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LATE PRESENTATIONS OF HERNIA WITH COMPLICATIONS IN COVID-19 PANDEMIC

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ABSTRACT

Background: COVID-19 pandemic has created a remarkable changes in the approach of patients for elective surgery for their presenting surgical diseases. Due to various physical, economic and social reasons they are not able to report early even when the red flag signs are raised, resulting in undue Complications, leading on to increased morbidity and mortality. This study is to identify the presentations of different types of hernia with complications in the emergency department and analyse the classification, presenting feature, delay in presentation and surgical outcome for hernia with complications. **Methodology**: It is a retrospective study involving 100 cases of acute emergency surgeries carried out for hernia with complications in a teaching hospitals. **Results**: In this group of 100 surgical emergencies 77 % were males and 23 % were females with male to female ratio of 3.3 The mean age group 52.8 years. The most common presentations were Inguinal hernia with complications 59%,followed by Umbilical hernia 17%,incisional hernia 9% ,paraumbilical hernia 10% and femoral hernia 5%.Intestinal obstruction was the commonest presentation in Inguinal ,Umbilical and ventral hernia ,but strangulation was common in femoral hernia. After development of complications ,there were undue delay of 24-48 hours in 45% of patients and more than 48 hours in 17 patients for reporting in the hospital. 83 % of patients had viable intestine or omentum as the contents of the sac ,but in 17 patients it was non-viable ,hence undergone bowel resection and anastomosis. The reasons cited for late reporting were ignorance, lack of public health hospitals with surgical facilities in the local area, non-availability of public transport system and fear of contracting with COVID-19 infections in this pandemic .Swelling, pain, vomiting ,constipation, obstipation and abdominal distension were the commonest presenting symptoms. All patients underwent surgery and apart from the minor complications like pain and seroma persisted in 56% and 30% patients in the post-operative period . Wound gapping was present in 7 % of patients. Mortality was 2% among this patients. **Conclusion**: As we are passing through a uncertainty of the pandemic ,adequate steps to be taken to make the essential surgical care made available, accessible and affordable to common public, lest to prevent undue complications arising out of late presentation resulting in increased mortality.

KEYWORDS: Inguinal hernia, irreducibility, obstruction, strangulation.

INTRODUCTION

The World Health Organisation on the 11th March 2020 declared the novel disease COVID-19 caused by the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) as a pandemic.[1] With exponential increase in case numbers, 37,099,134 are infected worldwide with SARS-CoV-2 as on 10th October with death of 1,072,605 people and 27,890,943 people Recovered[2]

The current COVID-19 pandemic has raised a number of problems never encountered before. We are facing a difficult period in which a poorly known disease is being tackled with scarce resources by healthcare systems conceived largely for the elective treatment of benign and malignant conditions. In this Covid-19 pandemic10% of COVID-19 patients progress to severe disease requiring admission to hospital and, if necessary, to critical care units. As the result of the overwhelming influx of critically ill patients, it has forced many Governments and international surgical associations to demand the temporary discontinuation of elective surgical interventions. It is assessed that 28 million elective operations were cancelled during the peak 12 weeks of disruption caused by COVID-19, equalling 72.3% of all elective surgery.[3]

Elective abdominal wall surgery is often carried out with the intention to enhance the patient's quality of life, and

hence in time of crisis COVID-19 pandemic it could be postponed.[4] Hernia is one among the commonest elective surgical procedure carried out in any surgical department, but in covid-19 only patients presenting with acute emergency were operated.[5] More so as there is lock down and fear of contract of infections in the hospital campus had forced many people with early symptoms of complications to be neglected and they present with acute dare emergency in the hospital with either obstruction or strangulation.[6]

During this pandemic, when dealing with an acutely complicated hernia (incarcerated/strangulated), those patients identified as COVID-19 positive are very likely to be true positive. However, the COVID-19 status of those not tested (but assessed on their current symptoms) or tested negative does not mean that they are truly COVID-19 negative,[7,8] Therefore, great care should be taken to minimize the risk of infection to healthcare workers. This includes personal protection equipment and controlling any aerosol of bodily fluids which might contain the virus during surgery.[9]

As a general concept, surgical technique and materials do not change as a consequence of the pandemic. To save life (resect dead bowel/tissue), to restore GI continuity (if bowel resection undertaken); and to repair the abdominal wall, the emergency hernia surgery is carried out.[10] These aims may be achieved at the same operation but may require a staged approach. Mortality and morbidity increase in the emergency setting by 10–20-fold compared to elective surgery, with bowel infarction the major risk factor for this.

