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Original Research Article

A study of open inguinal hernioplasy with horizontal incision at tertiary care hospital

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ABSTRACT

Background: Transverse incision may be truly horizontal or may curve to varying degrees. Transverse incisions mostly follow LANGER lines and give better cosmetic results. The present study was planned with an objective to study open inguinal hernioplasty with transverse crease (Langer's line) incisions.
Methods: The present cross-sectional study was conducted on patients operated for inguinal hernia in single surgical unit between March 2013 to October 2015. After admission in a surgical ward, thorough history and clinical examination of all patients done. A transverse skin incision was used (follow the Langer's line) in all cases.
Results: The mean age of the cases in the present study was 45.21±14.2 years. It was noted that among Indirect inguinal hernias (IIH), 85% of the cases were below 50 years of age while among direct inguinal hernias (DIH), 66% cases were above 50 years of age. It was seen that 42.6% of the direct hernia was right-sided while 70.0% of the indirect hernias were right sided. All the patient had a very good cosmetic outcome.
Conclusions: It was concluded from the present study that right sided indirect inguinal hernia was the most common type of Hernia. The use of transverse incision through Langer lines is aesthetical, no folding of scar is seen, all the layers are not on same level so preventing ridge effect, repair become sounder, bigger lower flap of external oblique aponeurosis and even wound is infected, no scar widening.

Keywords: Hernioplasty, Horizontal incision, Inguinal hernia, Langer line

INTRODUCTION

Formal description of hernia repair did not appear until the fifteenth century. Castration with wound cauterization or hernia sac debridement with healing allowed by secondary intention was the most common operations. Inguinal hernia remains a significant clinical problem despite advances in surgical technique. Recurrence rate of 16%-18% following a variety of repair techniques and re-recurrence rates of over 30% have been reported.[1] Bassini Edoardo is considered the father of modern inguinal hernia surgery.

Lotheissen, Mcvay, Halsted, shouldice and other described modification of bassini's repair in attempts to further reduce the recurrence rate and to avoid complications.[2] Low recurrence rates have been achieved with these variations in the hands of expert surgeons. Choice of incision varies with the surgeon's experience, preference and sometimes biases. Transverse incision may be truly horizontal or may curve to varying degrees. Transverse incisions mostly follow LANGER lines and give better cosmetic results. The present study was planned with an objective to study open inguinal hernioplasty with transverse crease (Langer's line) incisions.

METHODS

The present cross-sectional study was conducted on patients operated for inguinal hernia in single surgical unit between March 2013 to October 2015. The study included the cases ranged from 25 to 75 years and who underwent open inguinal hernioplasty in Medical College of south Gujarat. Those cases who had obstructed or large strangulated inguinal hernia are excluded from the study. After admission in a surgical ward, thorough history and clinical examination of all patients done. Routine investigations like hemogram, RFT, RBS, LFT, ECG, X-ray chest was done in all patients.

A transverse skin incision was used (follow the Langer's line) in all cases. Usually surgery performed under spinal anesthesia but final decision was taken by anesthesiologists. About 5 to 8 cm long transverse incision kept 2 to 3 cm above the inguinal ligaments just lateral to midline and extend up to midinguinal point (Figure 1).

Figure 1: Transverse skin incision.

Subcutaneous tissue and two layers of fascia that is camper and scarpa cut in the line of skin incision. Three vessels superficial epigastric, superficial external pudendal and superficial circumflex iliac were secured with coagulation mode of electrocautery.

External oblique aponeurosis is exposed and incised in the line of the fibres. Rest of the steps was similar as per standard lichensten tension free hernioplasty. The lines of skin tension with this transverse incision lead to good exposure with minimal scar formation. (A transverse incision gives a better scar and less pain post-operatively so early ambulation is possible with requirements of analgesia is less.)

In all patients polypropelene mesh were used. Skin was sutured with nylon 2-0 reverse cutting needle with simple interrupted stitches and dressing applied. Post-operatively on day one injection ceftriaxone 1 gm given 12-hourly and from next day tablet cefixime 200 mg twice a day for 5 days given. As an analgesic injection diclofenac sodium, single dose given after 4 hours of surgery and then as and when require tablet diclofenac given. On the same day evening ambulation of all patients done. Next day all patients were discharged and no check dressing was done. All patients were advised follow-up after 5 days post-operatively. Suture removal was done on 8th postop day. All patients were instructed to come for follow-up at 3 months and at 6 months post-operatively.

