OCCURRENCE OF ASYMPTOMATIC COVID-19 IN EMERGENCY SURGICAL PROCEDURES. MULTICENTER STUDY

Farhan Ahmed Majeed, Ghazanfar Ali, Muhammad Asif Aziz, Hassan Shabbir, Nabeela Farhan, Haroon Sabir*

Combined Military Hospital Multan/National Institute of Medical Sciences (NUMS) Pakistan, *Pakistan Naval Ship Shifa Hospital, Karachi Pakistan

ABSTRACT

Objective: To find out the occurrence of Asymptomatic COVID-19 in emergency surgeries performed from 23 Mar to 23 Jun 2020 in three tertiary care hospitals and analyze the distribution of cases.
Study Design: Cross sectional study.
Place and Study Duration: Departments of Surgery, Combined Military Hospital Multan, Lahore and PNS Shifa Karachi, from Mar 2020 to Jun 2020.
Methodology: All cases requiring emergency surgical procedures were first assessed for clinical symptoms of COVID-19 and urgency for surgical intervention. Test for COVID-19 were advised in addition to baseline as per hospital policy. Patients requiring urgent intervention were operated using personal protective equipment (PPE) without waiting for COVID-19 test result while other emergency patients were operated after COVID-19 results within 24 hours.
Results: Total 1941 patients were operated 678 (34.9%) in CMH Multan, 723 (37.2%) in CMH Lahore and 540 (27.8%) in PNS Shifa. Out of total 95(4.89%) patients were positive 57 (60%) male positive patients and female 38 (40%). Age distribution was max above 50 years with 33 (66%), only 13 were less than 20 years of age. All patients were clinically symptom free as per COVID-19 criteria of NIH
Conclusion: Of 4.89% patient can be missed COVID-19 cases if screening is not carried out in all patients undergoing surgery. Picking of these asymptomatic cases is rather more important as they can trigger spread in the healthcare workers and adversely affect the already overburdened health care delivery system in a close contact environment.

Keywords: Asymptomatic, COVID-19, Emergency surgeries, Occurrence.

INTRODUCTION

History of natural disaster and outbreak of pandemics is as very old[1]. In spite of great advances in fields of prevention, diagnosis and treatment, there have been difficulties in controlling these infectious diseases. This is because of diverse cultures, eating habits and contact with wide spread animals and birds, international trade and tourism, and overcrowded cities[2,3].

The present crisis started as a local outbreak of Respiratory Illness with flu like symptoms in Wuhan province of China in December 2019 and was named COVID-19[4]. Due to high infectivity, the spread was across the globe showing total disregard to gender, race, age, social class and geographic location. Frequent clinical manifestations of the illness include; fever, cough, myalgia, headache and diarrhea[5]. Abnormal testing includes abnormalities on chest radiographic imaging, lymphopenia, leukopenia, and thrombocytopenia. Immunocompromised patients were mainly affected by this disease[5]. Isolation, social distancing and early detection are vital to limiting the local spread of the disease[6,7]. Pakistan also faces the COVID-19 Pandemic with first case reported on 26 Feb 2020 via foreign transmission. Although, the disease falls mainly in the domain of medical specialist, but surgical specialist can harbor this infection while operating on asymptomatic cases[6]. Moreover, surgical lessons from combat and trauma can be broadly applied via focused empiricism, an agile approach based on prioritization and continuous performance improvement. For surgical team COVID-19 pandemic

Correspondence: Dr Hassan Shabbir, Department of Surgery, Combined Military Hospital, Multan Pakistan
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presents a mass causality event on local global scale. As The COVID-19 was a novel disease, there was no previous criterion to follow for handling these cases. This study was conducted in an effort to find the incidence of asymptomatic cases of COVID-19 in patients undergoing surgery.

METHODOLOGY

It was a cross sectional study conducted in departments of Surgery, Combined Military Hospital Multan, Lahore and PNS Shifa Karachi, from 23 March to 23 June 2020. All admitted case requiring surgical emergency procedure were assessed for clinical symptoms of COVID-19. NIH Pakistan guidelines were followed for history regarding patient's general condition, presence of active or recent respiratory or gastro-intestinal symptoms, anosmia, history of recent travel to an endemic country in the last[13], days or history of contact with a person at risk to have the COVID-19 infection were evaluated. Inclusion Criteria were asymptomatic COVID-19 patients undergoing surgical intervention and exclusion criteria was symptomatic patients of COVID-19 for surgery. Test for COVID-19 were advised in addition to baseline as per hospital policy. Patients requiring urgent intervention were operated using personal protective equipment without waiting for COVID-19 test result while other emergency patients were operated after COVID-19 results within 24 hours. Keeping the urgency of surgical situation in mind, these patients were operated without waiting for COVID-19 test results. Personal protective equipment was worn by all staff in contact with these patients. Two Operation theaters were reserved for COVID-19 cases. All cases requiring surgery were operated by open surgical technique and minimal access surgery was avoided. Test results were entered in a special Performa (Annex-A) and distributive analysis was done with SPSS-23.

