

Cutaneous manifestations in 115 COVID-19 Patients: A Cross Sectional Study in Central Karnataka

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Abstract:-

Background: Coronaviruses are RNA viruses that have become major health problem since 2002 after the outbreak of SARS-CoV-2. Presently, world is worried about 2019 novel CoV (SARS-CoV-2). Various cutaneous manifestations has been described earlier. In our study, we would like to describe the cutaneous manifestations found in 115 COVID patients. **Aim:** To look for cutaneous manifestations in COVID-19 positive patients. **Materials and methods:** We studied 115 positive patients who were tested positive on throat swab examination by RT-PCR. Among which 75 patients complained of symptoms like dyspnoea, fever, arthralgia, myalgia. **Results:** Among the patients studied only 22 patients had cutaneous manifestations. Among which 12 patients had erythematous rash, 3 patients had vesicles, 3 patients had uticular lesions, and remaining 4 patients had non specific symptoms like erosions, peeling of skin. P value in COVID-19 positive patients with skin lesions is 0.017 which tells that there is significant association of skin lesions with COVID-19 patients. Further studies are needed in this respect. **Conclusion:** Coronavirus is not dermatotropic virus, yet many studies have described cutaneous manifestations earlier. But in our study we have found 14.6% of patients with cutaneous manifestations. Knowing about cutaneous manifestations helps in suspecting patients presenting to out patient department which further helps in early diagnosis and preventing the spread.

Keywords:- Cutaneous Lesions, COVID-19 Positive Patients, Overview.

I. INTRODUCTION

Coronaviruses are posing serious health related concerns since long time. In 2002 severe acute respiratory syndrome coronavirus (SARS-CoV-2) infected 8000 people with 10% fatality rate. Later again in 2012, middle east respiratory syndrome coronavirus (MERS-CoV-2) had infected more than 1700 people with 36% fatality(1). In December 2019 unexplained pneumonia cases were reported initially in Wuhan, China. The pathogen, a novel coronavirus named severe acute respiratory syndrome coronavirus 2 (SARSCoV-2), was isolated from lower respiratory tract samples of infected patients and the resultant disease was named as COVID-19 (Coronavirus Disease 2019). By Feb 15, COVID-19 has spread rapidly throughout China and across the world, and was announced as a pandemic condition by March 11 (2)(3).

II. MATERIALS AND METHODS

This is cross sectional observational study in which we included 115 patients, studied in the month of April and May 2020 who were in admitted in the COVID ward after testing for coronavirus through throat swab and nasal swab by RT-PCR. Patients who presented to the out patient department with complaints of fever, respiratory complaints like dyspnea, patients who had travel history from the areas declared red zone, and patients who found to be the contacts of positive patients after contact tracing were included for testing. All the patients admitted had undergone routine investigations. Detailed clinical history and examination was done to look for cutaneous lesions. Patient who developed skin lesions during the course of illness were noted. All the patients found to have skin lesions were treated symptomatically and with emollients as the skin lesions in viral illness are self limiting.

III. RESULTS

Out of 115 patients 68 patients were males and 47 patients were females. Age distribution of COVID patients is tabulated in table 1. Among 115 patients studied 75 patients were symptomatic and had viral prodromal symptoms like fever, arthralgia, myalgia and dyspnoea. Among which 3 patients were placed in ICU due to severe respiratory distress.

Skin manifestations were seen only in 22 patients(14%) out of which males were 12 and females were 10, age and gender distribution is tabulated in table 2. 9 of the 22 patients developed skin lesions simultaneously with other systemic symptoms. 5 patients had erythematous rash a day or two prior to the development of symptoms. Remaining 4 patients developed lesions 2 -4 days after development of symptoms (table 3). All the patients who had developed lesions had other systemic symptoms as well.

Among 22 patients 12 patients had erythematous rash, among which majority of patients has diffuse rash mainly present over trunk (figure 3) and over trunk and proximal part of lower limb is seen in 2 patients. 3 patients had vesicles (varicella like lesion). 3 patients had urticarial lesions (figure 4), among these 1 patient had wheals all over body. And remaining 4 patients had remaining non specific symptoms like erosions, peeling of skin(figure 5)(table 4) .We have tried to take as many pictures as possible, but some pictures couldn't be taken due to precautionary measures. Among 20 symptomatic patients, 17 of them had got skin lesions cleared before discharge. Patients were discharged after throat swabs were tested negative.

P value when calculated for COVID-19 positive and negative patients using Pearson correlation, it was found to be 0.017 and 2.505 respectively which tells that the skin lesions found in COVID-19 positive patients had significant association. Further studies are needed in this aspect. Coronavirus is not a dermatropic virus, yet skin lesions are seen in 17.6% of patients, further studies are needed even in this aspect to look for pathogenesis.

