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Research Article

A COMPARATIVE ASSESSMENT OF SKIN STAPLE AND POLYPROPYLENE SUTURE FOR POSTOPERATIVE PAIN OUTCOMES AMONG INGUINAL HERNIA PATIENTS

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Abstract:

Objective: The objective of this research was to compare skin staples and polypropylene suture in order to secure mesh among inguinal hernia patients.

Material and methods: We carried out this comparative research at Jinnah Hospital, Lahore from August 2017 to March 2018 on a total of 266 inguinal hernia patients. These patients were evaluated for postoperative pain. These patients were evaluated for postoperative pain. The research included both male and female inguinal hernia cases in the age bracket of 20 years to 60 years. All those patients were categorized as inguinal hernia cases who presented non-tender and reduceable inguinoscrotal swelling. We did not include all those patients who presented irreducible inguinal hernia, strangulated inguinal hernia, obstructed inguinal hernia, diabetes mellitus, bleeding disorder, chronic renal failure, immunocompromised and bilateral recurrent inguinal hernia.

Results: The patients were in the age of 20 years to 60 years with a mean age of (34.37 ± 10.95) years. Mean VAS and hernia duration were respectively (4.54 ± 2.811) and (5.52 ± 3.312) years. Patients were divided into two groups I and II. Group – I included 39 patients (29.3%) with postoperative pain and Group – II included 59 patients (44.4%) with postoperative pain (P -Value = 0.02).

Conclusion: The outcomes of this research present that Polypropylene group presented higher postoperative pain frequency than skin staple group. The difference between males was significant between both groups; whereas, the difference between females was insignificant in both the groups. In the same way, the difference was significant in the young age group; whereas, the difference in the older age was insignificant in both the groups.

Key Words: Lichtenstein Inguinal Hernioplasty, Polypropylene Suture, Skin Staples, Mean Operative Time and Postoperative Pain.

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INTRODUCTION:

An external hernia is one of the repeated complications faced during inguinal hernias and surgical procedures in 73% of the patients [1]. Hernia related complications can best be managed through surgical intervention [2, 3]. Commonly opted surgical approach is inguinal hernia repair with an annual rate of thirteen out of one thousand patients [1]. Lichtenstein Hernia Institute started tension-free hernioplasty for the reduction of postoperative pain, reduced recovery time and recurrence [5]. Lichtenstein hernioplasty is a combination of hernia contents, inguinal floor reinforcement, prosthetic mesh and new creation of internal ring [6]. The standard way of securing mesh is possible through Polypropylene suture while positioning it on the inguinal canal posterior wall [7, 8]. Another advanced way of skin staple is also under trial for the modified hernioplasty which anchors the mesh and reduces operative and postoperative pain [3].

Another research has also recently compared both approaches to fix the mesh among patients and presented that more effective outcomes are possible through skin staple as it has reduced rate of complications [3]. Novel approaches are being developed for common clinical complications like an inguinal hernia to benefit patients in terms of operative and postoperative pain. Therefore, the objective of our research was to compare skin staples and polypropylene suture in order to secure mesh among inguinal hernia patients.

MATERIAL AND METHODS:

We carried out this comparative research at Jinnah Hospital, Lahore from August 2017 to March 2018 on a total of 266 inguinal hernia patients. These patients were evaluated for postoperative pain. The research included both male and female inguinal hernia cases in the age bracket of 20 years to 60 years. All those patients were categorized as inguinal hernia cases who presented non-tender and reduceable inguinoscrotal swelling. We did not include all those patients who presented irreducible inguinal hernia, strangulated inguinal hernia, obstructed inguinal hernia, diabetes mellitus, bleeding disorder, chronic renal failure, immunocompromised and bilateral recurrent inguinal hernia. Patients were divided in Group – I & II in the random selection and respectively managed through Skin Staples and Polypropylene Suture. Diclofenac Sodium (Injection 75 mg IM BD) was given for the management of pain. Visual Analogue Scale was used for the evaluation of postoperative pain among patients which was documented in a Performa. Outcomes were analyzed through SPSS software and Chi-Square Test (P-Value 0.05).