RESULTS

There were 114 cases who underwent Open Inguinal Hernioplasty included in the study. The most common age group was 41-50 years age. The age distribution of participants is as shown in Table 1. All the cases included in the study were male.

Table 1: Age group distribution of cases.

Age group	Frequency	Percent
Less than 30	22	19.3
31-40	22	19.3
41-50	29	25.4
51-60	24	21.1
61-70	13	11.4
More than 70	4	3.5
Total	114	100.0

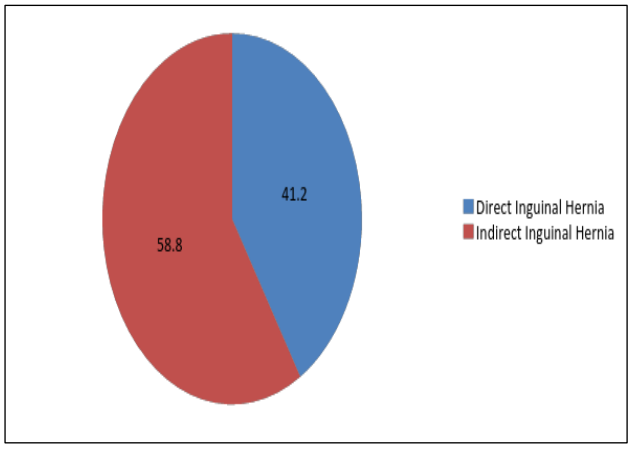

Figure 2: Type of hernia.

The distribution of type of hernia shows that 58.8% cases were indirect Inguinal Hernia and 41.2% cases were direct Inguinal Hernia. Among the age distribution, maximum proportion of direct Hernia cases was seen in 51-60 years age group.

The mean age of the cases in the present study was 45.21±14.2 years. It was seen from the Table 2 that IIH was seen most commonly in 41-50 years age group while DIH was seen most commonly in 51-60 years age group. It was noted that among IIH, 85% of the cases were below 50 years of age while among DIH, 66% cases were above 50 years of age.

Table 2: Distribution of type of hernia according to age group.

Age group (in years)	Type		Total
	DIH	IIH	
Less than 30	8 (17.0)	14 (20.9)	22 (19.3)
31-40	2 (4.3)	20 (29.9)	22 (19.3)
41-50	6 (12.8)	23 (34.3)	29 (25.4)
51-60	16 (34.0)	8 (11.9)	24 (21.1)
61-70	12 (25.5)	1 (1.5)	13 (11.4)
More than 70	3 (6.4)	1 (1.5)	4 (3.5)
Total	47	67	114 (100.0)

Table 3: Distribution of position of hernia.

Position of hernia	Type		Total
	DIH	IIH	
Bilateral	11 (23.4)	5 (7.5)	16 (14.0)
Left Sided	16 (34.0)	15 (22.4)	31 (27.2)
Right Sided	20 (42.6)	47 (70.1)	67 (58.8)
Total	47 (100.0)	67 (100.0)	114 (100.0)

It was seen that 42.6% of the DIH was right-sided while 70.0% of the IIH were right sided. The proportion of right sided IIH were more compare to others. The distribution of position of hernia with age group is shown in Table 4.

Table 4: Distribution of age group years versus position.

Age group (in years)	Position			Total
	Bilateral	Left sided	Right sided	
Less than 30	1 (6.3)	1 (3.2)	20 (29.9)	22 (19.3)
31-40	3 (18.8)	3 (9.7)	16 (23.9)	22 (19.3)
41-50	4 (25.0)	10 (32.3)	15 (22.4)	29 (25.4)
51-60	5 (31.3)	7 (22.6)	12 (17.9)	24 (21.1)
61-70	2 (12.5)	8 (25.8)	3 (4.5)	13 (11.4)
More than 70	1 (6.3)	2 (6.5)	1 (1.5)	4 (3.5)
Total	16 (100.0)	31 (100.0)	67 (100)	114 (100)

