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Comparative Study of Application of Mesh in Front versus Behind the Fascia Transversalis in Inguinal Hernia Repair

Dr. S P Hariramkrishna, Dr. Rajini Patel, Dr. Navneet Kumar

Abstract: ***Background: The word hernia is derived from the Latin word Sacci Hernialis, which means to rapture. Hernia is defined as an abnormal protusion of an organ or tissue through a defect in its surrounding walls. An inguinal hernia repair can be done either laparoscopic method or open method with or without the use of mesh. Objective: To study the outcomes of application of mesh in front and behind the fascia transversalis in inguinal hernia repair. Material and Method: Study was conducted from Feb. 2021 to Feb. 2022 in the department of general surgery of Veerangava Avantibai Lodhi autonomous state medical college etah. All patients who are above 18 years with primary uncomplicated inguinal hernia were included in the study after taking prior informed consent. Total numbers of patients included were 80. Patients were divided into two groups randomly: Group A: It included 40 patients in whom repair was done by placing mesh in front of fascia transversalis, Group B: It included 40 patients in whom hernia repair was done by placing behind fascia transversalis. Conclusion: placement of polypropylene mesh anterior to transversalis fascia had better outcome as opposed to posterior placement.***

Keywords: Inguinal Hernia, Fascia Transversalis, Polypropylene Mesh

1. Introduction

The term hernia means to bud or to protude. It is derived from the Latin word "sacci hernialis". Hernia is defined as an abnormal protrusion of an organ or tissue through a defect in its surrounding walls with our without sac. An inguinal hernia repair is the most commonly performed operation by a general surgeon, owing to its significant incidence with various successful treatment modalities. Inguinal hernia is the most common hernia (73%) because the mascular anatomy in the inguinal region is weak and also due to the presence of natural weakness like deep ring and cord structures. Indirect hernia is more common than direct hernia. Herniation has been attributed to straining, lifting of heavy weight, chronic cough, chronic constipation, obesity urinary causes like BPH, carcinoma prostate, meatal stenosis. Acquired herniation is also probably due to collagen deficiency called as Metastatic Emphysema of Read. Inguinal hernias are usually classified as direct or indirect. They are also classified as congenital or acquired, reducible or irreducible but this classification is of little importance as the operative repairs of these types are similar. In a study Bulbullern. et. at. did a prospective randomized clinical study to compare the Lichtenstein hernia repair with Kugel's patch hernia repair .Kirkil. c et al. conducted study to compare fixing mesh placement in front of the fascia transversalis and behind the fascia transversalis through inguinal incision.

2. Material and Methods

Prospective study was done among patients of inguinal hernia admitted through outpatient department and emergency department from august 2020 to august 2021 in the department of general surgery of Veerangava Avantibai Lodhi Autonomous State Medical College Etah. All patients in the department of surgery with a minimum follow up period of 6 months. The sample size of approximately 80 patients was taken which was further segregated randomly into two groups of 40 patients each.

- **Group A:** Included 40 patients in whom hernia repair was done by placing mesh in front of fascia transversalis via inguinal incision (Lichtenstein method).
- **Group B:** Included 40 patients in whom hernia repair was done by placing mesh behind fascia transversalis via inguinal incision (Nyhus, Rives, Read, Stoppa, Wantz, and Kugel procedure).

Inclusion Criteria:

Patients fulfilling following criteria were included in this study.

- Patient should be healthy. (American Society of Anesthesiology)
- Symptomatic and palpable inguinal hernia.
- Male
- Age 18 to 70 years.
- Having unilateral, primary inguinal hernia.

Exclusion Criteria:

Patients fulfilling any of the following criteria were excluded from the study.

- Irreducible hernia.
- Emergency obstructed hernia.
- Bilateral hernia.
- Having more than one recurrence.
- Prior history of hernia repair surgery with mesh in the same groin.
- Prior history of major abdominal surgery.

After taking informed and written consent, spinal anaesthesia was given. The outcome was measured in the form of mean operating time, incidence of pain, incidence of

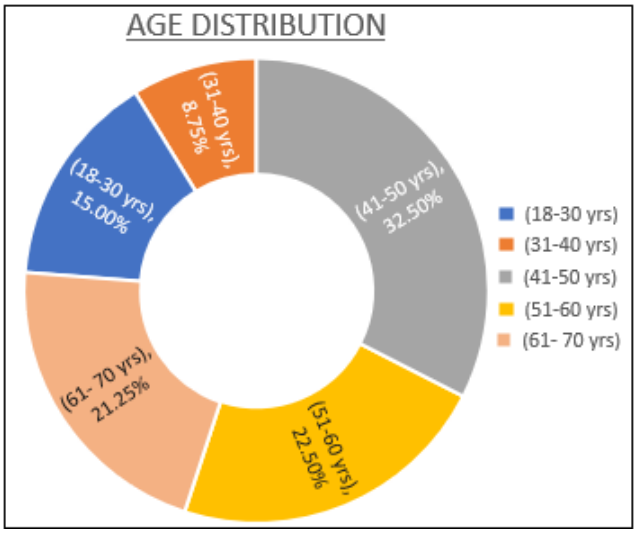
hematoma and post operative complications. Data was analysed using chi square method.

