A CLINICAL STUDY OF INGUINAL HERNIA AND COMPARISON BETWEEN MESH REPAIR AND CONVENTIONAL REPAIR OF HERNIA WITH RESPECT TO HERNIA RECURRENCE

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ABSTRACT: AIMS: Though there are so many methods in repair of hernia, no one is exempted from complications hence surgery on hernia is still a challenging subject. The objectives of this study are to study the incidence and different modes of presentation of inguinal hernia, to compare between mesh repair and Bassini's repair in relation to hernia recurrence. **METHODOLOGY:** 60 cases of inguinal hernia who were admitted in various surgical units of K.R. Hospital, Mysore from JAN 2008 to JULY 2009 were selected randomly for study. All complicated inguinal hernias were excluded from the study. Sixty cases of inguinal hernia (30 mesh repair, 30 Bassini's repair) were randomly selected and studied in detail. The data was analysed by using standard statistical methods.

RESULTS: K. R. Hospital incidence of inguinal hernia is 8.3%. sex ratio: M:F::19:1. Smoking is the major risk factor. 43.3% came to the hospital after one year of onset of symptoms. 55% of the patients had right sided hernia. The mean hospital stay in conventional repair is 6.8 days and mean hospital stay in mesh repair is 5.6 days. The postoperative complications were more in patients who underwent conventional repair. 80-85% of patients were followed up for 3 years. One recurrence was noted in Bassini's repair group and no recurrence in mesh repair group. 13% developed chronic groin pain following mesh repair, whereas 23% developed chronic groin pain after Bassini's repair. **CONCLUSION:** Lichtenstein mesh repair has significantly reduced complications, less hospital stay, low recurrence rate, less duration of surgery and early return to work when compared to the conventional repair & is cost effective.

KEY WORDS: Bassini's repair; Direct hernia; Indirect inguinal hernia; Mesh repair; Scrotal haematoma; Scrotal edema; .

INTRODUCTION: Inguinal hernia is one of the commonest problems of mankind. Historically the development of hernia surgery is one of the most interesting chapters in the field of surgery, since hernias have always been the most common disease of man amenable to surgical treatment. Though there are so many methods in repair of hernia, no one is exempted from complications hence surgery on hernia is still a challenging subject. Watson said "in the entire history of surgery, no subject has been so controversial as the repair of groin hernias".² The present study is an attempt to evaluate certain well known anatomical, physiological and surgical concepts of inguinal hernia, with special reference to its surgical management with mesh repair.

MATERIALS & METHODS: Sixty cases of inguinal hernia who were admitted in various surgical units of Krishnarajendra Hospital, Mysore, attached to the Government Medical College, Mysore, during the year January 2008 to July 2009 were randomly selected and studied in detail. After the admission to the hospital all the patients were examined systematically as per the approved

proforma. Ultrasound scan of abdomen was done in all patients to assess the size of the prostate. All complicated inguinal hernias were excluded from the study. During the operation, the type of hernia and contents of the sac were noted down. Thirty cases were operated by Lichtenstein tension-free mesh repair and other thirty cases by modified Bassini's repair. In Lichtenstein repair – prolene mesh was used to strengthen posterior wall, and fixed by onlay technique by using prolene no. 2-0, interrupted stitches, mesh size was used depending on size of the defect. In Bassini's repair, prolene no. 1 used to put interrupted stitches to strengthen posterior wall of inguinal canal. During their stay in the hospital postoperative complications like urinary retention, UTI, wound infection, scrotal haematoma were noted and treated properly.

All the cases were followed up for 3 years for hernia recurrence and chronic groin pain. Long standing follow-up was not possible because patients did not come for checkup inspite of persuasion. The data were analysed by using mean values, standard deviation, standard error, Chi-square test and contingency table analysis.

RESULTS: In this study, the maximum incidence of inguinal hernia were observed among 40-69 years age group (55%). Comparatively less among < 30 years age group and above 70 years. The youngest was 18 years and eldest age was 87 years.(table 1). 19 patients (31.7%) were found to have mild to moderate prostatic enlargement . most of the patients were agriculturists (41.7%)& labourers (33.3%). In this study among 60 cases, 43 patients were smokers (71.7%) and remaining 17 cases were non-smokers (28.3%)& incidence of inguinal hernia is more among smokers when compared with non-smokers group(table 2) Most of the smokers had chronic cough as a risk factor for hernia. . Majority of the patients presented to the hospital after 12 months of onset of symptoms, unless they have severe pain at the site of hernia, swelling was the main presenting complaint as majority of patients (46, 76.7%) presented with swelling alone and 23.3% patients presented with swelling and pain. In this study including both sedentary workers and manual laborers, majority of the patients had indirect type of inguinal hernia about 70%, direct inguinal hernia about 28.3% and least was recurrent hernia about 1.7%. Most of the cases (55%) presented with right sided inguinal hernia, about 35% presented with left sided inguinal hernia and 10% cases presented with bilateral inguinal hernia. small intestine was the most common content of hernial sac (65%) and least was omentum (13.3%) and about 20% of the cases had both small intestine and omentum. 1.7% patients had omentum and fluid. In patients with mesh repair, 2 patients had wound infection, 2 had scrotal haematoma, 5 urinary retention and 1 had urinary tract infection. Other complications like pulmonary embolism, ileus, DVT and recurrence were nil. Although the difference in complication rates between mesh and Bassini's repair is not statistically significant ($p < 0.007$). But when compared with conventional repair mesh repair has got less complications (fig 1)

In conventional repair, 90% of the patients hospital stay was 5-10 days and 10% of the patients had hospital stay from 11-15 days. Mean duration of hospital stay among patients who underwent Bassini's repair were 6.8 days. In mesh repair group, 57% patients had < 5 days of hospital stay and 43% patients had hospital stay of 5-10 days. Mean hospital stay was 5.6 days. This study shows that mean hospital stay is less in mesh repair when compared to Bassini's repair ($p < 0.001$)(fig2). In this study, 80-85% of patients were followed up for 6 months to 2 years, 10-15% did not turn up for follow-up. One recurrence was recorded during this period of two years in Bassini's repair group and no recurrence was noted in mesh repair group. In this study, 13% of

patients developed chronic groin pain following mesh repair whereas 23% of patients developed chronic pain following Bassini's repair.(p=0.317).