RESULTS:

The patients were in the age of 20 years to 60 years with a mean age of (34.37 ± 10.95) years. Mean VAS and hernia duration were respectively (4.54 ± 2.811) and (5.52 ± 3.312) years. Patients were divided into two groups A and B. Group – A included 39 patients (29.3%) with postoperative pain and Group – B included 59 patients (44.4%) with postoperative pain (P-Value = 0.02). Detailed outcomes about group-wise postoperative pain are presented in Table – I, age-wise postoperative pain in Table – II and gender-wise postoperative pain outcomes in Table – III.

Table – I: Group-Wise Postoperative Pain

| Postoperative Pain | Yes | | No | | P-Value |
|----------------------------|--------|------------|--------|------------|---------|
| | Number | Percentage | Number | Percentage | |
| Group – I (Staple) | 39 | 29.3 | 94 | 70.7 | 0.02 |
| Group – II (Polypropylene) | 59 | 44.4 | 74 | 55.6 | |

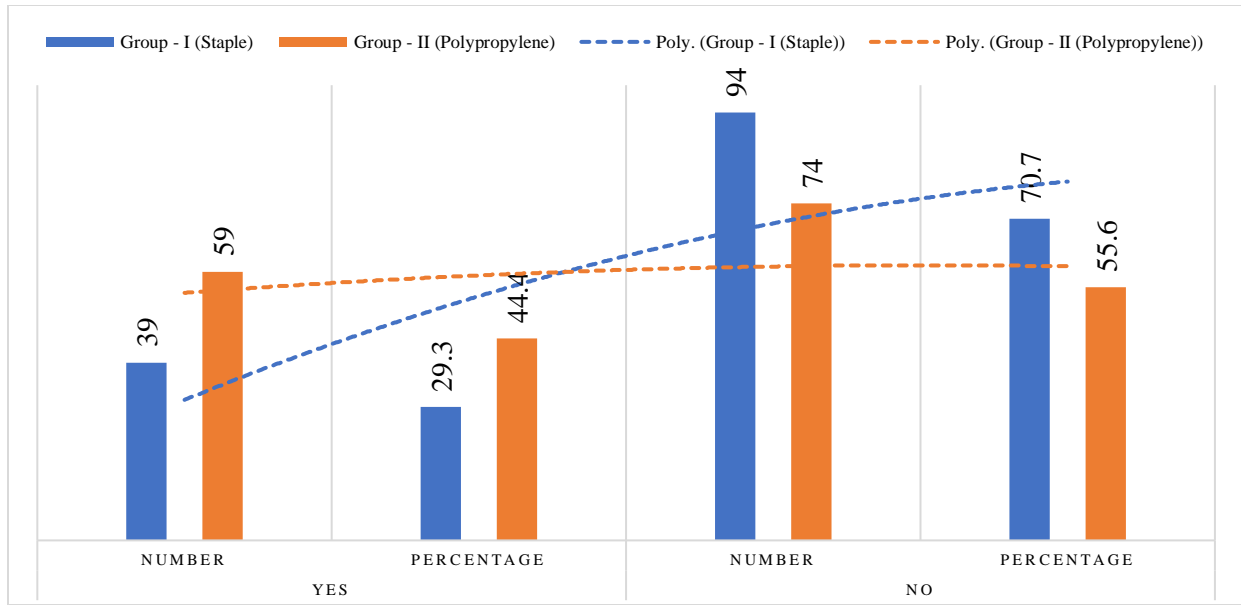


Table – II: Age-Wise Postoperative Pain

| Postoperative Pain | | Yes | | No | | Total |
|--------------------|------------|--------|------------|--------|------------|-------|
| | | Number | Percentage | Number | Percentage | |
| 20 – 40 Years | Group – I | 33 | 33 | 67 | 67 | 100 |
| | Group – II | 49 | 45.8 | 58 | 54.2 | 107 |
| 41 – 60 Years | Group – I | 6 | 18.2 | 27 | 81.8 | 33 |
| | Group – II | 10 | 38.5 | 16 | 61.5 | 26 |

