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ORIGINAL ARTICLE

**A PROSPECTIC RANDOMISED STUDY ON COSMETIC OUTCOME BETWEEN SIMPLE SUTURING AND MATTRESS SUTURING IN HERNIOPLASTY**

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**ABSTRACT**

**Aims:** The purpose of this study was to see cosmetic outcome of simple suturing and mattress suturing in hernioplasty

**Methods:** This is a randomised study performed in 80 patients who underwent hernioplasty procedure. After the procedure and closure of external oblique aponeurosis skin cleaned with 5% Betadine solution and dried. Then Suturing done either by simple interrupted closure using 2'0 ethilon or mattress interrupted closure using 2'0 ethilon and cosmetic outcome have been analysed after 2 months of surgery. **Result:** There were no significant difference in the cosmetic outcome of the scar between two groups. Cosmetic outcome of the simple interrupted suture on the 4<sup>th</sup> and 8<sup>th</sup> week is 76.92+6.94 and 80+6.94. Cosmetic outcome of the mattress interrupted closure on 4<sup>th</sup> and 8<sup>th</sup> week is 77.69+6.67 and 79.49+5.59. **Conclusion:** As the cosmetic outcome doesn't make big difference between the two groups. But the trauma made by the needle during simple suturing is minimal comparative to mattress suturing. So Its better to use simple interrupted skin suturing compared to mattress.

**Keywords:** Simple suturing, mattress suturing, cosmetic outcome

**1. INTRODUCTION**

Even though there are lots of newer methods in closing incision of hernioplasty like staplers, adhesive glue, adhesive strip material is in practice and the cosmetic outcome is far better than traditional skin suturing methods. The Choice of wound closure with skin suturing technique is up for debate.

The earliest reports of surgical suture dated was back in 3000BC in ancient Egypt and the oldest known suture was done in a mummy from 1100BC and ancient Indians used ants by coaxing insect to bite wound edges with their jaws and subsequently twisting of the insect's body to keep the wound closed by the clenched jaws.

This is because the advanced new technique like stapler and dermabond is very costlier compared with traditional skin

suturing. As we are In a developing country cost effectiveness is still an important criteria. But it should not compromise with the cosmetic outcome also. We are still in search of of better suturing techniques in cosmetic outcome. The aim of study was to compare the cosmetic outcome of patient who have undergone elective hernioplasty or hemiotomy between the simple interrupted sutures and mattress interrupted sutures.

**2. MATERIAL AND METHODS**

This study was conducted in rajah muthiah medical college and hospital, Chidambaram in 50 randomly selected patients.

Patients enrolled were above 20 years of age with inguinal hernia who have been posted for hernioplasty or hemiotomy. The study has been conducted between January 2013 to march 2014.

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The study was approved by RMMCH ethical committee and consent from patient have been taken. The study was done in 80 patients and divided in to two groups. Group A and Group B and each group have 40 patient enrolled.Pre operatively shaving of parts were done and patient is given an injection of Taxim 1gm IV on the day of surgery.

Patient were assigned to one of the two group by randomized method. The randomization was done according to patient enrolment on odd and even number bases. Odd number (i.e.1,3,5etc)-simple interrupted suture  
Even number(i.e.2,4,6 etc)-mattress suture

The suture material used in the group was 2'0 non-absorbable , mono filament (ethilon) 3/8circle reverse cutting needle was obtained from local medical shop.

Hernioplasty was done through a skin crease incision and sac identified ,transfixed and ligated, meshplasty done then wound closed in layers after closing external oblique aponeurosis, if the sub cutaneous layer is thick then reverse burying suture have been applied using absorbable sutures following which skin cleaned with 5%betadiene and dried. Then one of simple interrupted suture (fig.1)or vertical mattress interrupted suture(fig.2) have been applied. Patient in group A skin is closed using simple interrupted suture

