



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 8, Issue, 6, pp. 17768-17771, June, 2017

**International Journal of
Recent Scientific
Research**

DOI: 10.24327/IJRSR

Research Article

A STUDY OF BURDEN, RISK FACTORS AND MODALITY OF MANAGEMENT OF HERNIA IN SOUTH INDIA

Jayalal J A¹, Bagavad² and Selwyn J Kumar³

Kanyakumari Government Medical College

DOI: <http://dx.doi.org/10.24327/ijrsr.2017.0806.0419>

ARTICLE INFO

Article History:

Received 05th March, 2017
Received in revised form 21st
April, 2017
Accepted 06th May, 2017
Published online 28th June, 2017

Key Words:

Hernia, Congenital, recurrent, inguinal.

ABSTRACT

Hernia occurs in human being on varying etiology and impose heavy physical and economic burden for the individual. Congenital failure of obliteration of processus vaginalis to acquired weakness of the wall cause hernia. It occurs most commonly in the inguinal region but also seen in Femoral, Obtruator, Lumbar, Ventral regions. This study was intended to understand the pattern of occurrence of disease, the risk factors involved and various treatment modalities offered. This retrospective study was carried out at Department of General Surgery Kanyakumari Government Medical College including all patients admitted with Hernia from 2011 January 1st to 2016 August 31st, covering 1000 patients. 52.4% were of the age group 30-60 years and 78.3% of Hernias were Inguinal Hernia. Among the inguinal Hernia 53.6 were Right side and 33 were Left side and 8% Bilateral. Male and Female ratio is 85:15.91% were primary Hernia and 9% were Recurrent Hernia. Most of the patients had co-morbid condition 42% COPD, 30% Diabetes, 35% Alcoholic, 32% smokers. 92% patients had undergone open Hernia surgical repair and in this 81% with mesh repair. 8% patient had laparoscopic Hernia Repair.

Copyright © Jayalal J A., Bagavad and Selwyn J Kumar, 2017, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Hernia is a protrusion of body parts through the potential defects in the cavity containing it. The commonest site of these protrusions occurs through the abdominal cavity through its myopectineal orifices of Fruchard namely deep inguinal ring, superficial inguinal ring and femoral ring. Normally the physiology and anatomy of the musculature of abdomen, make adoptive changes to obscure this and prevent formation of Hernia. However as the pressure inside the abdominal cavity raises due to the decrease in volume during straining for stool, micturition, cough and weight lifting. The increased pressure tries to escape through this potential weak spots and hernia occur.

The anatomical location of hernia is important as the repair of hernia and potential complication of hernia depends on this. As such a hernia occurring through femoral ring shall produce more complication due to obstruction than the inguinal hernia. Abdominal wall hernia is one of the commonest surgical conditions for which patient seek remedy and as per the statistic available it accounts to nearly 15% to 18% of all surgical encounters. It is estimated nearly 2 crore (20 millions) people are operated for one or other forms hernia per year.

Though most common site of hernia is through inguinal canal we get hernia from femoral, obtruator, lumbar, umbilical and linea alpha defects. These hernia can occur unilateral or bilateral. Another important form of Hernia is Recurrent Hernia. Recurrent Hernia is the hernia occurring after surgical treatment and it's commonly due to non-alleviation of source of increased intra-abdominal pressure such as faulty technique, faulty suture materials, post-operative complication, mesh migration etc. With the advent of new surgical options and wide spread availability of mesh, the occurrence of recurrent hernia have come down.

Sir Astley cooper¹ in 1804 said "no disease of human body belonging to the province of the general surgery requires in its treatment a greater combination of accurate anatomical knowledge with surgical skills than hernia in all its varieties.

