar formation resulting from prosthetic mesh reaction, periosteal reaction from sutures or staples inserted into the pubic tubercle or due to rolled-up bulky mesh leading to mechanical pressure Smeds *et al* [6] suggested that the injury is mainly due to inadequate dissection, failure to visualize and protect the nerves, and failure to recognise the aberrant location and anatomic variations of the nerves. Any partial or complete transection of the nerve leads to neuroma formation and consequent pain along the distribution of that nerve. Fränneby *et al* [7] suggests that age below median, absence of a visible bulge before the operation, recurrent hernia repair and history of moderate to severe pre-operative groin pain are some of the common factors that influence the post-operative inguinodynia.

AIMS AND OBJECTIVES

To study the Pattern of Visual Analogue Scale in the Treatment of Hernia Patients.

MATERIAL AND METHODS

The study included 100 consecutive patients (both men and women) who presented to Department of General Surgery, Yenepoya Medical College, Mangalore during the above mentioned time period. Patients referred with inguinal hernia from other departments were also included were selected based on the inclusion: All patients operated for inguinal hernia surgery in YMC and exclusion criteria: Congenital Hernias, Non consenting patients who have undergone other surgeries of the groin, Recurrent inguinal hernias, Obstructed and strangulated hernias, Informed written consent was obtained by each study subject Demographic data was collected by each patient using a proforoma and documented. All patients underwent Lichtenstein's tension free mesh inguinal hernioplasty by an experienced surgeon Patients were followed up for 3 months and pain was assessed in each patient at end of 1st, 2nd and 3rd month respectively Pain was assessed using Pain Assessment Visual Analogue Scale[6] The scale is filled by patients themselves. Using a ruler, the score is determined by measuring the distance (mm) on the 10-cm line between the "no pain" anchor and the patient's mark, providing a range of scores from 0–10. A higher score indicates greater pain intensity. VAS score was interpreted as follows: No pain: 0, Mild pain: 1-4, Moderate pain: 4- 6, Severe pain : >7.

RESULT

Table 1: Distribution of the Patients as per the VAS Score at Day 1st-1st Month-2nd Month-3rd Month of Post-operative Period

VAS Score at Day 1	No. of patients (100)	VAS Score at 1st month	No. of patients (100)	VAS Score at 2nd month	No. of patients (100)	VAS Score at 3 Months	No. of patients (100)
1	15	1	18	1	18	1	29
2	26	2	23	2	22	2	13
3	25	3	22	3	16	3	6
4	16	4	13	4	22	4	24
5	6	5	9	5	8	5	18
6	4	6	13	6	12	6	10
7	8	7	2	7	2	7	0
8	0	8	0	8	0	8	0
9	0	9	0	9	0	9	0
10	0	10	0	10	0	10	0

The mean VAS score was 3.6 Most of the patients had a VAS score of 2 (26%) and 3 (25%). Only 12 patients had a score above 5. At the end of 2 months, more patients had a score of 4 (22%) with the mean score being 3.24 After 3 months, the mean was 3.19 with the commonest score being a low 1 (29%).

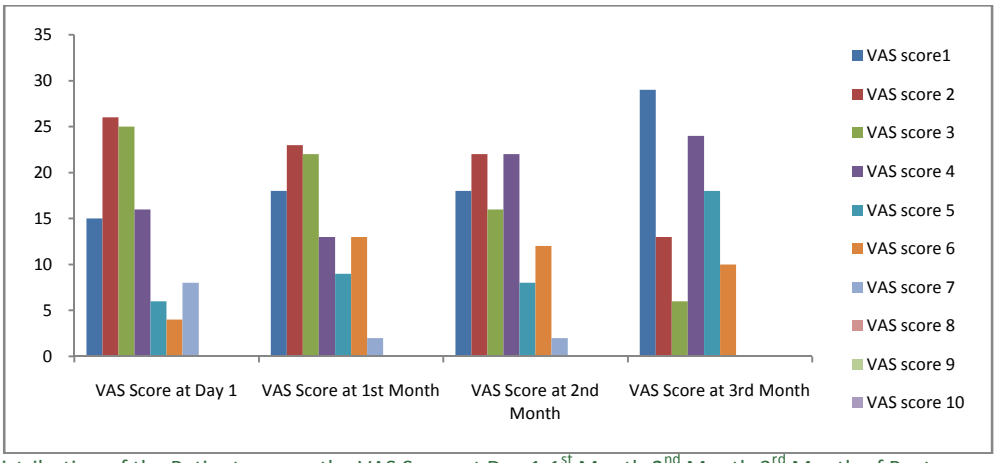

Figure 1: Distribution of the Patients as per the VAS Score at Day 1-1st Month-2nd Month-3rd Month of Post-operative Period

