Research Article

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STUDY OF INCIDENCE OF INGUINAL HERNIAS AND THE RISK FACTORS ASSOCIATED WITH THE INGUINAL HERNIAS IN THE REGIONAL POPULATION OF A SOUTH INDIAN CITY

Ayesha Fatima[1], Mohammed Riyaz Mohiuddin[2]

[1]Department of Anatomy, Malla Reddy Medical College, Hyderabad,Telangana, India; [2]BDF Hospital, Bahrain.

ABSTRACT

Background: Hernias constitute an important public health problem and often pose a surgical dilemma even for the most skilled surgeons. They are a leading cause of work loss and disability and are sometimes lethal. An early diagnosis and referral to the surgeon should mean short waiting time, elective surgery and a better prognosis.

Objectives: 1) To know the incidence of inguinal encountered in both male and female sexes 2) To analyze the common risk factors associated with these hernias.

Material and Methods: 433 patients (457 Inguinal hernias), of different ages and sexes, attending the out patient department and admitted in the general ward and post operative ward of different hospitals were considered for study.

Study period: The study was carried out for a period of 12 months from September 2009 to September 2010.

Results: Inguinal hernia was seen in 365(84.3%) males and 68(15.7%) females. The number of right sided inguinal hernias was 266(58.21%) and the number of left sided inguinal hernias was 143(31.29%).They were 24(5.25%) bilateral hernias. In the present study out of the total 457 inguinal hernias, 379(82.93%) were of indirect variety and 78(17.07%) were direct variety. Out of 433 patients of Inguinal hernia it was found that 312 patients (72%) were physically active. Chronic cough was found to be not associated with incidence of inguinal hernia. In the present study 66% of inguinal hernia patients were found to have constipation. 26% were having family history significant.

Conclusion: Incidence of inguinal hernias showed a clear male preponderance. Incidence was highest in children less than 10 years. of age. Strenuous physical activity and constipation were found to be risk factors for Inguinal Hernia.

Key Words: Risk factors, Incidence, Inguinal Hernia

INTRODUCTION

Hernia has traditionally generated a lot of debate over the decades. There is almost no limit to how BIG a hernia could get if left untreated! As defined by Astley Cooper in 1804, a "Hernia is a protrusion of any viscus from its proper cavity. The protruded parts are generally contained in a sac like structure, formed by the membrane with which the cavity is naturally lined." The word hernia is derived from the Latin word for "Rupture".Hippocrates used the Greek word "Hernios" for a bud or bulge to describe abdominal hernias. Statues of this era portray this condition. Hernias constitute an important public health problem and often pose a surgical dilemma even for the most skilled surgeons. They are a leading cause of work loss and disability and are sometimes lethal. An early diagnosis and referral to the surgeon should mean short waiting time, elective surgery and a better prognosis. Thus knowledge of hernias both usual and unusual and protrusions that mimic hernias are essential components of the armamentarium of the general and pediatric surgeon.

Hernias can be congenital or acquired, complete or partial, external or internal, reducible or irreducible, direct or indirect. The previous studies indicate that external hernias are more common than internal hernias. Abdominal hernias are by far the commonest type of hernias we come across. Inguinal hernias being more frequent and among the inguinal hernias, the indirect variety is more.

Corresponding Author:
Dr. Ayesha Fatima, Department of Anatomy, Malla Reddy Medical College, Hyderabad,Telangana, India

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In general the incidence increases with the increase in age. Genetic factors certainly play a role as a positive family history frequent hernias is common. Developmental phenomenon also plays a role. For example, in the evolution of quadruped to a biped the unprotected groin is more vulnerable to changes in the intra abdominal pressure, predisposing to inguinal herniation.

So the present study focuses to know the incidence of the Inguinal hernia based on the factors affecting the occurence of hernias

To verify or impugn the accepted figures it was undertaken to investigate Inguinal hernia cases presenting themselves at the Out Patient Department and wards of various hospital of Hyderabad.

AIM

The aim of the present study is to evaluate the incidence of Inguinal hernias in the regional population of Hyderabad, and to analyze the effects of changing life styles in the occurrence of Inguinal hernias

OBJECTIVES

1)To know the incidence of inguinal encountered in both male and female sexes

2)To analyze the common risk factors associated with these hernias.

MATERIAL AND METHODS:

433 patients (457 Inguinal hernias),of different ages and sexes, attending the out patient department and admitted in the general ward and post operative ward of the following hospitals were considered for study: Osmania General Hospital, Afzalgunj, Durgabai Deshmukh Hospital, Vidyanagar, Nilofer Hospital, Nampally and Princess Esra Hospital, Charminar. Both unilateral and bilateral hernias were included in the study.

The study was carried out for a period of 12 months from September 2009 to September 2010.