True to that many surgical methods and principles are advocated for treatment from

Eduardo Bassini (1844-1924)
Bassini modification (Halsted)
Mevay (1911-1987)
Edward Shouldie (1890-1965)
Lyoyd Nyhius (1923)
Irving Lichenstein 1920
TAPP 1991

*Corresponding author: Jayalal J A
Kanyakumari Government Medical College

TEPP 1993

and so on with newer types of mesh fixation devices and approaches. However changing from the Bassini Modifications the consensus today is to use Mesh repair and Lichenstein method of repair is widely popularized. TAPP and TEPP are the minimally invasive surgical approaches and slowly gaining popularity.

Types of Hernia

The common types of Hernia are

1. **Inguinal Hernia:** it is the most common type of hernia occurring through the myopectineal orifice of Fruchard². It can be of two type. Direct occurring in old age due to muscle wall weakness and indirect occurring as a congenital disorder due to the non- obliteration of the processusvaginalis. It is the commonest hernia on both male and female³. Direct Hernia is not reported in female.
2. **Femoral Hernia:** Hernia occurring through femoral ring. The site of origin must be diligently enquired as after formation below the pubic tubercle, this hernia comes down upto saphanus opening. From their due to the presence of holdens line, it cannot go down but ascend up and present in the ingunalregion. Most often the hernia is mistaken as inguinal hernia. The femoral hernia will go for obstruction more than inguinal hernia.
3. **Umbilical Hernia:** Umbilicus is the potential weak spot through which the foetus is connected to the maternal placenta. As a consequence of incomplete closure (or) weakness occurring at the level of umbilical ring the abdominal contents can protrude out and form umbilical Hernia. It is a common Hernia is Paediatric age group. However, adult will also be affected due to repeated stress and strainin the abdominal wall.
4. **Ventral (or) Incisional Hernia** - When surgical scar created the abdominal wall do not heal completely (or) due to repeated postoperative strain the scar may get weakened and hernia forms.
5. **Epigastric Hernia:** The defect in the lineaalba, most often as fatty hernia (without sac) it occurs.
6. **SpigellianHernia⁴:** Linea Semilunaris is a curved tendinous intersection found on either side of the rectus sheath incorporating with abdominal wall muscles above the arcuate line (lineasemicircularis or Douglas line)⁵. Due to the defect in this network hernia can occur. Most often it is missed and investigation like MRI is required to identify them.
7. **Lumbar Hernia⁶:** The defect in the upper or lower Lumbar triangle will lead on to the Lumbar Hernia which is known as Grynfelt or petit hernia.

Hernia repair consumes significant cost and it has high lifetime risk. It is important to figure out epidemiology of the occurrence of various types of hernia. With reference to a geographical set up and many etiologic agents can be identified to prevent the occurrence if possible. It is also important to identify the treatment options available to the public and frequently in which particular type of hernia treatments are used by the patient.

This study was carried out to confirm the existing epidemiological pattern of the hernia, the comorbid factors,

treatment modality and to compare it with the published data to assess any significant variation from other areas.

METHODS

This retrospective study was carried out by the Department of General Surgery Kanyakumari involving all the patients who had admitted and undergone surgery for various types of hernia from 2011 January 1st to 2016 November 30th. During this period 1000 patients had undergone surgery and all were included. Nearly 56 patients who had admitted with hernia and not operated for various reasons were not included in this study.

Patient's records served as the primary study tools. The medical records department was approached after getting the ethical clearance from the ethical committee of the KGMCH and data were collected on all patients who had undergone surgical treatment for Hernia. The relevant data of profile of the patient's type of Hernia type of Surgery, co-morbid condition, geographical location, predisposing factors were noted from this records.

Demographic details of all the patients were tabulated as per the records and the variables were analyzed.

Details of the hernia, type of the hernia whether it is primary or recurrent, the type of surgery mesh used or not, associated morbid conditions were tabulated and analysed.

Data checked manually and tabulated in computer and analysis was done using statistical package for social sciences version 20 chi square test was used for comparisons. Confidence level and P value were set and based on this the results were expressed in appropriate statistical methods.

Kanyakumari Medical College Hospital is a public hospital and cater to the healthcare of entire district with nearly 20 lakh population.

