Recent Trends in Dealing with Inguinal Hernial Sac

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Abstract

High ligation of the hernial sac is a hallowed and time-honoured concept in inguinal hernia repair and it is considered essential for preventing recurrence. However, this concept has been contested in recent reports. We conducted a prospective study of 186 cases of inguinal hernia repair. In 92 cases the sac was ligated at the neck and excised, in 94 cases the sac was not ligated at all but either simply inverted or excised without ligation. The type of repair was Bassini's repair, Shouldice repair or Lichtenstein's repair. Degree of post-operative pain was significantly less in those cases where sac was not ligated. There were no cases of recurrence in either group at 3 years follow up. Ligation of sac in inguinal hernia surgery is not only unnecessary and time consuming but also leads to increased post-operation pain. Recurrence is unaffected by not ligating the sac.

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Key Words : Hernial sac; Recurrence

Introduction

Hernia and its treatment has fascinated surgeons of all latitude throughout the years of recorded medical history. From the beginning of modern anatomic hernia surgery, ushered in by Bassini in 1887, recurrences have plagued and frustrated surgeons of all ages, experience, skill and nationality. One of the cardinal causes of recurrence was thought to be failure to do high ligation of the sac. Because of the emphasis on the 'sac', its ligation is done as a sacred ritual. However, the emphasis has now shifted from the sac to the defect and hence the necessity to ligate the sac has been questioned. In the modern operations for inguinal hernia like the Lichtenstein's repair and Rutkow's Mesh plug repair the sac is not ligated but simply inverted or excised without ligation [1,2]. We conducted this study to find out the effect of not ligating the hernial sac on post-operative pain and recurrence rates.

Material and Methods

186 cases of inguinal hernia operated upon in a large hospital, by various surgeons between 1998 and 2000 were included in the study. Different surgeons were asked not to ligate the sac in some cases at random while performing inguinal hernia surgery in their surgical units. Majority of test cases were from the unit of the first author. It was a prospective study and only indirect, uncomplicated hernias in adult male patients were included. Recurrent hernias were excluded. Cases were put into the test or control group at random. Anaesthesia used was either GA or spinal. Perioperative antibiotics in the form of Inj Ampicillin 500 mg/iv at the time of induction/after spinal anaesthesia was used.

Operation technique :

Inguinal canal was opened in the usual manner. The indirect sac was dissected up to the neck. High dissection

and not high ligation is important. In the control group of 92 cases the sac was transfixated at the neck and excised in the traditional manner. In the remaining 94 cases the sac was not ligated. In 56 cases the sac was inverted with the finger into the peritoneal cavity. In 38 cases the sac was excised at the neck without ligation; the residual defect in the parietal peritoneum even in cases with very wide necks were left unattended.

The repair of the posterior wall of the inguinal canal was done by Bassini's repair, Shouldice repair or Lichtenstein's Mesh repair in the usual way. The degree of post-operative pain was noted for the next 15 days and graded as minimal, mild, moderate and severe. Wound was inspected on the fourth day for signs of infection/haematoma/seroma.

Follow up :

Patients were followed up at intervals of 2 weeks, 3 months, 6 months, one year and there after every 6 months. Follow up was carried out for varying periods in the 186 cases with a maximum follow up of 3 years. Cases lost to follow up were not included in the study. Signs of recurrence of hernia were noted.

Results

The test and the control group were not matched for age and size of the hernia. Age varied from 19 years to 79 years (Table 1). Mean age was 38.6 years. Duration of symptoms varied from 6 months to 13 years (Table 2). At operation in both the control group and test group most of the hernias belonged to type II of Gilbert's classification (internal ring moderately enlarged but less than 4 cm in diameter) (Table 3). The types of repair done were Bassini's, Shouldice or Lichtenstein repair (Table-4). Post-operative pain was significantly less in the test group (Table 5). There were 4 cases of superficial wound infection, 3 cases of seroma and 6 cases of haematoma in the control group and 6 cases of superficial wound infection, 7 cases of seroma and 2 cases of haematoma in the test group. There were no cases of

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Table 1

Age distribution

Age group in years	No of patients	Percentage	Test	Control
18 - 35	63	33.9	33	30
36 - 50	58	31.2	22	36
51 - 65	48	25.8	32	16
66 - 80	17	9.1	7	10

Chi square = 9.24; dt = 3; $p < 0.05$

Table 2

Duration of symptoms

Duration in years	No of patients	Percentage
< 1	67	36
1 - 2	44	23.7
> 2 - 5	49	26.3
> 5 - 10	15	8.1
> 10	11	5.9

Table 3

***Classification of hernia (Gilbert's)**

Type	Control group (n=92)	%	Test group (n=94)	%
I	12	13	11	11.5
II	65	70.7	57	61.4
III	15	16.3	26	27.1