OBJECTIVES

To Analyse the presentation of Hernia during COVID-19 pandemic and surgical outcome for hernia.

METHODOLOGY

This Retrospective hospital based study included 100 patients admitted to the Tirunelveli medical college hospital Emergency ward between May 2020 to August 2020 with history of Hernia.

Statistical analysis was performed using SPSS 20. Univariate analysis results are calculated with a mean and SD or percentage. Statistical significance was considered when P < .05. The institutional ethical committee approval obtained.

Inclusion Criteria

Patients of age more than 13 years, presenting with acute complications of various types of hernia.

RESULTS

Among 100 cases 77 % were males and 23 % were females with male to female ratio of 3.3: 1.Figure 1

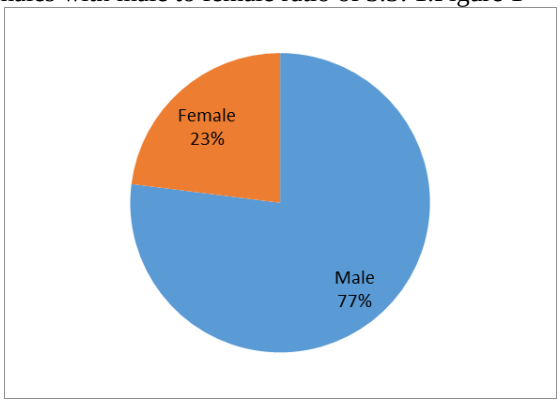

Figure 1: Male vs Female.

Mean age of person included in this study were 52.6 SD +- 4.898.The age wise data is tabulated in Figure 2.

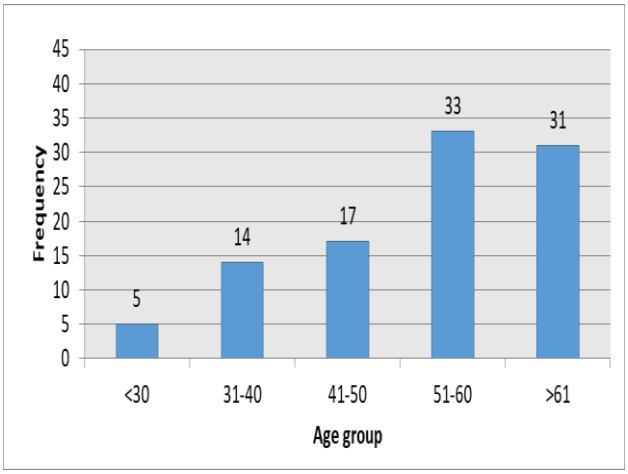

Figure 2: Age distribution.

Different types of Hernia presented in this study are Femoral ventral, inguinal, umbilical and paraumbilical. Of the 100 cases reported inguinal hernia, 59% tops the list, followed by umbilical hernia, 17%.The types and their frequency are shown in Figure 3.

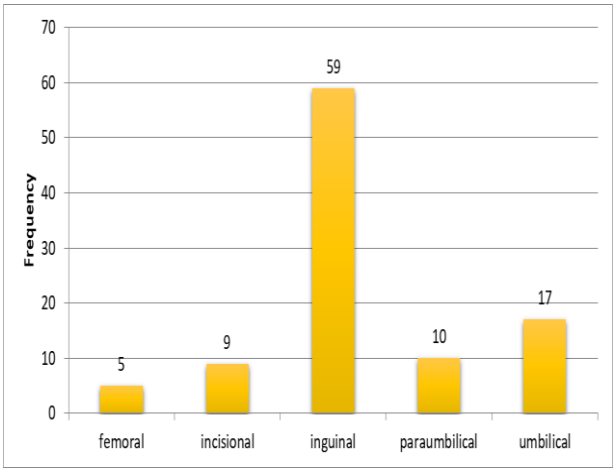

Figure 3: Analysis of different types of hernias.

Obstruction (39%) followed by irreducibility (17%) and strangulation (3%) is the most common complication of inguinal hernias. Figure 4.