OBSERVATION AND RESULTS

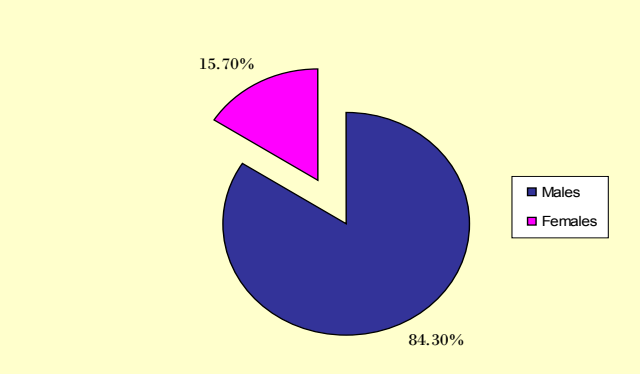
Sex wise distribution of inguinal hernias:

In the present study inguinal hernia was seen in 365(84.3%) males and 68(15.7%) females. Out of 457 inguinal hernias 387(84.68%) were seen in males and 70(15.68%) were seen in females.M: F= 5.36.Details are shown in Table No: 1

Table 1: Sex Wise Distribution of Inguinal Hernias

Sex	No. of Patients.	%	No. of Inguinal Hernias	%
Male	365	84.3	387	84.68
Female	68	15.7	70	15.68
TOTAL	433		457	

Sex wise distribution of inguinal hernias



DISTRIBUTION OF INGUINAL HERNIAS ACCORDING TO SIDE:

The number of right sided inguinal hernias was 266(58.21%) and the number of left sided inguinal hernias was 143(31.29%).They were 24(5.25%) bilateral hernias. R: L= 1.86:1.

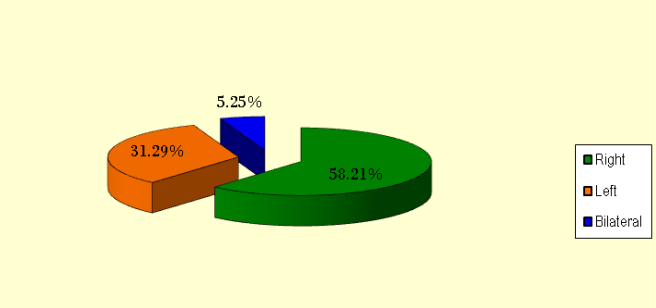
DISTRIBUTION OF INGUINAL HERNIAS ACCORDING TO TYPE:

Inguinal hernias can be either direct inguinal hernias or indirect variety. In the present study out of the total 457 inguinal hernias, 379(82.93%) were of indirect variety and 78(17.07%) were direct variety.

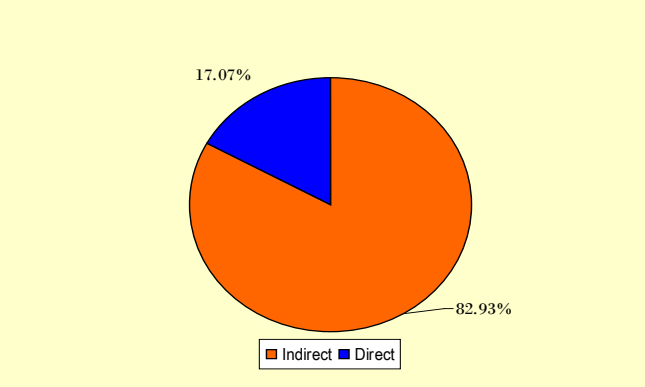
Table 2: Distribution of Inguinal Hernias According To Side and type

SIDE	NO.OF HERNIAS	%
RIGHT	266	58.21
LEFT	143	31.29
BILATERAL	24	5.25
TYPE		
INDIRECT	379	82.93
DIRECT	78	17.07
TOTAL	457	100

Pie Diagram 1: Distribution of inguinal hernias according to side.



Pie Diagram 2: Distribution of inguinal hernias according to type.



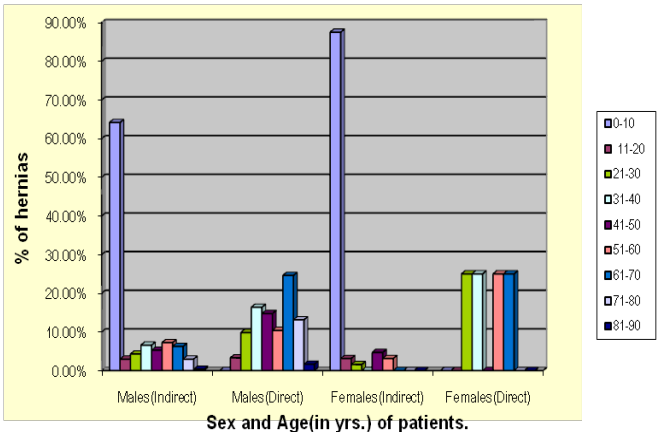
SEX AND AGE WISE DISTRIBUTION IN DIFFERENT TYPES OF INGUINAL HERNIA:

Out of the 304 indirect hernias in males, peak incidence was seen in the age group 0-10 years. Out of the total 61 direct inguinal hernias in males, peak incidence was seen in the age group 61-70 and was found to be statistically significant.(chi square=92.6 p<0.00001). Out of the total 64 indirect hernias in females, peak incidence was seen in the age group 0-10 years, and least number of cases was in the age group 21-30 years. Out of the total 4 direct inguinal hernias in females, 1 case each was seen in the age groups 21-30 years, 31-40 years, 51-60 years, and 61-70 years respectively. Details are shown in Table no:3.

Table 3: sex, age, type wise distribution in different types of inguinal hernias

AGE	MALES		FEMALES	
	Indirect	Direct	Indirect	Direct
0-10	195(64.14%)	-	56(87.5%)	-
11-20	9(2.96%)	2(3.28%)	2(3.13%)	-
21-30	13(4.28%)	6(9.84%)	1(1.56%)	1(25%)
31-40	20(6.58%)	10(16.39%)	-	1(25%)
41-50	16(5.26%)	9(14.74%)	3(4.69%)	-
51-60	22(7.24%)	10(10.39%)	2(3.13%)	1(25%)
61-70	19(6.25%)	15(24.59%)	-	1(25%)
71-80	9(2.96%)	8(13.11%)	-	-
81-90	1(0.33%)	1(1.64%)	-	-
TOTAL	304	61	64	4

BarDiagram 1: distribution of inguinal hernias according to sex, age and type.



DISTRIBUTION OF INGUINAL HERNIAS ACCORDING TO SEX, SIDE AND TYPE:

Total number of indirect hernias in males was 304 out of which 204(67.105) were right sided, 91(29.93%) were left sided and 9(2.96%) were bilateral. Number of direct inguinal hernias in males was 61 out of which 23(37.70%) were right sided, 25(40.98%) were left sided and 13(21.31%) were bilateral. Total number of indirect inguinal hernias in females was 64 out of which 37(57.81%) were right sided, 25(39.06%) were left sided, 2(3.13%) were bilateral. Number of direct inguinal hernias in females was 4 out of which 2(50%) were right sided and 2(50%) were left sided. Distribution of inguinal hernias accorrding to sex, side and type are shown in Table No: 4

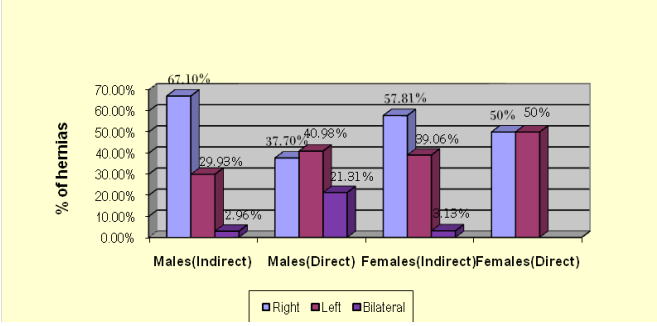
Unilateral inguinal hernias in males are found to be more of indirect type when compared with direct type and this is found to be statistically significant (chi square=30.21 df=1 p<0.00001)

Direct Hernias are found to be equally distributed in both males and females and the comparison is not statistically significant (chi square=1.07 df=1 p=0.3)

Table 4: Distribution Of Inguinal Hernias According To Sex, Side and Type.

Males				Females			
Indirect		Direct		Indirect		Direct	
RT.	204(67.10%)	RT.	23(37.70%)	RT.	37(57.81%)	RT.	2(50%)
LF	91 (29.93%)	LF.	25(40.98%)	LF.	25(39.06%)	LF.	2(50%)
BIL	9(2.96%)	BIL	13(21.31%)	BIL.	2(3.13%)	BIL.	-
Total	304		61		64		4

Bar Diagram 2: Distribution of inguinal hernias according to sex, side, type.



FACTORS ASSOCIATED WITH INGUINAL HERNIA:

Out of 433 patients of Inguinal hernia It was found that 312 patients (72%) had occupations involving strenous physical activity.

Chronic cough was found to be not associated with incidence of inguinal hernia.

In the present study 66% of inguinal hernia patients were found to had constipation.