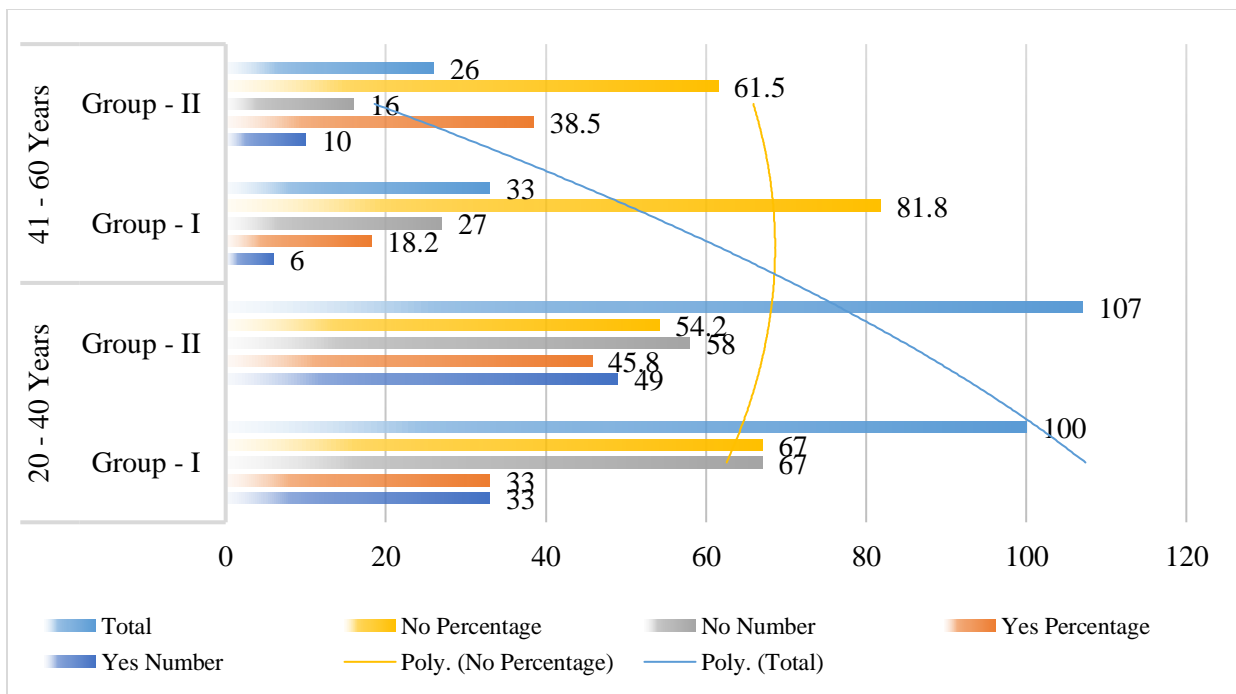
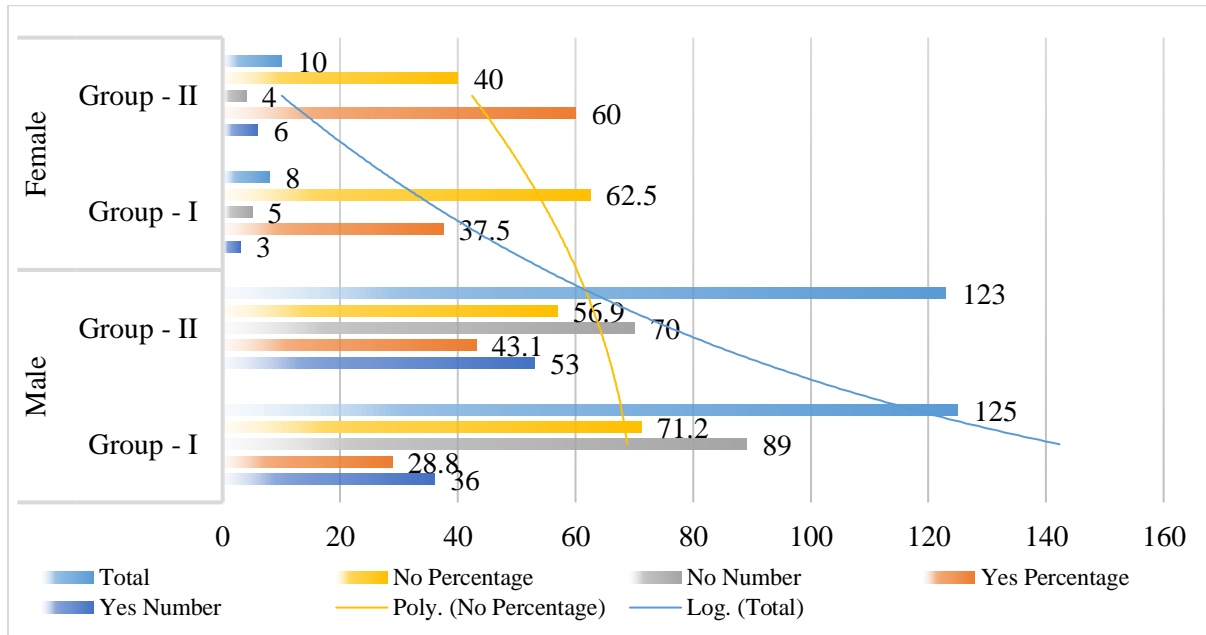