IV. DISCUSSION:

The first case of SARS-CoV-2 infection, also known as the Coronavirus Disease of 2019 (COVID-19) was reported in December of 2019 in Wuhan, China (4). Later, Severe acute respiratory syndrome coronavirus 2” (SARS-CoV-2) has spread over the four continents, causing the respiratory manifestations of Coronavirus disease-19 (COVID- 19) and was labelled pandemic on March 11 (3). SARS-CoV-2 being a respiratory disease mainly spreads through respiratory secretions, droplets and through direct contact for a low infective dose (1). Presence of SARS-CoV-2 in fecal swabs and blood, indicates routes of transmission may be multiple(1). Due to this ongoing SARS-CoV-2 pandemic there is a huge impact on dermatological practice including the marked decrease in face-to-face consultations and there is increase in favour of tele dermatology (3). Common symptoms seen are fever,

fatigue, cough, and shortness of breath. Although many cases result in mild symptoms, it is estimated that around 5% of patients develop severe pneumonia and multiorgan failure (5). COVID-19 has affected more than 135 countries and this number is still expected to rise further (6)

The prevalence of cutaneous signs reported in association with this pandemic is conflicting; one study reported a rash in only 0.2% of a cohort of Chinese patients, whereas in a cross sectional Italian study the estimated prevalence was 20.4%, compared to 14.6% in our study. It might not be possible to determine exact prevalence of skin findings in infected patients unless serologic testing is more widely available(7). COVID-19 does not have epidermotropism, even then cutaneous manifestations in CoV-19 positive patients have been reported(8) . Cutaneous manifestations may be due to small vessel occlusion which need to be further studied.(1)

In a study conducted C. Galvan Casas et al in Spain they have classified cutaneous lesions into Acral areas of erythema-oedema with some vesicles or pustules (pseudo-chilblain) in 19%, vesicular eruptions (9%), Urticarial lesions (19%), Other maculopapules (47%), Livedo or necrosis (6%). Similar findings were seen in study conducted in Italy by Recalcati et al described 18 out of 88 COVID-19 patients hospitalized in the Lecco Hospital , Italy developed erythematous rash (n=14), widespread urticaria (n=3) or varicella-like vesicles (9)

In a study they have found oral lesions presenting as multiple ulcers(10). Adrien Sanchez et al also reported digitate papulosquamous eruption(5). S recalcati et al demonstrated acral lesions, mostly in children suggesting acral lesions could be late manifestations of the disease and children could be the facilitators of the viral transmission. (11). During the Italian outbreak, they have observed a varicella-like papulovesicular exanthem as a rare but 58 specific COVID-19-associated skin manifestation(12). Joob et al. reported on a dengue-like petechial rash in a COVID-19 patient from Thailand. (13)

Compared to study elsewhere of European countries, we have found that patient had mild illness, and also skin lesions were also not severe. The main purpose of the study is to find out if COVID -19 has any tell tale signs like that of slapped cheek appearance in case of parvovirus so that it could help in further help in diagnosing of cases early. And could also help in taking precautions at earlier stage and prevent further spread of disease. On the whole occurrence and severity of cutaneous manifestations may vary from region to region, initially cutaneous lesions were rare and the disease was also known to involve heart, kidney, lung, vasculature and liver. Later on skin lesions started to occur and could be due to iatrogenic secondary infection. (1)

Skin lesions in health workers may be also due to hyper hydration, friction due use of personal protective equipment, occlusion protective hats may produce folliculitis, pruritis and exacerbate seborreic dermatitis. And use glove for long duration and sweating which creates

wet environment may lead to hand dermatitis. Most common site affected is nasal bridge due to use protective goggles. And most common skin changes reported are erythema, papules, scaling and maceration. (1)

Although less number of patients are seen with the skin manifestations, this could be of significant help if even asymptomatic patients with just specific skin lesions are tested for coronavirus, who wouldn't have been tested otherwise. Hence this study was conducted to see specific cutaneous markers. As erythematous rash, vesicles and urticarial lesions were found in most studies, we recommend patients presenting with these lesions for the first time even without systemic symptoms until this pandemic ends could be tested.

V. CONCLUSION

SARS-CoV-2 has become the major health concern since recent times. As skin is the index of many systemic diseases, this could be the same in case of COVID-19. Certain skin lesions could be found specific for the disease which further help in early identifying of the disease and hence which may also help to end the pandemic early. More number of studies are needed to find specific lesions.