Fig-1 Far-Far suture technique

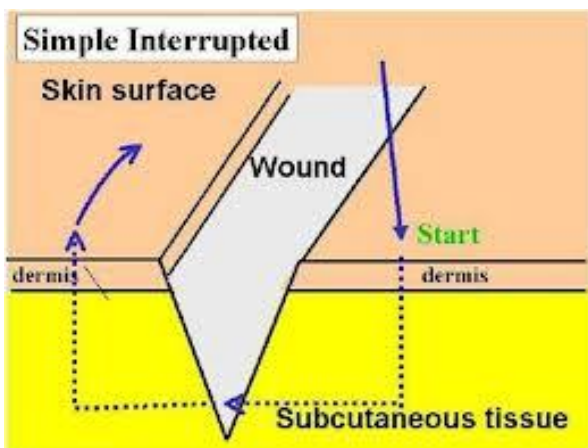
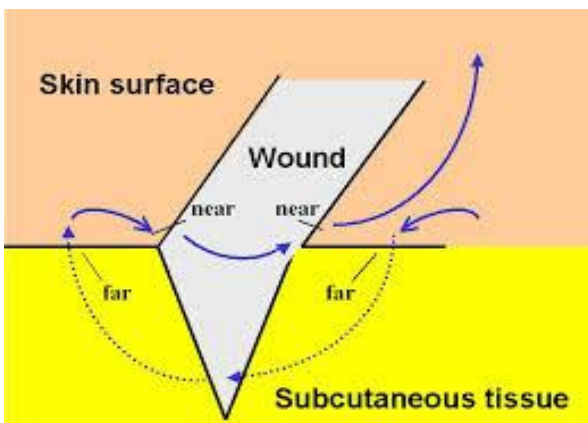


Fig-2 Patient in group B skin closed by vertical mattress interrupted sutures



Far-far taken 1cm away from wound edge and near near taken 1to2 mm away from edge above dermis. Both the end should have equal depth for good approximation and eversion of the edges

For both group antibiotics is continued for 3days post operatively and dressing have been changed on 4<sup>th</sup> post operative day(POD) and then followed by suture removal done on 7<sup>th</sup> post operative day

Assessment for cosmetic outcome was analysed by chief surgeon on the hospital who was blinded to the method of wound closure. It is based on visual analogue scale scoring system. Each cosmetic outcome was analysed in 4<sup>th</sup> and 8<sup>th</sup> week from post operative day. Visual analogue system scoring varies from 0mm to 100mm. 0mm represents worst scar and 100mm represents good scar.

The data collected was analysed using SPSS-21 and the analysis of variance(ANOVA)was the primary stastical tool used to analyse the VAS SYSTEM between the groups.

### 3.RESULTS

This study was conducted from January 2013 to march 2013. 80 patient was enrolled in this study and each patient was divided to GROUP A and GROUP B and 40 patient in each group. Cosmetic outcome was measured using visual analogue scale(0mm=wrost scar 100mm=good scar). The score at the 4<sup>th</sup> and 8<sup>th</sup> week of GROUP A and GROUP B were compared by ANOVA.

Frequency tabulation was carried out forage and visual analogue scale. Graphical illustration were also given in the following.

#### AGE DISTRIBUTION:

The common age range of the patient in the study were 36-45years and 57.5% of the patient were in this age range in both groups.(graph.1)

the mean age of GROUP A patient is 42.57+7.48 years and in GROUP B is 41.50+7.32(graph.2)

Fig.1

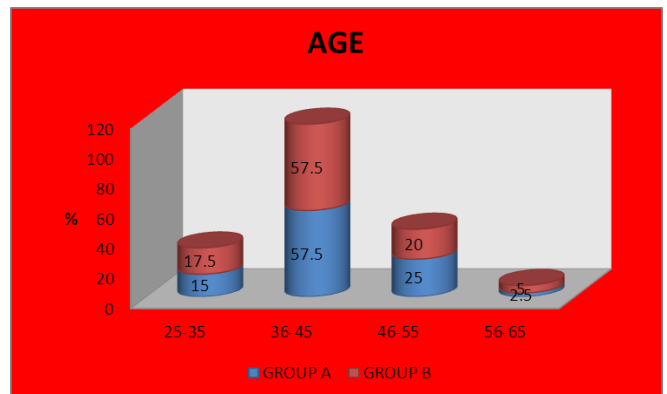
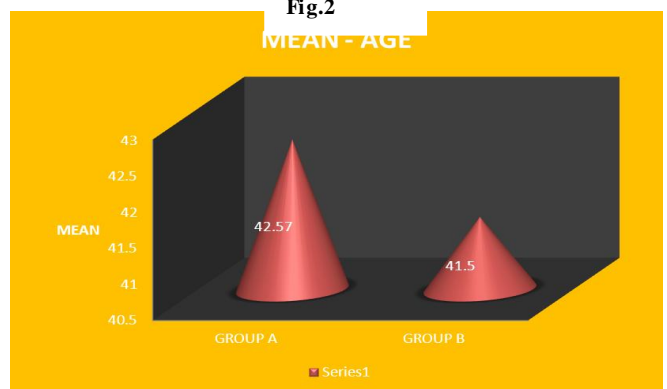