*Type I - Normal internal ring, Type II - Moderate enlarged internal ring < 4 cm, Type III - Internal ring > 4 cm

Chi square = 3.20, dt = 2, $p = > 0.05$

Table 4

Type of repair done

Type	Control group (n=92)	Test group (n=94)
Bassini's	46	43
Shouldice	24	28
Lichtenstein	22	23

Chi square = 0.45, dt = 2, $p = > 0.05$

Table 5

Post operative pain

Grade	Control group (n=92)	%	Test group (n=94)	%
Minimal	22	(23.9)	44	(46.8)
Mild	43	(46.7)	38	(40.4)
Moderate	22	(23.9)	10	(10.6)
Severe	05	(5.5)	02	(2.1)

Chi square = 13.78, dt = 2, $p = 0.001$ (Statistically significant)

recurrences in either the control group or the test group.

Discussion

Teachers and students of Surgery have long laboured under the burden of the 'sac' in inguinal hernia. Thus

Table 6

Follow up

Period of follow-up	Control group (n=92)	Test group (n=94)
< 3 months	8	10
3 months - 1 year	26	29
1 - 2 years	34	36
2 - 3 years	24	19

the sac got pride of place in hernia surgery at the expense of the 'defect'. It is a long held belief that ligating the sac is an important adjunct to groin hernia operations [2,3]. Failure to ligate the sac is considered an important cause of recurrence.

The aim of the present study was to see the effects of not ligating the sac in indirect inguinal hernia. The focus was on post-operative pain and recurrence rate. 88.5% of the cases in the test group consisted of moderate to large hernial defects belonging to type II and type III of Gilbert's classification [6]. In 58.3% of the cases in the test group we did not even open the sac but simply inverted the same. This has been the practice of Rutkow who recommends that hernial sacs should not be opened for visual inspection [2]. The inverted hernial sac simply involutes without any problem in a few days. The sac is not ligated in Rutkow's Mesh Plug repair but inverted [2]. He feels that because peritoneum is a highly sensitive structure ligating the sac does nothing more than produce a miniature "peritonitis". This iatrogenic peritonitis is one of the factors contributing to the post-operative discomfort, pain and malaise that accompany suture hernia repairs. In our series post-operation pain was significantly less in test group in whom the sac was not ligated.

The sac is not ligated in Lichtenstein repair but either inverted or excised [1]. High dissection and not high ligation is the critical factor. High ligation does not influence recurrence rate and may be a cause of increased post-operative pain [3]. However, high dissection of the sac well up into the retroperitoneum and the freeing of the sac from the edges of the internal ring are important for the prevention of recurrence and allow good exposure of the ring to facilitate the repair. When the sac is not ligated but excised the residual defect in the parietal peritoneum heals within a few hours or days [3]. The sac is not ligated in Gilbert's sutureless repair and laparoscopic hernial repairs [4,5].

The reported recurrence rate in Rutkow's Mesh Plug repair is 0.2% and 0.4% for Lichtenstein's repair [1,2]. No recurrences were encountered in our patients so far; this may be because the follow up has been done for only 3 years and the patients lost to follow up are not included in the study.

Ligation of the hernial sac in inguinal hernia surgery is not only unnecessary and time consuming but also leads to increased post-op pain. Recurrence rates are unaffected by not ligating the sac. However, it is important to dissect the sac right up to the neck after which it may be either excised or inverted.

References

1. Lichtenstein H, Shulman AG, Amid PK. The tension free hernioplasty. Am J Surg 1989;157:188-93.
2. Rutkow IM, Robbin AW. Open Mesh Plug Hernioplasty. Prob Gen Surg 1995;12:121-7.
3. Abrahamson J. Etiology and pathophysiology of primary and recurrent groin hernia formation. Surg Clin North Am 1998;78(6):953-70.
4. Gilbert AI, Graham MF. Improved sutureless technique : Advice to experts. Prob Gen Surg 1995;12:117-9.
5. Crawford DL, Phillips EH. Laparoscopic repair and groin hernia surgery. Surg Clin North Am 1998;78(6):1047-62.
6. Gilbert AI. An anatomical and functional classification for the diagnosis and treatment of inguinal hernia. Am J Surg 1989;157:331-6.

Radiological Quiz

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A 58 year old female presented with progressive difficulty in breathing for the past few months. On examination she was found to have mild stridor. A plain

X-ray chest and contrast enhanced CT of the chest are shown. Can you spot the diagnosis.

Fig. 1 : Plain X-ray chest

Fig. 2 : Contrast enhanced CT chest

Answer to the radiological quiz - pg. 156

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