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Original Research Article

Clinical study of patients with inguinal hernia at a tertiary care hospital

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ABSTRACT

Background: The history of hernia is the history of surgery. Historically hernia causative was attributed to a mechanical disparity between visceral pressure and the resistance of the musculature.
Methods: 100 cases of inguinal hernia admitted in Medical College Teaching Hospitals were selected on the basis of the nonprobability (purposive) sampling method. All patients with uncomplicated direct and indirect hernias treated by open approach surgeries were included. The age/sex incidence, mode of presentation, precipitating factors, surgical treatment, postoperative complications were all evaluated and compared with standard published literature. A predesigned proforma was used to collect this information for individual case.
Results: The incidence of hernia was common in younger,18-40-year age group (33%), people engaged in agriculture (42%), labourers (33%). 52% patients presented with swelling and 48% with pain and swelling. Right indirect hernia was the most common (41%), right direct hernia (23%), pantaloon (7%) and bilateral in 8%. 32% patients had strenuous work as a precipitating factor, 35 % had smoking as associated factors. Abdominal tone was poor in 8% cases.
Conclusions: Strenuous work is often responsible for development of hernia. Heavy work, especially lifting weights, puts a great strain on the abdominal muscles. If there is an underlying weakness already present, hernia may develop. The patient relates the onset of the hernia to a particular event.

Keywords: Inguinal hernia, Lichtenstein tension free repair, Modified bassini, Shouldice, Mesh, Prolene hernia system

INTRODUCTION

Between 1800-1500 BC Ancient "Hindu Surgeons" did celiotomy, treated hernia by severing the sac and by cautery. They employed four techniques of cauterization: the ring, dot, lateral or slanting lines, or rubbing mode. A few centuries later Greek Surgeons modified this approach, employing anterior inguinal incisions without entering the abdominal cavity.[1] The best preserved of the four-principal medical Egyptian Papyrus (Circa 1552 B.C) acquired by Professor Ebers in 1872, described inguinal hernia.[2]

Heliodorus ("Sun's gift") was the surgeon who performed the first hernia operation.[3] Aulus Cornelius Celsus (25B.C-50A.D) in "De medicina", discussed Pain,

incarceration and strangulation unresponsive to taxis as the main indications for surgery. He believed in preserving testicle.[4]

Inguinal hernia can occur at any age. Indirect inguinal hernia occurs in children in the first few months of life, in the late teens and young adults. A direct hernia is mostly seen in older subjects.

Strenuous work is often responsible for development of hernia. Heavy work, especially lifting weights, puts a great strain on the abdominal muscles. If there is an underlying weakness already present, hernia may develop. The patient relates the onset of the hernia to a particular event e.g. lifting a heavy weight.

The commonest symptom of hernia is discomfort or pain. Patient complains of a dragging or aching type of pain in the groin which gets worse as the day passes. This is often noticed when there is a 'tendency to hernia'. So, pain may appear long before the lump is noticed. Pain, continues so long as the hernia is progressing, but ceases when it is fully formed. In well-formed hernia, there is a sense of heaviness, overweight. Pull on the mesentery may cause pain in the epigastric region. The patient may complain of pain all over the abdomen due to drag on the mesentery and omentum. When the hernia becomes very painful and tender, it is probably strangulated. Many hernia may cause no pain and patient notices only a swelling in the groin. But this is rare and some sort of discomfort is almost always present.[5]

If the hernia is obstructing the lumen of the bowel (incarcerated hernia) cardinal symptoms of intestinal obstruction will appear. These are colicky abdominal pain, vomiting, abdominal distension and absolute constipation. If the patient is vomiting, character of the vomitus - whether bilious or faecal is noted. Faecal smelling vomitus heralds ominous sign.[6]

Persistent coughing of whooping cough or chronic bronchitis, constipation, dysuria due to benign enlargement of prostate or stricture urethra may cause hernia.

Many patients give a previous history of hernia repair on the same side (recurrent hernia) or on the opposite side (right sided hernia generally precedes that of the left side).

The patient should be first examined in the standing position and then in the supine position. Majority of the herniae are better examined in the standing position.

Two classical signs of an uncomplicated hernia are;

- Impulse on coughing
- Reducibility. Impulse on coughing can be detected by inspection alone.