RESULT

1000 patients were included in the study. All were admitted and treated for one or more type of hernia.

Table 1 Age Group wise distribution of patient (n=1000)

Age Group	Number	Percentage
0-10	63	6.3%
11-20	24	2.4%
21-30	61	6.1%
31-40	124	12.4%
41-50	179	17.9%
51-60	221	22.1%
61-70	208	20.8%
71-80	103	10.3%
>80	17	1.7%
	1000	100%

Out of 1000 patients more than 73% were within 31 to 70 yrs age group. Highest number of patients belong to 51 to 60 age group. 6.3% of children of age group 0-10 were operated.

Further study on male vs female it is noted women gets hernia at a later age group. Median age of presentation for female hernia is 60-79 years and for male 50-69 years.

Table 2 Distribution of different types of Hernia in male and female (n=1000)

	Total	Male	Female
Inguinal Hernia	783	746	37
Ventral Hernia	91	40	51
Umbilical Hernia	60	36	24
EpigastricHernia	31	20	16
Femoral Hernia	25	5	8
Other Hernia	10	2	8
		849	151

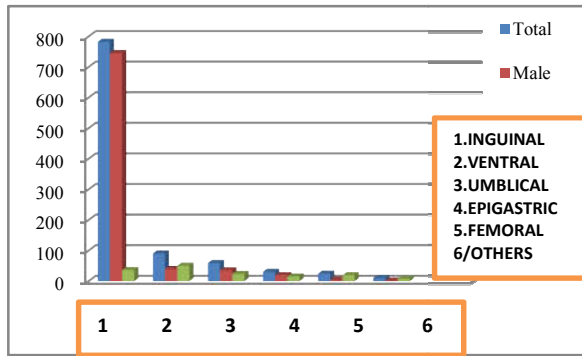


Fig 1 Different types of hernia in male and female

Table 3 Frequency of occurrence of Direct vs Indirect Hernia and site (n=783)

Site	No. of patients	Percentage	Type			
			Direct		Indirect	
			No. of Patients	Percentage	No. of patients	Percentage
Right	462	59%	123	15.7%	339	43.3%
Left	259	33%	94	12%	165	21%
Bilateral	62	8%	50	6.38%	12	1.62%
Total	783	100%	267	34%	516	66%

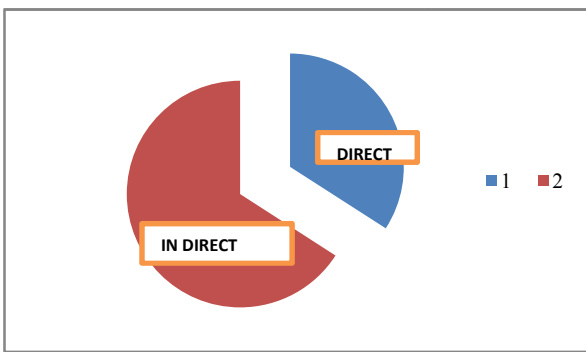


Fig Direct vs Indirect Hernia

Table 4 Paediatric Hernia

Paediatric Hernia n=75		7.5%
Male	59	Right 24 Left 45 Bilateral = 6
Female	16	

Table 5 Recurrent Hernia n=44

	Total	Primary	Recurrent
Inguinal Hernia	783	743	40
Umbilical Hernia	60	58	2
Epigastric Hernia	31	30	1
Femoral Hernia	25	25	1

Table 6 Co-morbid Risk factor for Hernia

Risk Factors	Number	Percentage
Constipation	360	36%
COPD/Cough	320	32%
Alcohol intake	180	18%
Smoking	260	26%
Diabetes Melitus	220	22%
Family History	100	10%
BHP	130	13%
Stricture Urethra	80	8%
Manual work strain	30	3%
Ascitis / Mass abdomen	30	3%

Patients had one or more risk factors

Table 7 Treatment Modalities for Inguinal Hernia

Type of repair	Number	Percentage
Modified Bassini Repair	219	28%
Lichenstain Repair	516	66%
Stoppa Repair	26	3%
LAP	22	3%
Total	783	100%

