

A New Approach to Ventral Hernia Repair

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Ventral Hernia is undoubtedly as old as man himself. Possibly this is the price which man has to pay for its upright posture. The earliest detailed account of hernia is found in the writings of Celsus in the 1st century A.D. But the radical treatment of non-strangulated umbilical hernia is of recent origin. Beard in 1841 was possibly the first to operate upon the congenital variety. 19th and 20th century has tested the surgical ingenuity in the repair of large ventral hernias. Many methods have been evolved to supplement the weak organic tissues in the anterior abdominal wall. In spite of the utmost surgical acumen and postoperative vigilance certain percentage of hernias again recur. This paper deals with our experiences in the use of continuous monofilament nylon thread stitches, for the repair of ventral hernias, employing a modified "Keel" technique to avoid recurrence,

Material and methods

Thirty five patients operated by this technique at Rajendra Hospital, Patiala, are included in this review. Earliest operations were done 5 years back, but due to paucity of suture material, main work has been carried out during the last two years. Cases were selected at random. They belong to all age groups (Table I).

Majority of patients, as expected, were females (Table II).

Technique

An elliptical longitudinal or transverse incision is made over the site of hernia and the subcutaneous tissues are dissected of the sac and the skin flaps are raised by using double-ended dissector specially designed by us for hernias (Saronwala & Rai, 1969). This instrument has not only made the dissection easy but has also minimised operative bleeding, thus avoiding post-operative haematoma and infection. The sac is opened intra-abdominal structures i.e. gut, omentum and gall-bladder etc. are inspected and co-existent lesion, if present is also tackled suitably (Table VI). To give flip to family planing programme and to avoid repetition of tension on the suture line, tubectomy is done in eligible females when agreed upon by the patients. Next the redundant sac is excised, stitched using 0/chromic cat-gut without leaving any pouches of the peritoneum, as these are likely to initiate the process of recurrence i.e. act as a preformed sac. The hernial ring is enlarged on one or both sides when intra-abdominal procedures cannot be accomplished otherwise. The ring edges are approximated with continuous monofilament nylon thread stitches. As its knots are

likely to slip, 6-8 knots including two stay knots are used and the free end is divided about 5 mm. from the knot. Meticulously applied knots do not pose the problem of slipping. Depending upon tenseness of rectus sheath, if possible another layer of continuous monofilament nylon stitches is applied after clearing rectus sheath. The bite is taken 4-5 mm. away from the first layer and includes the ends of the first layer for about 2 cm. on either sides. This results in invagination of the first layer. More layers are applied, invaginating the preceding layers, till sufficient tension is noted in the sheath (Table V). Tension stitches and / or soft rubber tube drains are used to obliterate the dead space, when the same purpose could not be achieved by approximating subcutaneous tissues with plain catgut (Table VII). Cotton thread was used for the skin.

RESULTS

Table I

Age Groups	No. of cases	percentage Approx.
1-10	1	3%
11-20	1	3%
21-30	9	25.5%
31-40	14	40%
41-50	9	25.5%
Over 50	1	3%
Total : 35		

Table II

	Male	Female
No. of cases	5	30
Percentage (Approximate)	14%	86%

Table III

Type of hernia	No. of cases	Percentage Approx.
Epigastric	2	6%
Umbilical	10	28%
Paraumbilical	15	43%
Incisional	8	23%
Total :	35	

Table IV

Size of the defect	No. of cases	Percentage Approx.
1-3 cms.	18	52%
4-6 cms.	5	14%
7-10 cms.	5	14%
21-15 cms.	5	14%
Above 15 cms.	2	6%
Total :	35	

The maximum size of the defect was 22.5 cms.

Table V

No. of layers of monofilament nylon.	No. of cases	Percentage Approx.
One	7	20%
Two	21	60%
Three	5	14%
Four	2	6%

Table VI

Intra-abdominal surgical procedures carried out.

Type of procedure	No. of cases	Percentage Approx.
Tubectomy	5	14%
Hystrectomy	2	6%
Appendicectomy	2	6%
Adherent omentum excised	20	57%

Table VII

Measures used for preventing local collection.

	No. of cases	Percentage Approx.
Tension stitches	6	17%
Tension stitches and drainage	7	20%
Drainage only		
i. Through the wound edges.	2	37%
ii. Through stab incision.	11	
None	9	26%

Table VIII.

Post-operative complications.

Complication	No. of cases	Percentage Approx.
Serum collection in wound	2	6%
Mild wound infection	2	6%
Distension of abdomen	2	6%
Death	-	-

Table IX

Post-operative hospital stay.	No of cases	Percentage Approx.
1-7 days	14	40%
8-14 days	19	54%
15-21 days	2	6%

Table X

Follow up.

Period	No. of cases
6 months-1 year	28
1-2 year	3
3-5 year	2
Not traced	2

33 cases reported for regular follow up. 2 cases could not be traced. Minimum follow up was 6 months and maximum of 5 year

Table XI.

Follow up report

Complication	No. of cases	Percentage Approx
Stitch abscess	3	9%
Hypertrophy of the scar	4	12%
Painful tender scar	5	15%
Loose-skin	1	3%
Recurrence	-	-

DISCUSSION

This is a small Series of 35 cases and follow up period, in majority of patients, is not long enough to warrant a final conclusion. Since majority of hernias (60%) are reported to recur in first 6 months (Page, 1943, Edward, 1943), as such this technique appears to be atleast a pointer to a better solution of the problem of ventral hernias.

The post-operative complications are minimum (Table VIII) and follow up results speak of themselves. Compared with Mayo's repair, the dissection required and consequently the inevitable bleeding post-operative haematoma and infection is much less. The recurrence at the angles is avoided by including even the area away from the hernial ring in the repair and continuous and invaginated sutures donot leave much scope for central recurrence.

In the extra-peritoneal "Keel" repair the blind pleating of the peritoneal sac is not without risk and further additional

intra-abdominal pathology cannot be dealt with at the same time. In spite of the pleating of the peritoneal sac, the sac still remains in the body i.e. the anatomy is not properly restored and this redundant sac can act as the starting point of recurrence. Keeping these disadvantages in mind in the present series, sac had been opened and excised in every case.

We have preferred continuous monofilament nylon stitches than interrupted silk stitches as in classical "Keel" repair because we feel that interrupted stitches may leave potential spaces of weakness in between.

The technique of monofilament nylon thread appears to be excellent, as this is simple and it causes minimum reaction, does not support infection and in the long run does not fragmentate like the metallic wires. The slipping of knots is prevented by applying 6-8 knots and leaving a long

end from the knots. We have not come across any case requiring prosthesis and we feel that almost all cases can be repaired by this modified "Keel" operation. The anatomy of the abdominal wall is restored to normal. Opening of sac gives a chance to look into the peritoneal cavity. The continuous stitches carried beyond the defect edges reduce the chances of angular recurrence.

Summary

35 cases of ventral hernias of varying sizes have been presented. The hernial sac was opened and excised in all. The repair was done by invaginating layers of monofilament nylon thread. This technique has shown gratifying results. There had been no incidence of recurrence of hernia nor of operative mortality and it seems to be applicable even to large ventral hernias.

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