DISCUSSION: Inguinal hernia is one of the commonest problems of mankind. Since the period of Hippocrates (4th century BC) the disease has been known and various palliative treatment methods were adopted. Hernia is the word derived from Greek word 'Hernia' means 'offshoot' or 'bulge' or 'budding'. In Latin, it means 'tear' or 'rupture'. It is defined by Sir Astley Cooper as "a protrusion of any viscus from its proper cavity". Innumerable procedures have been described for this common disease but no one is exempted from complications hence surgery on hernia is still a challenging subject. Watson said "in the entire history of surgery, no subject has been so controversial as the repair of groin hernias".²

Many risk factors like smoking which may cause chronic cough, obstructive urinary symptoms due to prostatomegaly, straining during defecation and chronic constipation lead to hernia formation, and recurrence rate of hernia increases if these risk factors are not adequately controlled prior to surgical correction of hernia, also a stronger repair is indicated in presence of such risk factors. In the present study, 72% of patients were smokers and majority of them had chronic cough which was controlled preoperatively with adequate medical management and all the patients were advised to abstain from smoking postoperatively. 32% of patients had symptoms of prostatomegaly and were treated with alpha-blockers both pre and postoperatively to reduce complications. None of the patients in our study group reported chronic constipation or straining during defecation.

Heavy manual work is another predisposing factor for hernia formation usually a direct hernia, but in our study as we have included both manual workers and sedentary workers and a broad age group indirect hernia was the most common hernia in this study.

Edoardo Bassini (1844-1924), an Italian surgeon, who is well known as Father of Modern Hernia Surgery opened the transversalis fascia, ligated the sac high in the retroperitoneal space and introduced repair of transversalis fascia and re-enforcement of posterior wall of inguinal canal by suturing conjoint tendon to inguinal ligament beneath the cord & this procedure was the most commonly done procedure for hernia repair. But this procedure had more incidence of complications like high recurrence rate and chronic pain. Later principles of tension free inguinal hernia repair techniques were described by so many surgeons of which Lichtenstein tension free mesh repair of hernia is the one commonly performed. The Lichtenstein tension free inguinal hernia is becoming increasingly popular now-a-days. It offers the effective repair that overcomes many of the problems. It is relatively easier and less technically demanding than other anatomical repairs like Bassini's/Shouldice's repairs and easy to learn. Median length of operation is almost 10 minutes shorter than the other techniques reduced operating time. Infection rate in mesh repair is comparatively less compared to the Bassini's repair. Length of the hospital stay is lesser than anatomical repair. All (mesh repair) patient return to work normally very early. Compared to conventional (Bassini's) repair, the mesh repair had relatively less complications in the present study.

According to the study done by Laffery PM, Malinowska A, Pelta D (1998), the Lichtenstein Institute in Los Angeles, the Shouldice in Toronto and London Hernia Clinic, have made study in 100 cases of inguinal hernia and reported Lichtenstein repair was 1. Recurrence rate less than 1%, 2.

Number of days in hospital shortened, 3. Less of infection. The study has indicated that the present day "Gold standards can be reproduced safely and effectively highly motivated and dedicated hospital/health centers. Lichtenstein tension-free mesh repair has become the standard method of hernia repair and is easier to learn that take less time and results in fewer recurrences.

In the present study patients who underwent lichenstien repair had overall less complications, no recurrence and reduced hospital stay when compared to bassini repair group. Although it is reported that patients with lichenstien repair will have chronic foreign body sensation due to mesh in groin region patients may also develop pain due to entrapment of cutaneous nerves.

CONCLUSION: Lichtenstein mesh repair has significantly reduced complications, less hospital stay, low recurrence rate, less duration of surgery and early return to work when compared to the conventional repair. For surgeons in training the Lichtenstein open mesh technique is a better method of inguinal hernia repair than other conventional hernia repairs and is cost effective for the patients also. Although Bassini's principle of posterior wall reinforcement remains valid in surgical practice, his operation lost its popularity. Open suture repair of hernia has higher recurrence rate and postoperative pain and disability is high. It is only recommendable in the repairs of paediatric hernias and in selected cases in which use of prosthetic materials is contraindicated.

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Age group (years)	Number of cases	Percentage
< 20	4	6.7
21 to 29	5	8.3
30 to 39	11	18.3
40 to 49	9	15.0
50 to 59	12	20.0
60 to 69	12	20.0
> 70	7	11.7
Total	60	100.0

Table 1: Age incidence

	Number of cases	Percentage
Non-smokers	17	28.3
Smokers	43	71.7
Total	60	100.0

Table 2: incidence of hernia in smokers

Fig. 1: Comparison of complications.

Fig. 2: Duration of hospital stay.

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