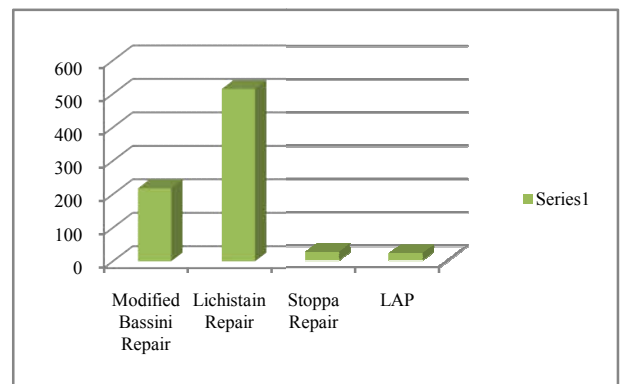


Fig 3 Types of surgical Repair

Inguinal Hernia is reportedly the commonest type of hernia in both male and female. In our study 78.3% patients were found to have Inguinal Hernia with 59% patient with Right side, 33% with left side and 8% patients having bilateral Hernia. Male to female ratio is 9:5:1. Approximately 25% male and 2% female will develop Inguinal Hernia during their life time. The female to male ratio for Indirect Hernia will be around 7:1 and direct hernia will never occur in female.

Femoral Hernia predominantly occurs in female due to the anatomy of the pelvic structure. The ratio is 1.8:1 in female vs male.

Epigastric hernia has the prevalence of 3% and male predominant is noted.

DISCUSSION

Hernia is one of the oldest diseases and way back in 1500 BC the papyrus of Egyptians, the phoenicians in BC 900 and Hippocrates in 400 BC had diagnosed Hernia. Equally various novel and creative methods were applied to get rid of Hernia.

Incidence of Inguinal Hernia

Inguinal Hernia is the commonest Hernia in the abdominal wall. In our study, comprising 1000 people, 783 patient had Inguinal Hernia. AsarARalher *et al* has quoted in their study 75% of all hernia are Inguinal.

Male:Female ratio

In our study out of 1000 Hernia 849 were in Male and 151 Hernias were in Female. Considering the Inguinal Hernia 96 % patients (746/783) were male. Only 37 Hernia were found in female.

D K Gupta *et al*⁽⁷⁾ in 1993 published a study and stated 96 % in male and 4% in female. According to Charles *et al*⁽⁸⁾ in the study published on 2000, he quotes 93.2% in male and 6.7% in female.

Peak Incidence

Our study comprising entire age group and peak incidence in few of the age group of 51 to 60 considering 22%, followed by 61 to 70. Babar Sultan *et al*⁽⁹⁾ in 2009 by their study state the peak incidence of various Hernias were above 50 years of age. Further study on male vs female it is noted women gets hernia at a later age group. Median age presentation for female 60-79 years and male 50-69 years.

Inguinal Hernia site Vs Type

In our study 59% of Inguinal Hernia were on right side and 33% of the left side and 8% of the Hernia were bilateral. In an extensive study of external Abdominal Hernia reported by E S Garba *et al*¹⁰ Nigeria stated right to left incidence is 1.7:1.

	Right	Left	Bilateral
E S Garba <i>et al</i> 2000	63%	37%	-
Charles N R <i>et al</i> 2000	61.6%	36.8%	1.5
Bin Bisher Saeed <i>et al</i> 2009	66.8%	45.8%	4
Ayesga Fatima <i>et al</i> 2014	58.2%	31.3%	5
Jayalal <i>et al</i> 2017	59%	33%	8

Our study confirms the earlier findings of ® sided Hernia is more than left side. However bilateral incidence were more noted in our study. Also it is noted 66% were indirect and 34% Hernia were Direct Hernia. In other studies 66% Hernia were direct and 34% Hernia were indirect.