RESULTS

Total 1941 patients were operated 678 (34.9%) in CMH Multan, 723 (37.2%) in CMH Lahore and 540 (27.8%) in PNS Shifa. Overall 95 (4.89%) patients were positive 57 (60%) male positive patients and female 38 (40%). Age distribution was max above 50 years with 33 (66%), between 3-50 years age only 30 (31.5%)[12], were >20 years of age as in fig-1 & 2. All patients were clinically symptom free as per COVID-19 criteria of NIH. PNS Shifa had higher percentage of positive case followed by CMH Lahore and CMH Multan; 7.60%, 3.92% and 3.15% respectively as in table-I. Out of total 1941 patients, 521 patients (26.84%) were operated without waiting for COVID-19 results. Out those 521 patients 481 patients (92.32%) were from Gynecology and obstetrics department.

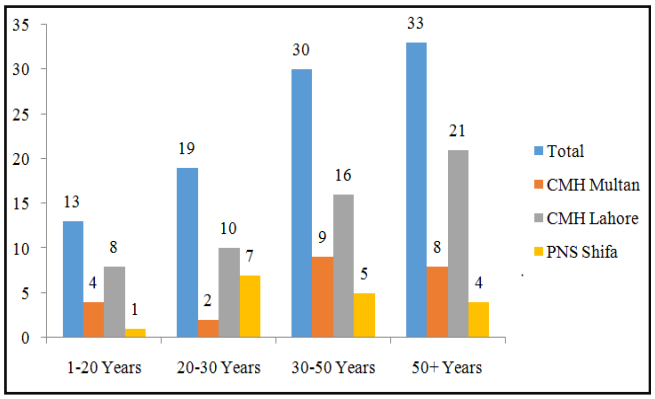

Figure-1: Age wise distribution of COVID-19 cases.

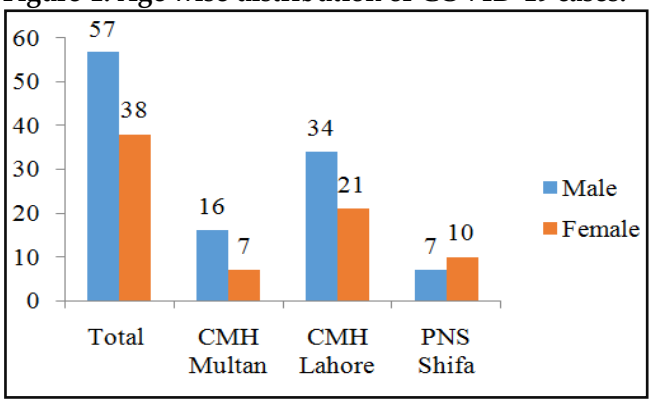

Figure-2: Gender distribution.

DISCUSSION

The history of communicable diseases dates back tohumankind's hunter-gatherer days, but epidemic was less likely because of scattered population and lack of rapid movement from one place to other[8]. With the shift to agrarian life about 10,000 years age communities were created and epidemics were made possible. Furthermore,

with the advancing global travelling and trade helped the epidemic become pandemic[3].

In December 2019, health authorities in Wuhan province of China reported a patient having atypical illness with flu like symptoms. On 7th Jan 2020 nSARS-Cov-2 was identified as the causative agent of such symptoms[10]. It was later labeled as COVID-19. The virus belonged to family of respiratory illness. It spreads through droplet by coughing, sneezing or close contact with the affected patients. The severity of the infection is variable, ranging from mild cough, body aches and low grade fever to respiratory failure[10].

CMH Multan the all the surgical specialtiesare shifted under one roof due to need of isolation for surge of COVID-19 patients.

Operating of a COVID-19 positive patient is a challenge for all surgical team. A study was conducted by Jacquelyn Corley about the safety while operating upon a COVID-19 positive patient in US[14]. They reported that 282 patents (25%) were tested positive for COVID-19 preoperatively in 1128 patients. It is very alarming number and highlights the importance of taking all precautionary measures while operation on COVID-19 positive patients. A study was conducted for

Table-I: Hospital wise distribution of cases.

	Total	CMH Multan	CMH Lahore	PNS Shifa
Total no. of emergency operations performed	1941	678	723	540
No of cases +ive for COVID-19	95	23	55	17
Percentage of COVID-19 ± VE Patients	4.9%	3.92%	7.60%	3.15%

Table-II: Specialty wise distribution.