➤ Declaration :

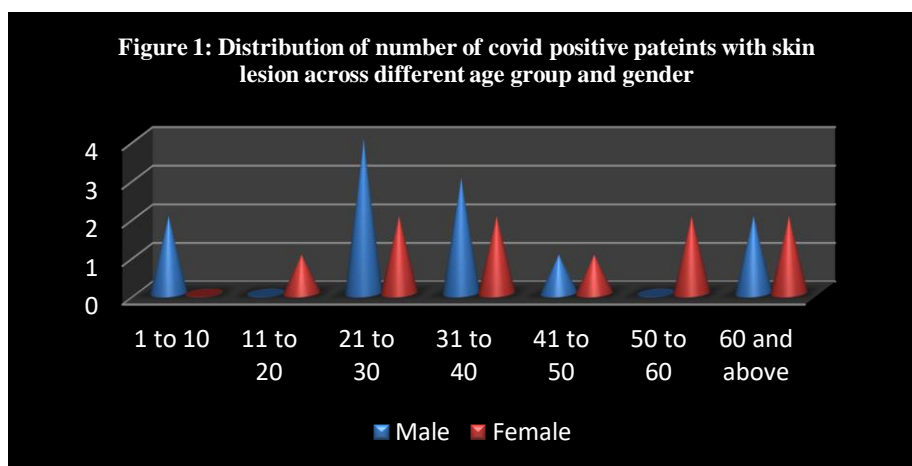
The authors certify that they have obtained all appropriate patient consent forms. In the form the patients has/have given his/her/their consent for his/her/their images and other clinical information to be reported in journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity can be guaranteed.

Age group	Number of patients	Number of COVID Positive patients with skin lesions
1-10 years	11 (9.5%)	2
11-20 years	26 (21.7%)	1
21-30 years	20 (19.1%)	6
31-40 years	26 (28.6%)	5
41-50 years	12 (10.4%)	2
51- 60 years	6 (5.2%)	2
61- 70 years	6 (5.2%)	4
Total	115	22

Table 1: number of COVID positive patients and non –COVID positive patients in particular age group

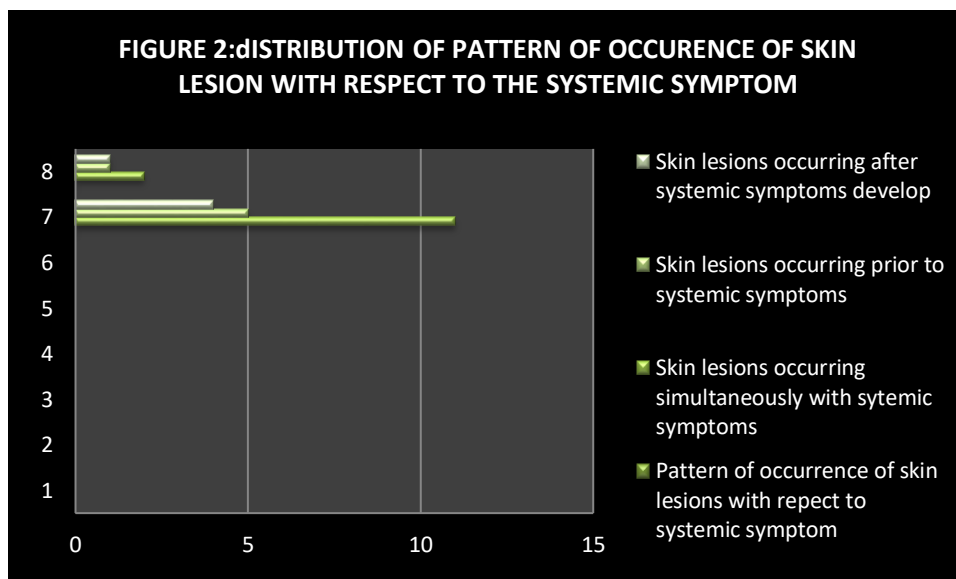
Sl. no	Age distribution	Number of COVID-19 positive patients with skin lesion		Total
		Male	Female	
1	1 to 10	2	0	2
2	11 to 20	0	1	1
3	21 to 30	4	2	6
4	31 to 40	3	2	5
5	41 to 50	1	1	2
6	50 to 60	0	2	2
7	60 and above	2	2	4
	Total	12	10	22

Table 2: Distribution of COVID-19 positive patients across different age group and gender.



Pattern of occurrence of skin lesions with respect to systemic symptoms	Number of patients
1.Skin lesions occurring simultaneously with systemic symptoms	11
2.Skin lesions occurring prior to systemic symptoms	5
3.Skin lesions occurring after systemic symptoms develop	4
4. skin lesions in asymptomatic patients	2

Table 3: Pattern of occurrence of lesions with respect to systemic symptoms



Type of lesion	Number of patients	Number patients with severe skin lesions
1. Erythematous rash	12	2
2. Vesicular lesion	3	-
3. Urticarial lesion	3	1
4. Non specific	4	-

Table 4: Number of patients with particular type of lesion and number of lesions with severity



Fig 3:- Erythematous rash present over back.



Fig 4:- Urticarial lesions seen on right lower limb



Fig 5:- Erosions seen over left dorsum of foot (non- specific)

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