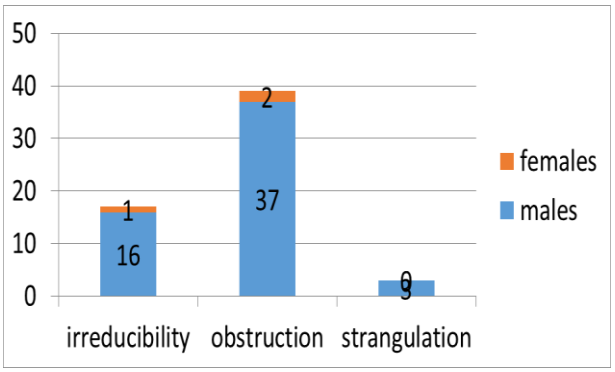

Figure 4: Complication of inguinal hernia.

The right inguinal hernia, on the other hand, is more common than the left inguinal hernia. However there is no statistically significant difference in the complications in the hernia presented in right or left side. (p= < .05) Figure 5.

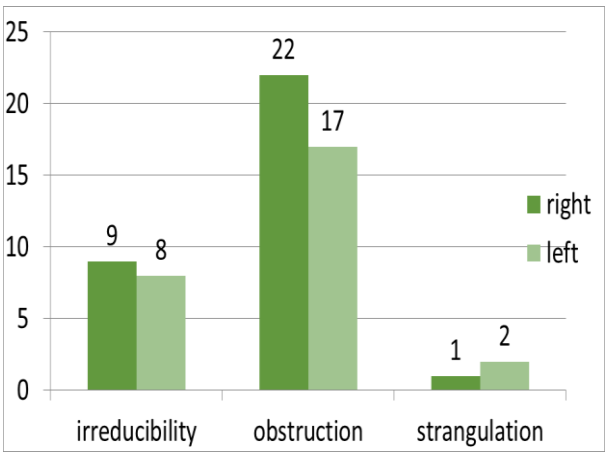

Figure 5: Complication of hernia in right and left.

There were 6 cases of Femoral hernia with 1 case of irreducibility, 2 case of intestinal obstruction and 3 cases of strangulation. All 5 cases except one case of strangulation was present in female and it is statistically significant. (p= < .05) Figure 6

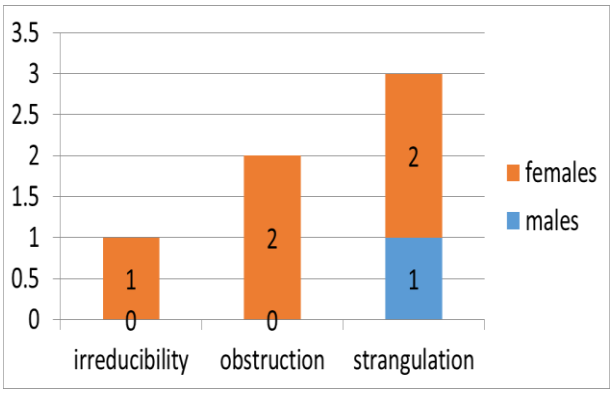

Figure 6: Complications of Femoral hernia.

17 cases of Umbilical hernia presented with complication and it is much higher than the pre COVID-19 pandemic period. There were 6 female and 11 male patients with 12 patients presented with obstruction. Though in femoral hernia majority of cases presented with strangulation (50%), in umbilical hernia majority of patients presented with obstructive features (65%) and none with strangulation. Figure 7.

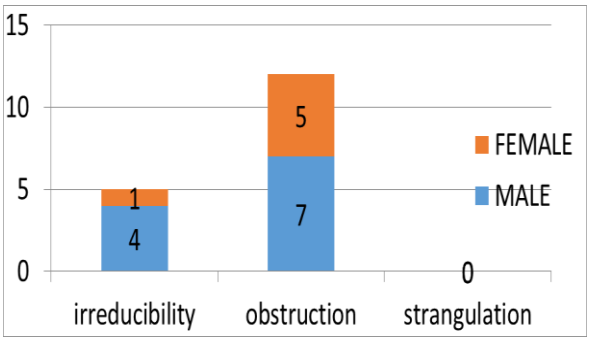

Figure 7: Complications of umbilical hernia.

Obstruction is the most common complication (70%) among paraumbilical hernias. Figure 8.

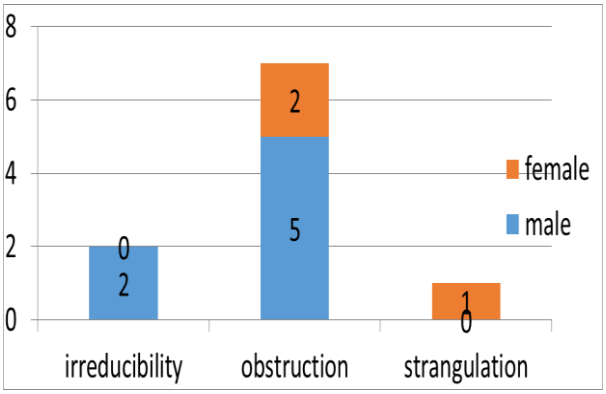

Figure 8: Complications of para umbilical hernia.