DISCUSSION

Inguinal hernia is most common in male. 65% patients are above the age of 50 year as inguinal hernia is more common in older age group. Inguinal hernia regardless of type is one of the most common clinical problem that a surgeon has to manage, despite advances in surgical technique. Improved surgical techniques and a better understanding of the anatomy and physiology of the inguinal canal have significantly improved outcomes for many patients. Recurrence rate of 16-18% following a variety of repair techniques and re-recurrence rates of over 30% have been reported.[3] Application of prosthetic mesh has improved the recurrence rate, worldwide.[4] However, in the re-operative challenging condition the anterior approach still has the disadvantages with the risk of damages to the testicular blood supply and sensory nerves.[5]

The present cross-sectional study was conducted on 114 patients operated for inguinal hernia. All the cases in the present study were operated with transverse skin incision which followed the Langer's line). All the patients experienced excellent cosmetic result. No folding of the scar was seen any of the cases.

In the present study, the mean age of the cases in the present study was 45.21±14.2 years. The mean age in current study is 58.34±14.62 years (SD±14.62) in the study conducted by Khan AH et al, which is comparable to studies in the west and Asia but strongly contradicts African studies.[6,7]

In the present study, it was found that IIH was seen most commonly in 41-50 years age group while DIH was seen most commonly in 51-60 years age group. It was noted that among IIH, 85% of the cases were below 50 years of age while among DIH, 66% cases were above 50 years of age. It was seen that 42.6% of the DIH was right-sided while 70.0% of the IIH were right sided. The proportion of right sided IIH were more compare to others. The side of inguinal hernia in the study conducted by Khan AH et al was dominantly found per operatively on the right side in patients (45.5%). Whereas the type of hernia was predominantly of the indirect type; 5 (45.5%) patients comparable to the study conducted in Nigeria.[6,8]

Recurrence after mesh hernia repair is related to technical factors such as inadequate dissection, insufficient prosthesis size and fixation, and surgeon skill.[9] Prolene mesh was better option, whereas the method of mesh attachment was similar to that used by Rives et al.[10] The pre-peritoneal approach for recurrent inguinal hernia which avoids reoperation through distorted anatomy and scar tissue markedly reduces the risk of damage to the testicular vessels and permits inspection of all potential groin hernia sites. Through an open incision, the dissection is rapid, while structures are easily to access

and widely visible. Its benefits have long been proclaimed.[11] Stoppa and colleagues placed a large sheet of mesh, via a midline incision, in the pre-peritoneal plane without closing the defect or fixing the mesh. Wantz described a unilateral version of the procedure through a high transverse incision.[12,13] Even with complex or multi-recurrent hernias, this method gave impressive results (Figure 3).[7]

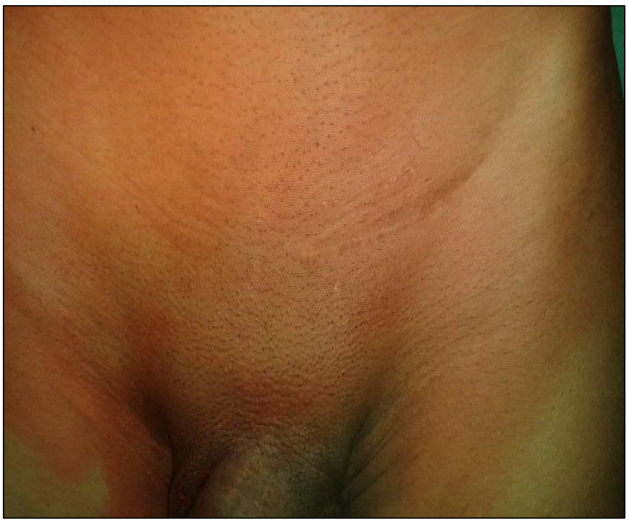

Figure 3: 6 Months post-operatively.

Transverse incision leaves an inconspicuous scar and causes less splinting of the abdomen post operatively, thereby allowing for better respiratory exchange, earlier and more comfortable ambulation. Less pain is experienced, thus there is a resultant lower requirement for narcotics. For the anatomical reasons stated above, closure of the wound is much easier because the layers come together with less tension and show less tendency to separate. Wound dehiscence has been no problem regardless of the type of incision used.

CONCLUSION

It was concluded from the present study that right sided IIH was the most common type of Hernia. The use of transverse incision through Langer lines is aesthetical, no folding of scar is seen, all the layers are not on same level so preventing ridge effect, repair become sounder, bigger lower flap of external oblique aponeurosis and even wound is infected, no scar widening.

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