Fig.2



**GROUP A (SIMPLE INTERREPTED SUTURE):**

Distribution of VAS 08 scar according to different class intervals in group a patient was presented in the Table-2. It is observed that the majority of patients were in the VAS between 71 to 80 at 4<sup>th</sup> week (69.5%) as well as 8<sup>th</sup> week (59%). In the grade 81to 90 only 2.6% were observed in 4<sup>th</sup> week but the percentage was increased to 20.5 at the 8<sup>th</sup> week. In the VAS of 61-70, 20.5% were observed in week 4 as well as in week 8<sup>th</sup>. In 4<sup>th</sup> week, 7.7% of patients were observed in the range ≤ 60 at 4<sup>th</sup> week but no patients were in this level at 8<sup>th</sup> week.

**TABLE- 2COSMETIC VISUAL ANALOGUESCORE DISTRIBUTION**

	4 <sup>th</sup> week		8 <sup>th</sup> week	
	Number	Percentage	Number	Percentage
≤ 60	3	7.7	-	-
61-70	8	20.5	8	20.5
71-80	27	69.5	23	59.0
81-90	1	2.6	8	20.5
Total	39	100	39	100

**GROUP – B (Vertical Mattress suture)**

It is observed that, the majority of patients were in the VAS between 71-80 at 4<sup>th</sup> (66.7%) and 8<sup>th</sup> week (69.2%). In the level 61-70 20.5% were observed at 4<sup>th</sup> week but the percentage was dropped to 17.9% at 8<sup>th</sup> week. Only 5.1% had VAS ≤ 60 at 4<sup>th</sup> week and no one was at this level at 8<sup>th</sup> week. 7.7% of patients had VAS of 81-90 at 4<sup>th</sup> week and percentage was improved to 12.8 at the 8<sup>th</sup> week.

**TABLE- 2COSMETIC VISUAL ANALOGUESCORE DISTRIBUTION**

	4 <sup>th</sup> week		8 <sup>th</sup> week	
	Number	Percentage	Number	Percentage
≤ 60	2	5.1	-	-
61-70	8	20.5	7	17.9
71-80	26	66.7	27	69.2
81-90	3	7.7	5	12.8
Total	39	100	39	100

**TABLE – 4 COMPARISON OF COSMETIC VISUAL ANALOGUESCORE AMONG GROUPS**

	MEDIAN	Mean	Standard Deviation
4 <sup>th</sup> week A	80	76.92	6.94
4 <sup>th</sup> Week B	80	77.69	6.67
8 <sup>th</sup> Week A	80	80.00	6.49
8 <sup>th</sup> Week B	80	79.49	5.59

**ANOVA**

	'F' Value	Significant (P1 Value)
ANOVA	1.991	0.118

95% CL 71 to 80

It is observed that, the Mean VAS at 4<sup>th</sup> week for group A was 76.92 ± 6.94 whereas it was 77.69 ± 6.67 for group B. The Mean VAS at 8<sup>th</sup> week for group A patients was 80 ± 6.49 whereas it was 79.49 ± 5.59 for group B patients.

Analysis of variance (ANOVA) was carried out to compare the VAS scores between groups at various time of measurements. The obtained 'F' value was 1.991 with the corresponding 'P' value of 0.118. As the obtained 'P' value was greater than 0.05 there was no significant difference observed in the VAS score of scar between groups. Hence, both treatment were producing more or less similar effects in the management of scar.

**4.CONCLUSION**

- The common age range of study patients was 36-45 years
- The common Class interval 08 VAS was 71 to 80 at 4<sup>th</sup> 8<sup>th</sup> week for both the groups.
- There was no significant difference observed in Fishers statistics (ANOVA) of the four measurements (Group A 4<sup>th</sup> and 8<sup>th</sup> week, Group B 4<sup>th</sup> and 8<sup>th</sup> Week). Hence both treatment are equal in effects for the management of scar.

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