There were 9 cases presented with features of complication irreducibility 5 (55%) obstruction 2 (22%) and strangulation 2 (23%).Figure 9

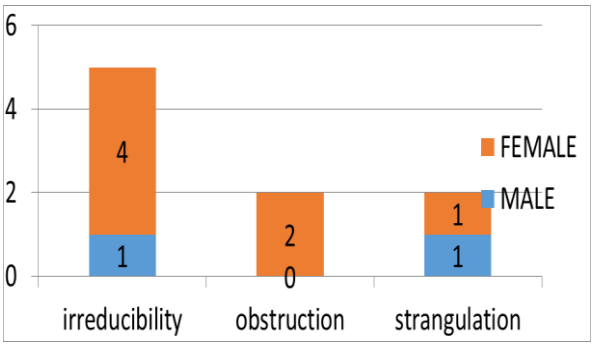

Figure 9: Presentation of incisional hernias.

The presenting symptoms of various hernia in the emergency department is tabulated in Table 1.

Table 1: Presenting symptoms of hernia.

Clinical findings	No. of cases	Percentage
Swelling	100	100
Pain	100	100
Vomiting	80	80
Constipation	72	72
Obstipation	18	18
Abdominal distension	24	24
Fever	12	12

Majority of the patients presented with pain to Emergency ward after 24 – 48 hours. Figure 10.

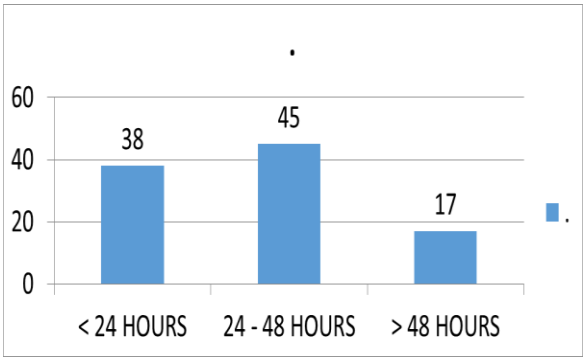

Figure 10: Timeline for presentation to emergency ward.

Clinical signs during the time of presentations were tabulated in Table 2. All the patients showed signs of irreducibility, tenderness, and no cough impulse.

Table 2: Clinical features of Hernia.

Clinical findings	No. of cases	Percentage
No impulse on coughing	100	100
Irreducible	100	100
Local tenderness	100	100
Visible peristalsis	64	64
Decreased/ absent bowel sounds	8	8

Majority of the patients (47%) presented with swelling, pain, vomiting and constipation.18 percentage of patient had history of localized pain in the inguinal region over the swelling, vomiting and obstipation .Figure 11