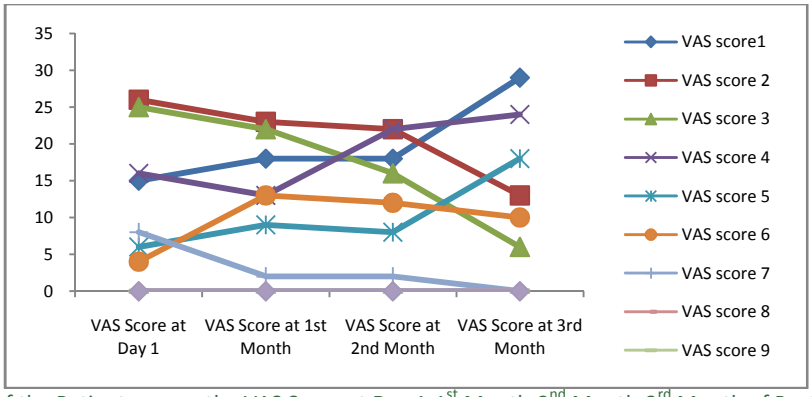

Figure 2: Pattern of the Patients as per the VAS Score at Day 1-1st Month-2nd Month-3rd Month of Post-operative Period

DISCUSSION

Most of our patients (84%) underwent Lichenstein's mesh hernioplasty which has been widely accepted as the best open mesh procedure for inguinal hernias. Only 16 patients had a repair with no mesh. The main cause for this was inaffordability for prosthetic mesh [8-12]. Mesh was also not used for congenital hernias. We used Visual Analogue Scale for assessment of post operative pain. This is a well established method of pain evaluation. It provides the advantage of being simple to self administer by patient themselves. It is a good subjective means of comparing change in pain levels in the same patient at different intervals over time. On measuring VAS scores, we found that the mean VAS scores were 3.6, 3.19, 3.24 and 3.19 at one day after surgery, one month, two months and 3 months respectively. We saw a rise in the pain levels after two months which might be attributable to chronic inflammation due to tissue injury, fibrosis or periosteal reaction [1] However, the accepted definition of inguinodynia is at three months postoperatively. According to our findings, among 100 patients, 52 % patients had moderate pain and 48% patients had mild pain respectively. This is in contrary to other studies that have found 10% of patients suffering from moderate to severe pain following inguinal hernia repairs [13-15]. One prospective series [15] of 419 Lichenstein procedures noted that at 1 year follow up, 19% of patients had pain, 6% with moderate or severe degree. A Scottish study of 4062 patients identified at three months postop an incidence of 43% mild pain and 3% severe or very severe pain [16]. It is also interesting to see that all patients complained of some degree of pain, that is, not a single patient gave a score of 0. On the other hand, the incidence of severe pain is 0% as well.

Limitations of Study

Due to limitation of time during this dissertation, our follow up time was three months. Further follow up is required to study natural history of inguinodynia and other parameters. We studied only open repairs which is the most common procedure performed in our hospital for inguinal hernias and not laprascopic hernia repairs. We did not study preventive measures or management of inguinodynia.

CONCLUSION

Our study shows that inguinodynia is present in varying

degrees in all cases of hernia repairs that we included. Further follow up is required to assess the issue. As its difficult to pinpoint the cause of the pain or identify exact nerve involved, and also because the treatment involves re-exploration, prevention is the best option. Methods to prevent inguinodynia like identification of nerves during surgery, careful dissection and the role of neurectomy should be explored and their practice encouraged among surgeons. We concluded in our study that inguinodynia is prevalent in all hernia surgeries. Efforts should be made to apply possible preventive measures intraoperatively. Also, more studies with longer follow up periods need to be performed to find the actual impact of the problem.

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