	Total	CMH Multan	CMH Lahore	PNS Shifa
Surgery	41 (43.16%)	13 (56.52%)	22 (40.00%)	6 (35.30%)
Gyne	30 (31.58%)	06 (26.09%)	17 (30.90%)	7 (41.76%)
General Surg / Subspecialty	24 (25.26%)	04 (17.39%)	16 (29.10%)	4 (23.53%)
Total	95	23	55	17

A high rate of mortality is reported in patients having systemic illness like diabetes Mellitus, Cancer, Organ failure or Immunocom-promised Patients. The first case of COVID-19 was reported on 26th Feb 2020 in Pakistan[11]. There has been increasing number of affected people since then. A low literacy rate, prevalence of quackery and misinformation about the disease has compounded the crisis[12]. Although most of patients recovered from this illness about 17-29% patients needed hospitalization for respiratory distress. Overall mortality is about 1-2%. However, the mortality rate was higher in elderly people and patients having pre-existing systemic conditions like diabetes Mellitus and cardiac illness[5]. The COVID-19 pandemic has brought unprecedented real and anticipated challenges to our health care systems. Prima facie COVID-19 is not a surgical problem or disease, surgical units are impacted owing to prioritization elsewhere of staff, beds, and resources as well as increased potential risk to both non-COVID-19 patients and staff. In our hospital detecting incidental COVID-19 Positive cases in asymptomatic patients undergoing nuclear medicine examinations for oncologic indications was published in the journal of nuclear medicine[15]. They reported 5 cases (9%) in 65 patients. This study also highlights the importance of carrying out tests in all hospitalized patients during this pandemic as we have done in all cases as per hospital policy. In our study a total of 1941 cases were operated out of which 95 cases (4.9%) were COVID-19 positive. Full precautions should be adopted in asymptomatic patients undergoing surgery in which the test results are awaited and surgery cannot be delayed[15].

As Karachi and Lahore are the two most populous cities of Pakistan and it is very difficult to implement fully effective preventive measures in these mega cities. PNS Shifa Karachi had highest percentage of COVID-19 positive patients from gynaecology and Obstetrics department, 41% followed by CMH Lahore, and 30.90%. A clinical study published in American Journal of

Obstetrics and Gynaecology in May 2020 reported 18 pregnancies having COVID-19 disease. All of them were infected in third trimester and had clinical findings similar to those non-pregnant adults. Out of total 18 pregnancies, 16 were delivered by cesarean and there was no evidence of vertical transmission of the disease[16]. In our study the large chunk of the patients comprised of gynaecology and obstetrics (table-II). In total 30 COVID-19 positive patients (31.58%) were from the gynecology and obstetrics department CMH Multan had lowest percentage of such patients. Although some families of the armed forces personnel's are residing in cantonment areas where protective measures are well observed, there is sizeable number of families of the armed forces personals residing in villages and cities where protective measures against the COVID-19 are not being observed properly. Furthermore, these cases cannot be postponed and health care workers; doctors, nurses and paramedic are at risk of acquiring infection.

As the COVID-19 pandemic is a global crisis and all efforts should be made to converge the resources to combat this malady. The hospital administrators,surgeons and other healthcare professionals have to carefully weigh the risks of exposure to COVID-19 and related complications with patients' need to undergo surgery. A prudent approach is to carefully assess the situation and make decision keeping in mind the risk versus benefit ratio. In these circumstances the elective surgeries should be postponed as in our case no elective cases were done. This is not a problem free course, as the patient load can pile up. Moreover, the elderly patients are more risk of developing cardiac and respiratory complications following surgery. This can further overload the already healthcare system. As the COVID-19 is novel disease the false negative patients who have undergone surgery can have many pulmonary complications putting the other patients and the health care workers at risk. A recent study published in lancet by COVID surg demonstrated that about 50% of the COVID-19 positive patients undergoing surgery had a pulmonary complication in the 30 days following the procedure. Almost quarter of them succumbed to their illness[17-18].

LIMITATIONS OF STUDY

There are limitations to this study. Some patients undergoing surgery may be tested false negative due to early testing as these patients had to undergo surgery. This study was conducted in services hospitals of armed forces, so the data may be different from the overall national data. Similarly, the percentage of patients in different strata may also vary as it is primarily dealing with armed forces personnel. Moreover, for follow up and complications in asymptomatic patients are also limitations of study and more research work may be required for this purpose.

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CONCLUSION

Of 4.89% patient can be missed COVID-19 cases if screening is not carried out in all patients undergoing surgery. Picking of these asymptomatic cases is rather more important as they can trigger spread in the healthcare workers and adversely affect the already overburdened health care delivery system in a close contact environment.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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