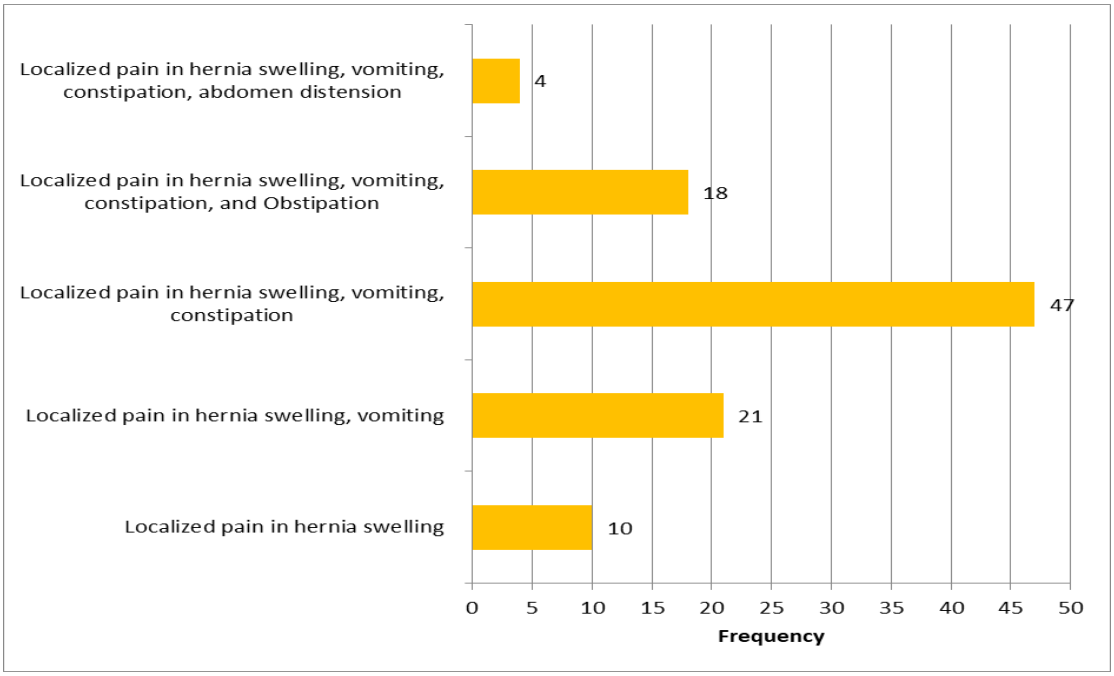

Figure 11: Clinical presentation.

All patients were operated as emergency after checking for COVID-19 infection and observing adequate safety protections. Complication presented were noted and tabulated in Table 3.

Table 3: Complications in the post-operative period.

.	No of cases	Frequency
NONE	5	5.0
PAIN	56	56.0
SEROMA	30	30.0
WOUND GAPING	7	7.0
DEATH	2	2.0

Intestine was the most common content.83 patients (83%) were had viable bowel/omentum as contents and in 17 patients (17%) it was non viable Table 4.

Table 4: Contents of the hernial sac.

	No. of cases		Percentage
Viable	83	Only omentum	23
		Omentum and small intestine	22
		Only intestine	36
		colon	1
		Omentum and colon	1
Non-viable	17	Only omentum	5
		Omentum and small intestine	4
		Only intestine	8

DISCUSSION

Schwartz et al defined hernias as a protrusion of a viscus through an opening in the wall of a cavity in which it contained. It occurs when aponeurosis and fasciae are devoid of the protecting support of striated muscle. Because of the anatomical relation the commonest site of herniation is in the inguinal region, other sites include femoral, umbilical, paraumbilical, incisional etc. The most common type of abdominal wall hernia are groin hernias which accounts for 75% of all.[11]

Of these, inguinal hernias account for 95%.
These hernias become complicated when strangulation becomes irreducible (incarcerated), obstructed and subsequently progressed. Gangrene occurs when the blood supply of its contents is seriously impaired. Obstructed external hernias are said to be the most common cause of intestinal obstruction.[12] Acute intestinal obstruction is one of the most common acute abdominal emergencies and is associated with significant morbidity and mortality, especially if it becomes strangulated. In all the age groups, it is one of the most common surgical emergencies. The reasons for the simple hernia getting into problems is due to the patient's delay in coming out to hospitals.[13]

There are many reasons for patients reporting late to the hospital with early symptoms of complications of hernia like irreducibility and pain in this pandemic. Ori Snapiri et al in their study reported the fear of contracting the COVID-19 in public places such as hospital or casualty, inadequate clinical examination in the hospital setup with more of telemedicine concepts resulting in misdiagnosis are quoted as Primary reasons.[14] 70 % of the patients reported lack of public transport and fear of COVID -19 infections in the hospital zone were the cause for the late arrival to the hospitals.

Lazzerini M et al have stated in their study conducted in Italy there is nearly 75 to 80% of reduction of cases of acute abdomen during the pandemic period and postulated it reflects the scarcity of the resources available as a result of pandemic based redistributions and the fear grip of the people to get exposed to corona infections in the hospitals.[15] In view of not doing elective surgeries, the number of non-complicated hernia surgeries are drastically reduced worldwide.

