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IMPACT OF COVID-19 PANDEMIC ON EARLY DIAGNOSIS OF TUMORS

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ABSTRACT

COVID-19 pandemic has remarkably affected the global population. It has impacted the health of people due to non-covid reasons as well. Some cancers can be screened and diagnosed early while those with symptoms that are detected at an early stage can be treated appropriately resulting in better prognosis of the patient. **Objective**: In this study we intend to study the impact of covid 19 pandemic on the diagnosis of tumours. **Methods**: Number of patients diagnosed as benign or malignant tumours on biopsy or surgical specimen, during the lockdown period were calculated and compared with the pre- covid numbers. **Results:** The diagnosed cases reduced by 77 % in benign tumours and 37.5% in malignancies. A 37% decrease in the diagnosis of early-stage cancers was noted. **Conclusion:** COVID-19 fear has profoundly affected the diagnosis of benign as well as malignant tumours by delaying them which could have been treated timely with a favourable prognosis.

KEYWORDS: COVID 19, Tumours, Delay.

INTRODUCTION

The current COVID-19 pandemic caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has remarkably affected the global population. Because of this ongoing crisis several countries have resorted to extreme public health measures to a level that was never encountered in the previous decades.[1]

Recent updates suggest that the worldwide spread of this disease has severely affected the life of people. Almost one-third to half of the global population was under some form of lockdown.

On 25th March 2020 Prime Minister of India also announced countrywide lockdown with social distancing restriction over majority of commercial activities and mass gatherings including educational and public institutions.[2] Under such unavoidable circumstances, it is crucial to understand how people are adapting to the constraints imposed on them due to coronavirus lock-down and its impact on the other health issues including diagnosis of tumours.

Tumours as we all know can be classified as benign or malignant and early diagnosis of malignant tumours plays a vital role in its prognosis. Histopathological examination of biopsy material plays a pivotal role in the diagnosis of many tumors along with other investigations like blood tests, radiological techniques etc. Pathologic diagnosis by biopsy interpretations remains the gold standard for diagnosing various malignancies like breast, neurological, lung etc.[3] The present study is undertaken to know the impact of COVID-19 pandemic borne lockdown as well as the post lockdown period with restrictions, on patients presenting with early symptoms of tumors and their diagnosis.

MATERIALS AND METHODS

This is a descriptive study undertaken in a tertiary care hospital, which started dealing with COVID-19 patients since June 2020. Data of patients who were diagnosed with either benign or a malignant tumor of any type were collected from April 2019 to March 2020 (Pre COVID-19) and from April 2020 to September 2020, which is the COVID-19 Lockdown period.

All biopsy tissues or surgical specimen diagnosed with either benign or malignant condition were included. Surgical specimen operated for malignancy which were prior diagnosed on small biopsy were excluded as repetitions. Statistical calculations were done and analyzed using the data available to arrive at a conclusion.

All the procedures followed were in accordance with the ethical standards of the institutional committee.

RESULTS

Data of patients diagnosed with either benign or malignant tumor were retrieved from the archives of pathology department, from 1st April 2019 to 30th September 2020, that is the Pre-covid period and the Corona induced lockdown period. This data was categorized into 3 periods. First group is of patients from 1st April 2019 to 30th September 2019 as PC-1 – Precovid 1 period, from 1st October 2019 to 31st march 2020 as PC-2- Precovid 2 period and finally from April 2020 to September 2020 as CL- Covid 19 induced lockdown period, each period having a duration of 6 months (Table1). The tumors were categorized as benign and malignant. Stage I and stage II of any malignancy were categorized as early phase cancer and stage III as late-stage cancer.

Table 1: Represents the categorization into different periods. (PC-1- Precovid 1, PC-2 – Precovid 2)

Category	Time period
Precovid 1 (PC-1)	April 19- Sep 19
Precovid 2 (PC-2)	Oct 19-March 20
Covid lockdown (CL)	Apr 20-Sep 20

Precovid 1: During the PC-1 period we received a total of 288 neoplasms of which 132 were benign and 156 were malignant. Of the total 156 malignancies diagnosed, 66 were classified as early stage and 90 as late-stage malignancies.

Precovid 2: During the PC-2 period, 260 neoplasms were received of which 122 were benign and 138 were malignant. Fifty-four were early stage and 84 were late-stage malignancies.

Covid lockdown: A total of 120 neoplasms was reported during the CL period of which 29 were benign and 91, malignant (Table 2). We received 37 early phase cancers and 54 late phase cancers during this period.

Table 2: Total number of neoplasms diagnosed during the Precovid and COVID-19 period.

Category	Benign neoplasm	Malignant neoplasm			Total neoplasms
		Total	Early	Late	
PC-1	132	156	66	90	288
PC-2	122	138	54	84	260
CL	29	91	37	54	120

From the above extracts it can be seen that there was significant decrease in the benign and malignant cases during the lockdown period. (Fig 1).