Clinical examination usually reveals a bulge / swelling in the region of the groin which may or may not extend down into the scrotum.

If the swelling descends into the scrotum or labia majora it is obviously an inguinal hernia. Two anatomical structures are to be considered in this respect;

- The pubic tubercle
- The inguinal ligament.

An inguinal hernia is positioned above the inguinal ligament and medial to the pubic tubercle, whereas a femoral hernia lies below the inguinal ligament and lateral to the pubic tubercle.[7,8]

METHODS

The present study was a prospective study of 100 cases of inguinal hernia selected on the basis of the non-probability (purposive) sampling method conducted from the patients admitted with the diagnosis of inguinal hernia. The diagnosis of primary inguinal hernia was made on basis of history of reducible groin swelling and essentially on clinical examination. The patients were subjected to either modified bassini, shouldice, lichtenstein or prolene hernia system method of hernia repair. Evaluation of all the patients included in the study was done regarding the history, physical findings, operative findings and postoperative complications.

The patients were followed up at one monthly, six monthly and yearly intervals for any complication or recurrence. Any recurrence of hernia or death of patient was considered an end point. All cases were done under Spinal anesthesia using 3 ml of Bupivacaine 2% (Sensorcaine).

Inclusion criteria

- 18 years of age or older patients with direct and indirect inguinal hernia were included in the study
- Uncomplicated hernias included
- Hernias treated with open approach surgeries were included
- Patient who gave consent for the procedure.

Exclusion criteria

- Infants with inguinal hernias
- Recurrent hernias
- Hernias treated with laparoscopic method
- Presence of bowel obstruction, strangulation, peritonitis or perforation.
- Associated femoral hernia
- Patients undergoing orchiedectomy in the same procedure.

The data was collected in a preformed proforma. Only those investigations were done which were relevant to obtain fitness for surgery. This included random blood sugar, blood urea, serum creatinine, ECG, hemoglobin percentage, HIV, HBsAg and routine urine analysis for sugar, albumin and microscopy and ultra sound abdomen.

X Ray and ECG were done for patients above 40 years for anesthetic evaluation. If any patient was found to have any medical contraindication for surgery, he was first treated for these medical problems and then reevaluated for surgery.

RESULTS

In present study, the incidence of hernia was common in the younger age group, 18-40-years age group and men were affected more than w omen.

Table 1: Age and sex distribution.

Age groups		Sex		Total
		Male	Female	
10-20	F	2	-	2
	%	2.1	-	
21-30	F	15	-	15
	%	15.6	-	
31-40	F	16	-	16
	%	16.7		
41-50	F	16	2	18
	%	16.7	50.0	
51-60	F	29	2	31
	%	30.2	50.00	
61-70	F	13	-	13
	%	13.5	-	
70+	F	5	-	5
	%	5.2	-	
Total	F	96	4	100
	%	96	4	

In present study, incidence of hernia was seen in 96% males and 4% in females. The mean age of occurrence of hernia was 47.9 years in females and 51 years in males.

Table 2: Occupational status.

Valid	Frequency	Percent
Agriculture	42	42
Labourer	33	33
Teacher	5	5
Conductor	6	6
Student	10	10
Others	4	4
Total	**100**	**100**

In present study, the occurrence of hernia is common among the agriculturists (42%) and labourers (33%) accounting for 75 % in comparison to other occupations.

In present study, 52% of patients presented with 48% presented with pain associated with swelling and none of them presented with pain alone.

In present study, 23% patients presented within 6 months of onset of complaints while 24% of them presented after 4 years.

Table 3: Symptoms.

Symptoms		Position		Total
		Left	Left	
Swelling	F	41	41	52
	%			
Swelling with pain	F	32	16	52
	%			
Pain	F	-	-	-
	%			
Total	F	100	100	100
	%			

Table 4: Duration of hernia.

Duration		F	%
1-6 months	F	23	23
	%		
6-12 months	F	12	12
	%		
12 months - 2 years	F	**17**	**17**
	%		
2-4 years	F	24	24
	%		
4+ years	F	24	24
	%		
Total	F	100	100
	%		

In present study, 23% patients presented within 6 months of onset of complaints while 24% of them presented after 4 years.