3. Results and Discussion

Total of 80 patients underwent open inguinal hernia repair during the study period. Patient's demographics are displayed in Table-1 and Pie Chart.

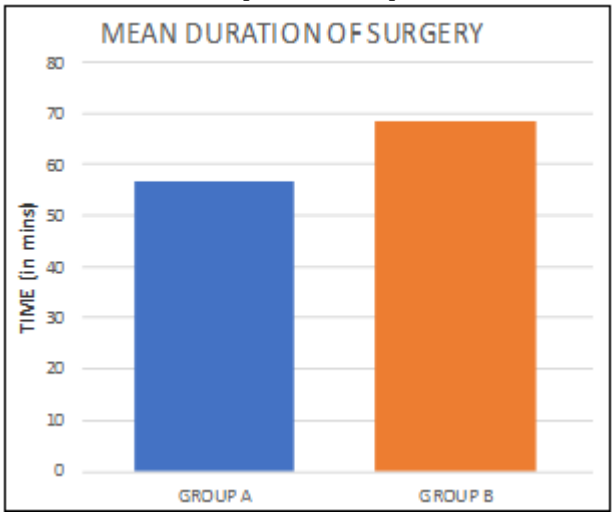
Table 1: Distribution of Cases according to Age Groups

Age Group	Number of Cases	% of Cases
18-30 years	12	15%
31-40 years	07	8.75%
41-50 years	26	32.5%
51-60 years	18	22.5%
61-70 years	17	21.25%
Total	80	100%



Mean age incidence of inguinal hernia patients was 47.75 ± 26.54 yrs. (Mean age ± 2SD).

Table 7: Comparison of Mean Duration of Surgery between Group A and Group B

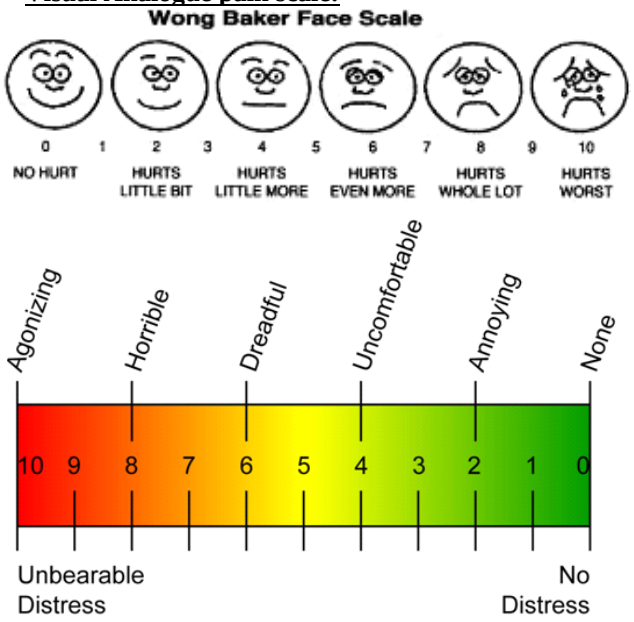


	Group A	Group B
Mean Duration of Surgery	56.7 mins	72.5 Mins

- So, in Group B, average operative time taken is 1.2 times that of Group A. (56.7min vs. 72.5min) and was statistically significant ($P < 0.05$).