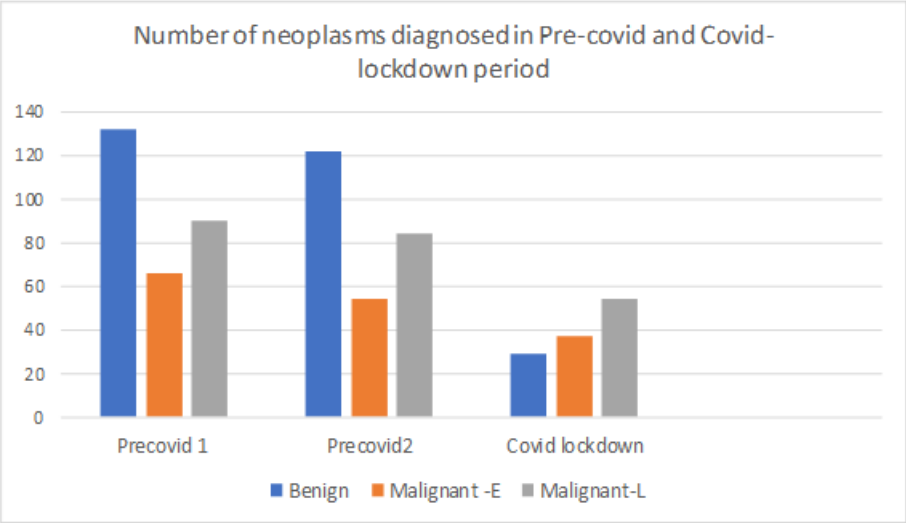

Fig 1: Graph showing a picturesque representation of the neoplasms in various phases and the stark decrease in the neoplastic cases diagnosed during the lockdown period.

If we compare the number of cases diagnosed during the CL period with PC-1 period (comparable periods occurring during the same time of the year that is from April to September), it can be noted that there has been a

78% decrease in benign and 41% decrease in malignant cases. During the PC-2 period a decrease of 76.2% was noted in benign cases and 34% decrease in diagnosing malignant cases. (Table 3)

Table 3: Representation of % decrease during lockdown as compared to Precovid periods.

	Decrease in Benign cases	Decrease in Malignant cases
PC-1	78%	41%
PC-2	76.2%	34%
Average	77.1%	37.5%

Diagnosis of Early-stage malignancy during the lockdown period decreased by 44% as compared to PC1 period and by 31.4%, as compared to PC-2 period. Diagnosis of late-stage malignancy reduced by 40% as compared to PC1 period and by 35.7% as compared to PC 2 period. (Table 4)

Table 4: Representation of % decrease in the early and late-stage malignancy during lockdown period.

	Early-stage malignancy diagnosis during lockdown period	Late-stage malignancy diagnosis during the lockdown period
PC-1	Reduced by 44%	Reduced by 40%
PC-2	Reduced by 31%	Reduced 35.7%
Average	Reduced by 37.5%	Reduced by 37.8%

DISCUSSION

The COVID-19 pandemic has disrupted all aspects of human society with more than 10 million confirmed cases and more than half a million deaths. The current outbreak is spreading around the globe and is heavily impacting on the global physical health as well as mental health[4]. It is a major health concern and can be devastating, especially for the elderly.[5] Central and local governments have responded very quickly by encouraging strict isolation measures to prevent further spread of the disease even after the lockdown.

In a climate of fear and mandated avoidance of all but essential clinical services, delays in patient, population, and health-care system responses to suspected cancer symptoms seem inevitable. The entire landscape of cancer management in primary care, from case identification to the management of people living with and beyond cancer, is evolving rapidly in the face of the coronavirus disease 2019 (COVID-19) pandemic.[6]

Cancer should be diagnosed and treated without delay. Timely diagnosis might allow the cancer to be identified at a treatable stage and prevent complications. Various screening programmes are conducted to detect early breast and cervical cancers, which detect around 10% of the tumours. Rest of the patients presenting with symptoms are made to undergo various relevant investigations for the immediate diagnosis and treatment.

This system is now in disarray due to the COVID-19 pandemic. Two main changes have arisen as a consequence of the lockdown. First, patients are frightened, especially older patients and those with existing health conditions. Many are shielding by minimising interactions between themselves and others and staying home as much as possible, and are encouraged to do so. Secondly, as most of the hospitals are dealing with covid patients the focus of health care system has shifted and there is heavy pressure on Health System to diagnose and treat the COVID patients and to reduce the mortality rate.[7]

To know how large is the loss of life from cancer resulting from the COVID-19 pandemic, two very different figures were obtained from the modelling studies done by Amit Sud and Camille Maringe reflecting their different methods, cancer sites, and assumptions. Both studies omit changes occurring before entry into secondary care and changed treatment regimens for those already diagnosed with cancer, which will further affect the total number of deaths. Perhaps a precise figure is not needed—the loss of life is big, whatever the method used**.** The authors of both Articles expect there will soon be a surge in patients referred and the investigations they need.[7]

In another study conducted by Zhen Li a total of 4919 inpatients were identified from the urological department within 9 months before and after the outbreak (group A and group B). The baseline characteristics and residential population of different types of diseases were compared in the two groups. They concluded that with the impact of COVID-19, delay in diagnosis or treatment of non-COVID-19 diseases is inevitable whether the medical resources allocation is effective or not. Psychological status of patients might be the major cause of postponing diagnosis or treatment. For urological patients with locally advanced tumour or rapid progression, who need long-term postoperative intervention, the delay of regular treatment could lead to inevitable progression or recurrence.[8]

CONCLUSION

The COVID-19 pandemic has profoundly affected the medical care systems all over the world. But it has also drastically affected people with NON- COVID diseases, major being diagnosis of cancer. A delay in diagnosing

patients with Early-stage cancers was noted who could be treated by giving appropriate medical care or surgical interventions and the covid fear might land them in advanced untreatable stages and increased mortality.

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