Table 5: Extent of hernia.

Extent of hernia		Position		Total
		Left	Left	
Incomplete	F	62	20	82
	%	86. 1	71.4	82
Complete	F	10	8	18
	%	13. 9	28.6	18
Total	F	72	28	100
	%	100	100	100

In present study, the hernia was incomplete in 82% cases and complete in 18% cases. In our study, the incidence of hernia was more common in people who undertook strenuous work accounting for 32% of cases. It was also a component in 10% of patients who had two precipitating factors. No precipitating factors were seen in 39% patients.

In present study, right indirect hernia was seen in 41% cases, being the most frequent type while left direct hernia was the least common accounting 5% of cases.

Table 6: Precipitating factors.

Valid	Frequency	Percentage
BPH	4	4
COPD	7	7
Constipation	3	3
Strenuous work	32	32
BPH and Str. work	6	6
COPD and Str. work	4	4
Constip and Str. work	2	2
BPH+COPD	3	3
NIL	39	39
Total	100	100

Table 7: Precipitating factors.

Valid	Frequency	Percent
Right-indirect	41	41
Right-direct	23	23
Left-indirect	16	16
Left-direct	5	5
Pantaloon	7	7
Bilateral	8	8
Total	100	100

DISCUSSION

In present study, 33 cases were in age group 15-44 years and 10 cases in age group >65. In the study of Rutkow. IM, 9 the highest incidence was in the age group 45-64 which was 30 cases and next was 26 cases both in 15-44 and >65 age group.

The age incidence of our study is comparable with the above study and may be because the people engaged in agriculture and labourers who form the major occupational group in our study start hard manual work at a younger age. This may explain the early onset of hernia in our study.

In a study by Kurzer M, of British hernia centre, 97% cases were male and 3% female. The sex incidence of our study is comparable with the British hernia centre results.[10]

In present study, the agriculturists and labourers, the major occupational group who constitute 75% are comparable with constantly / intermittently strenuous work group of Nielson MB, who constitute 47.2%.[11] Also, the teachers and conductors who make up 11% in our study are comparable with the walking, no heavy lifting group of 28.3%.

In the present study 52 % presented with swelling in the inguinal region 48 % presented with swelling and pain. The pain complained of was dull aching type. In a study by Liem MSL and others, 93% presented with swelling in the groin and 83% with discomfort and pain.[12] The low incidence of pain in our study in comparison to that of Liem MSL and others, can be explained by high threshold of pain in the Indian population.

In a study by Liem MSL and others, the precipitating factors were COPD in 10%, BPH in 5%, constipation in 5%, strenuous activity in 24%. In our study on comparison to the study by Leim MSL and others, the number of people, involved in strenuous work is 75% (Agriculturists and labourers) and the high incidence is explained by the fact that agriculture is the main occupation in India. Coughing, straining and lifting of heavy weights and other normal daily activities generate extremely high intra-abdominal pressures, yet the natural weaknesses of the groin, such as the internal inguinal ring and the transversalis fascia, maintain their integrity in the overwhelming majority of individuals and even in those with an open internal ring and a patent processes vaginalis. The accepted explanation for this is the physiologic “shutter mechanism” which is activated when the abdominal muscles contract and raise the intra-abdominal pressure to increase when performing these functions.[13]

Cooper stated that the cause of hernia was mechanical disparity between visceral pressure and the resistance of the abdominal musculature.[14] If the first increased over the second, the abdominal wall ruptured and a hernia emerged. He listed cough, prostatism, constipation, pregnancy, obesity and unusual exertion, especially heavy lifting and causes of increased intra-abdominal pressure and therefore, causes of hernia. However, recent work suggests that these conditions do not cause groin hernias on their own but may be additional factors acting on the basic etiology to bring on a hernia.

CONCLUSION

The incidence of hernia was common in younger, 18-40-years age group (33%), people engaged in agriculture (42%), labourers (33%). 52% patients presented with swelling and 48% with pain and swelling. Right indirect hernia was the most common (41%), right direct hernia (23%), Pantaloon (7%) and bilateral in 8%. 32% patients had strenuous work as a precipitating factor, 35% had smoking as associated factors. Abdominal tone was poor in 8% cases.

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