Table 8: Comparison of Incidence of Pain Between

- **GROUP A AND GROUP B**
- **Visual Analogue pain scale:**

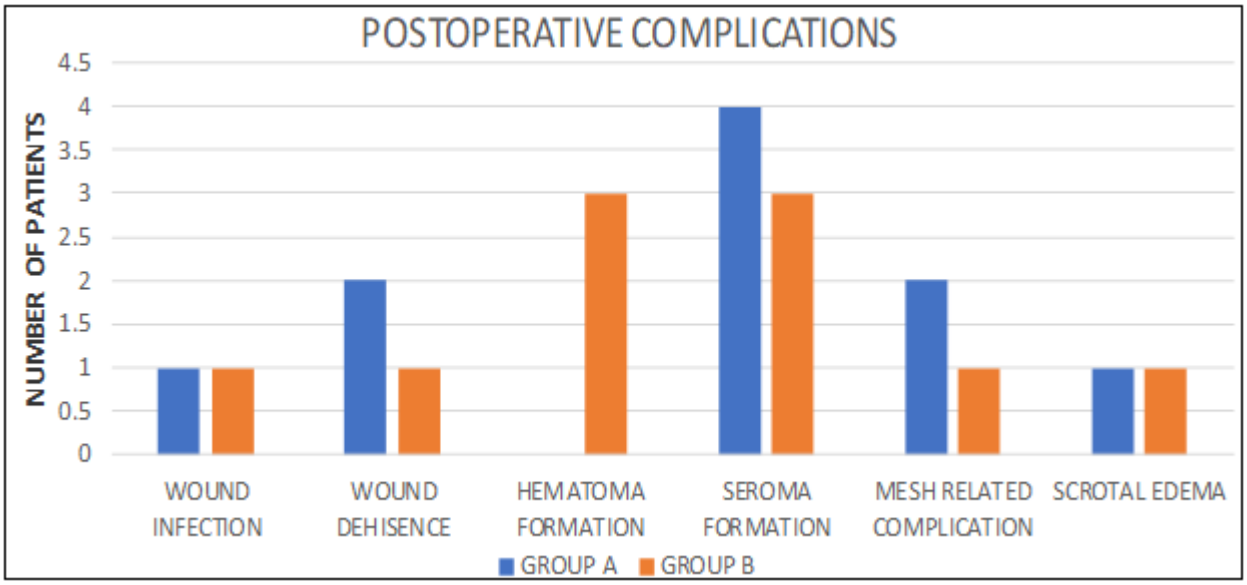


(VAPS Score)	Group A	Group B
0 – 2	33	35
2 – 4	05	04
greater4 – 6	02	01
6 – 8	00	00
8 – 10	00	00

- In both Group A and Group B, the maximum number of patients experienced post-operative pain in range of 0 – 2 (as per VAPS score).
- The difference in the incidence of pain was found to be significant in between both groups ($p < 0.05$) with incidence of pain found relatively greater in group A patients.

Table 9: Comparison of Various Postoperative Complications in Group A and Group B

Complications	Group A		Group B		p value
	Number of Patients	% of Patients	Number of Patients	% of Patients	
Wound Infection	1	2.5%	1	2.5%	> 0.05
Wound Dehisence	2	5%	1	2.5%	> 0.05
Hematoma Formation	0	-	3	7.5%	< 0.05
Seroma Formation	4	10%	3	7.5%	>0.05
Mesh Related Complications	2	5%	1	2.5%	> 0.05



- In Group A, 1 (2.5%) patient developed wound infection, 2 (5%) wound dehiscence, 4 (10%) seroma formation, 2 (5%) mesh related complication and 1 (2.5%) developed scrotal edema.
- In Group B, 1 (2.5%) patient developed wound infection, 1 (2.5%) wound dehiscence, 3 (7.5%) hematoma formation, 3 (7.5%) seroma formation, 1 (2.5%) mesh related complication and 1 (2.5%) scrotal edema.
- Hematoma formation was found only in patients of Group B (7.5%) and this result was found to be significant (< 0.05).

4. Conclusion

Inguinal Hernia Repair is an effective and safe surgical procedure. The mesh can be applied in front or behind the fascia transversalis in inguinal hernia Repair. Placement of Polypropylene mesh anterior to transversalis fascia as opposed to posterior placement offers an advantage in the form of lesser mean operating time, less incidence of pain, less incidence of hematoma formation. No difference were found in wound infection, wound dehiscence, seroma formation, mesh related complication and scrotal edema. Moreover preperitoneal mesh implantation leads to obliteration of the spaces of Retzius and Bogrous making vascular and urological procedure extremely difficult.

References

[1] Rutkow IM. Demographic classificatory and socioeconomic aspects of hernia repair in the United States 9th edition, 2006. pp. 413–426.
[2] Welsh DRJ, Alexander MAJ. The Shouldice repair. Surgical Clincal hernia repair 7th edition, 1998. pp. 451–469.
[3] Majnesh and Devitta.Collagen disorders, 128 (2007)pp 123-125
[4] Berliner SD, Hariprasanna. Hernia of the century, (2009) pp 208-210
[5] Lichtenstein IL, Shulman AG, Amid PK et al. The tension free hernioplasty. Am J Surg 157 (1987)pp.188–193
[6] Gilbert AL Suturless repair of inguinal hernia. Am J Surg 163 (1998): pp.331–335.
[7] Read RC, Barone GW, Haver-Jensen M et al Preperitoneal prosthetic placement through the groin the anterior (2010).pp545–555.
[8] Capozzi JA, Berkenfield JA, Cherry JK Repair of inguinal hernia in the adult with prolen mesh. (1998) pp124–128.
[9] Malazgirt Z, Ozkan K, Dervisoğlu A, Kaya E (2000) Comparison of Stoppa and Lichtenstein techniques in the repair of bilateral inguinal hernia (2002)pp: 264–267.
[10] Stoppa RE, Wrapping the visceral sac into a bilateral mesh prosthesis in groin hernia repair. Hernia (2003) pp 2–12.
[11] Kux M Anatomy of the groin: a view from the surgeon. In: Fitzgibbons RJ, Greenberg AG (eds) Nyhus and Condon's Hernia, 5th edition. JB Lippincott, (2004) pp 45–53
[12] Bringman S, Ramel S, Heikkinen TJ, Englund T, Westman B, Anderberg B Tension-free inguinal hernia repair: TEP versus mesh-plug versus Lichtenstein: a prospective randomized controlled trial. (2003): pp142–147.