26% were having family history significant

Table 5: Distribution of Inguinal Hernias according to Risk factors

	YES No.(%)	NO No.(%)
Ingunial Hernia(n=433)	Physical activity	
	312(72)	121(28)
	Chronic cough	
	36(8)	397(92)
	Chronic constipation	
	286(66)	147(44)
	Family History	
	112(26)	321(74)

DISCUSSION

Hernia is one of the oldest afflictions of mankind

It is a very common surgical condition, with everyone from infants to the elderly at risk of being affected. Some of the symptoms may be manageable while others may be critical.

Integrity of the abdominal wall is primarily dependent upon the abdominal muscles and their conjoined tendons. These muscles assist respiration and control the expulsive efforts of urination, defecation, coughing and parturition. The contour of the abdomen is dependent upon the age, muscle mass, muscle tone, obesity, intra-abdominal pathology, parity, and posture. All these factors play a significant role in the formation of a hernia.

In contract to many other surgical diseases, investigations of the etiology of hernia formation have attracted much less interest than the technical aspects of surgical treatment.

In the present study associated risk factors related to the Inguinal hernias were also studied.

DISTRIBUTION OF INGUINAL HERNIAS ACCORDING TO SEX AND AGE:

As per the study by **D.K. Gupta** et al. (1993), 96% inguinal hernias were in males and 4% were females. Children less than 12 yrs. were included in this study.

Study by **Charles N.R** et al. (2000), shows that 93.2% of all inguinal hernia cases were males, 6.7% were females. M: F= 13.7:1. Children below 14 yrs. were included in this study. Maximum number of inguinal hernia cases was seen between 2-3 years of age.

The present study shows that inguinal hernia is more in males (84.3%), than in females 15.7%. M:F= 5.36:1.The author has included cases between 1 day to 82 yrs of age and found that peak incidence of inguinal hernias was between 0-10 yrs of age.

The peak incidence of inguinal hernias in the present study was the first decade of life. Whereas the study by Charles N.R et al peak incidence is in a higher age group. The probable reason for this could be ignorance of the seriousness of this disease among people, delay in approaching the health care centre or differences in the prevalence of risk factors responsible for formation of hernia. The study by **Babar Sultan** et al. (2009) shows peak incidence of various hernias above 50 yrs of age.

DISTRIBUTION OF INGUINAL HERNIA ACCORDING TO SIDE AND TYPE.

The observations of **Charles N.R** et al. (2000) were that 61.6% of the total inguinal hernias were right sided, 36.8% were left sided and 1.5% were bilateral.R:L was 2:1.

Shams Nadeem Alam et al. (2007), made the observation that 65.35% inguinal hernias were right sided, 30.47% were left sided and 4% were bilateral. Indirect inguinal hernias accounted for 60.3% and direct inguinal hernias were seen in 39.7% cases.

Bin Bisher Saeed A et al. (2009), evaluated inguinal hernias and found that 70.8% were right sided, 33.3% were left sided, 45.8% were indirect inguinal hernias, and 58.3% were direct inguinal hernias.

In the present study the evaluation of 457 cases of inguinal hernias shows that 58.2% were right sided, 31.3% were left sided, 5.25% showed bilaterality. Indirect inguinal hernias constituted 82.93%, and direct inguinal hernas were seen in 17.07%cases.

The percentage of right sided hernias in the studies by Charles N.R.et al , Shams Nadeem Alam et al and Bin Bisher Saeed A et al is higher than the percentage of right sided hernias in the present study.

However Right sided inguinal hernias are more than left sided inguinal hernias in all the above studies. Thus the present study corroborates with all the above studies.

The higher percentage of indirect inguinal hernias in the present study when compared to the previous studies is probably due to inclusion of pediatric inguinal hernias in the study population.

Indirect inguinal hernias are more than direct inguinal hernias in all the above studies. The finding of the present study are consistent with all the above studies.

CONCLUSIONS

Hernias happen more frequently in certain parts of the body, like the abdomen, groin and upper thigh area, and umbilical area. They also can happen in any place where you may have had an incision from surgery. It might take a long time for a hernia to develop or it might develop suddenly. Hernias are caused by a combination of muscle weakness and strain, although the cause of the weakness and the type of strain may vary.

In the present study majority of the inguinal hernia patients are males and the peak incidence was seen in the 1 decade of life. Indirect inguinal hernia was far more common than the direct variety. Peak incidence of indirect inguinal hernia was seen in children between 0-10 yrs of age.In both males and females right sided hernias were more common than the left side.It can be concluded that right sided indirect inguinal hernias among males are most common in the pediatric age group reason being the patent processus vaginalis during embryonic development.

In the study it was found that sedentary life style, Chronic cough and constipation are risk factor for the inguinal hernia.Family history of hernia was the most important determinant factor for developing inguinal hernia in adult males. A male subject who has a positive family history of hernia is 8 times more likely to develop a primary inguinal hernia

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