In February to June 2019, the hernia registry Herniamed documented up to 7000 inguinal hernia, 1700 umbilical hernia and 1200 incisional hernia repairs per month. Of those, the proportion of emergency repairs was 2.5% for inguinal hernias and 5.9% for both umbilical and incisional hernias. However in the corresponding period in the 2020 covid pandemic the entire elective surgeries were stopped but the emergency surgeries were also decreased.[16] **figure 11.**

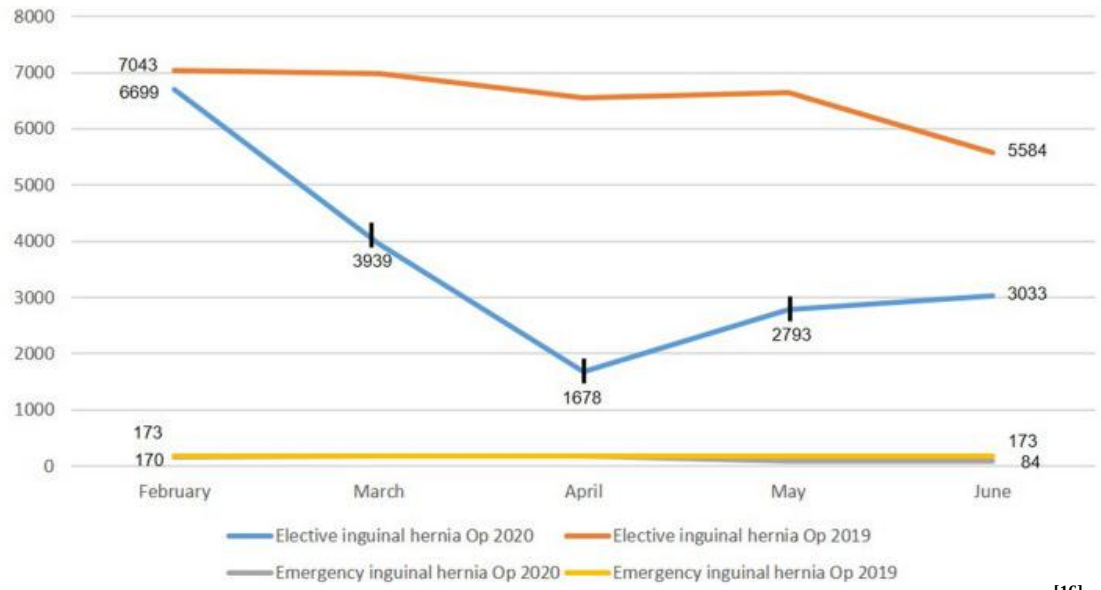

Figure. 11: Hernia surgery profile February–June 2020 vs. 2019 in the Herniamed registry.[16]

In our study the commonest hernia was inguinal hernia followed by umbilical hernia. Kim Edward et al in their study also noted that inguinal hernia is the commonest hernia .Even in the emergency situations the inguinal hernia with complication is the commonest situation.[17]

In our study in the case of inguinal hernia out of 59 patients 56 (95%) were male and 3 patients were female.

D K Gupta et al[18] in 1993 published a study and stated 96 % in male and 4% in female. According to Charles et al,[19] in the study published on 2000,he quotes 93.2% in male and 6.7% in female.

As 17 patients presented with non-viable bowel as content with strangulation, they were subjected to resection anastomosis of bowel resulting in prolonged hospital stay and wound infection with stormy post-operative period. These patients would have presented to hospital early if there was no panic on the COVID-19.

The time delay for presenting to hospitals after developing complications such as pain, vomiting were noted .45 patients had presented after a gap of 24-48 hours and 17 patients after 48 hours in the hospital. The reason quoted by them for late presentations were lack of knowledge on the symptoms, non-availability of surgical facilities during the pandemic in the nearby public hospitals, lack of public transport systems and fear of exposure to COVID-19 infection.[20]

All patients underwent surgery and apart from the minor complications like pain and seroma persisted in 56% and 30% patients in the post operative period and wound gapping present in 7 % of patients. Mortality was 2% among this patients .Mortality and morbidity are very less in elective surgery .In view of late presentation and associated comorbidities ,the mortality and morbidity are high in our series. Hanna nelson et al in their large series study reported following emergency operations for groin hernia, the mortality risk is increased 6- to 9-fold compared with the mortality of the general population.[21]

CONCLUSION

Most of the patients observed during COVID-19 presented very late and those presented late had complications . Complicated presentations are seen more in elderly and delayed presentation was also responsible for unfavourable outcome. Mortality rate continues to be associated with advancing age and resection of necrotic bowel hernia surgery after repair of complicated hernia. The non-availability of the elective surgery OPD , lack of public transportation and fear of contracting Covid-19 infections in the crowded hospitals have forced patients with early symptoms of complications not reporting to the hospital on time and ending up with late presentations and resultant complications. Even in such pandemic ,the patient shall have a dedicated surgical units to early screening and identify the hernial complications early and ensure adequate surgical care.

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