Risk factors

Most of the patients in our study were having co-morbid conditions predisposing the formation of Hernia. 36% of the patients had constipation and 32% had chronic cough. In a study published by Veerabhadrapa PS *et al* in 2016⁽¹¹⁾, it is cited 48.9% had constipation and 42% had COPD and 35% of patient are alcoholic. It is obvious these co-morbid condition aggravate the Hernia formation and adequate control of these are mandatory for permanent cure of Hernia.

Recurrent Hernia

In our study of total 1000 Hernia repair, 909 were primary and 91 were incisional Hernia. Among this 44 cases were recurrent hernia and 45 cases were due to the other abdominal surgeries. Most of the recurrent Hernia 80% belongs to direct type Hernia repair with age group above 50 years. Various causes were noted. Incidence of hernia recurrence were more with the type of surgery and age group.

Type of surgery

Our institution being a teaching institution and a public hospital, due to various constraints like availability of mesh and

equipment's majority of case were operated using Lichenstain mesh repair and yet 28% percentage of patients had modified bassini repair. Laparoscopic repair is rarely done and only 22 patients had Laparoscopic repair.

CONCLUSION

The study carried out to categorize and postulate the Hernia profile in our region. Accordingly 78.3% of hernia is from inguinal region which occurs predominantly the 96% male and 4% female. Right side Hernia is 59% and Left side 33% and bilateral 8 %. The peak incidence of hernia 50-60 yrs. Direct hernia constitute 34% and Indirect Hernia 67%. 36.7% patient with Hernia had constipation and 32% had cough as significant co-morbid condition. 67% undergo Lichetein mesh repair and 28% modified and Bassini repair just 2.8% had minimally invasive surgery. The frequency of incidence of hernia is Inguinal, Incisional, Umbilical, Epigastric, Femoral which is a significant change from past. Recurrent Hernia is more common with Direct Hernias. All patients undergoing surgery for Hernia, co-morbid conditions to be corrected to prevent recurrence.

References

1. Memon MA, Quin TH, Cahill DR. Transversalis fascia: Historical aspects and its place in contemporary inguinal herniorrhaphy. *J Laproendoscop Adv Surg Tech* 1999; 9(3): 267-272
2. Wolloscheck T *et al*, Dimension of myopectineal orifice-a human cadaver study-Hernia 2009 December 13 (6): 639-42 D! 1011007/S 10029 - 009-0559-1
3. John T Jenkins *et al* Inguinal Hernia BMJ 2008 Feb; 336 (76 38): 269-272=10.1136/bmj 39450.428275 AD
4. Mwachaka PM, Saidi HS, Odula PQ, Awori KO, Kaisha WO. Locating the arcuate line of Douglas: is it of surgical relevance. *Clin Anat* 2010; 23(1): 84-86
5. Vivienne M Gough *et al*-Timely CT Scan Diagnosis Spigelian Hernia Ann. R. Coll Surg. Engl. 2009 Nov; 91(8) W9-W10 DOI 10.1308/147870809X450629
6. Sharada Sundara Moorthy *et al*-Primary Lumbar Hernia-Int. J. Surg Case Rep. 2016-20; 53-56 doi; 10.1016/j.ijscr.2015.09.041
7. D K Gupta *et al* Inguinal Hernia in Children Peadiatric Surgery International 1993, 8:466-468
8. Charles N R *et al* A two year Retrospective study of congenital Inguinal Hernia *J. Nepal. Med. Asses* 2000,39:172-175
9. Babar Sultan *et al* frequency & External Hernias *J. Ayub Med. Coll Abbobad* 2009, 21(3)
10. Garba E.S *et al* The pattern of adult external wall Hernia in Zans *Nigerian journal of surgical research* 2000 2: 12-15
11. Veerabhadrapa PS *et al*. A study of burden and risk factors of inguinal hernia from Western Uttar Pradesh, *India Int Surg J.* 2017 Jan;4(1):377-380 <http://www.ijurgery.com> pISSN 2349-3305 | eISSN 2349-2902