Table – III: Gender-Wise Postoperative Pain

| Postoperative Pain | | Yes | | No | | Total | P-Value |
|--------------------|------------|--------|------------|--------|------------|-------|---------|
| | | Number | Percentage | Number | Percentage | | |
| Male | Group – I | 36 | 28.8 | 89 | 71.2 | 125 | 0.02 |
| | Group – II | 53 | 43.1 | 70 | 56.9 | 123 | |
| Female | Group – I | 3 | 37.5 | 5 | 62.5 | 8 | 0.63 |
| | Group – II | 6 | 60 | 4 | 40 | 10 | |



DISCUSSION

Inguinal Hernia affects five percent of the world's male population [9]. Edward Bassini explained inguinal herniorrhaphy open approach about a century ago [10]. Different degrees of efficacy has been achieved by modifying the surgical procedures since then [11]. Lichtenstein used prosthetic mesh to describe the tension-free repair of inguinal hernia [12]. Initially, mesh fixation is done on inguinal canal posterior wall by polypropylene suture (2/0) [13]. Quality of life has achieved an increased focus in the medical evaluation especially in the surgical procedures. Several factors of quality of life for inguinal hernia repair are also given due consideration which includes recovery and pain [14]. A new modified approach for the inguinal hernia repair includes the fixation of proline mesh on inguinal canal posterior wall by skin staples instead of using polypropylene suture [15].

The patients were in the age of 20 years to 60 years with a mean age of (34.37 ± 10.95) years. Mean VAS and hernia duration were respectively (4.54 ± 2.811) and (5.52 ± 3.312) years. Patients were divided into

two groups A and B. Group – A included 39 patients (29.3%) with postoperative pain and Group – B included 59 patients (44.4%) with postoperative pain (P-Value = 0.02). Average age for Group I & II was respectively (34.91 ± 10.886) years and (33.83 ± 11.033) years, average hernia duration for Group – I & II was respectively (5.53 ± 3.327) years and (5.50 ± 3.309) years and mean VAS for Group – I & II were respectively (4.54 ± 2.811) and (4.53 ± 2.843) . Khan reported mean age for polypropylene suture and skin staple treated patients (48.99 ± 14.27) years and (46.37 ± 14.12) years [16]. Another research reported an onset of postoperative pain among skin staple and polypropylene suture with respective proportions of 29.3% and 44.4% (P-Value = 0.0155) [17].

Khan reported 23.3% postoperative pain among polypropylene treated group and 29.3% postoperative pain among staple treated group [18]. These outcomes match with our reported outcomes. Zwaal also reported reduced postoperative pain in the staple group than polypropylene group (66% vs 51%) [19]. Shaikh also reported a visible difference in the postoperative pain received by the patients for both groups during

and after the surgery [20]. More research work will also enable scholars to establish different outcomes for different approaches to managing inguinal hernia in the future.

CONCLUSION

The outcomes of this research present that Polypropylene group presented higher postoperative pain frequency than skin staple group. The difference between males was significant between both groups; whereas, the difference between females was insignificant in both the groups. In the same way, the difference was significant in the young age group; whereas, the difference in the older age was insignificant in both the groups.

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