

Shape of Nail Specially Lunula in Diabetic, Asthmatic and Tuberculosis Patients

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Abstract

The aim of this study was to observe the change in nail shape especially lunula in asthmatic, diabetic and tuberculosis patients. This study was performed at Bahawal Victoria Hospital (BVH), Punjab and Pakistan. The hospital was visited daily and studied the patients there from April, 2016 to May, 2016. Total 50 patients from each disease i.e., asthma, diabetes and tuberculosis were selected. The nail of different patients were observed and studied. There was also a control group. The control group contained healthy persons. Results were evaluated by comparing the groups with control group. It was observed that the persons having lunula on their nails are an indicator of good thyroid health and digestion. Such persons have very active immune system.

Keywords: Nail shape; Lunula; Control group; Asthma; Diabetes; Tuberculosis

Diabetes is associated with a number of medical complications that produce significant morbidity and increase medical costs [12,13].

Introduction

The lunula is the crescent-shaped whitish area of the bed of a fingernail or toe-nail. The lunula is the visible part of the root of the nail. In humans, it appears by week 14 of gestation [1]. In some cases, the eponychium may partially or completely cover the lunula [2]. Nail disorders causes different nail signs, the knowledge of which is mandatory for a correct diagnosis and the choice of appropriate treatment [3]. The nail plate can be thinner or thicker than normal and have altered shape or dimensions [4].

The disease diagnosis may also rely on the associations of the different signs [5]. In addition to cutaneous and congenital disorders, absent lunula can be associated with systemic disorders including hypopituitarism, hypothyroidism, iron deficiency anaemia, arteriosclerosis, malnutrition, chronic renal failure, cancer and soon [6,7].

A very small lunula usually indicates low immunity and indigestion problems. It may happen due to slow metabolism and toxin overload in the body [8]. White spot on nails depicts vitamins deficiency in body or an allergic reaction. Dark lines on nail indicate onset of melanoma- a kind of skin cancer. Cracks on the nails may indicate a skin disease [9]. Patients with hemochromatosis present with gray, blue or brown nails; leukonychia and longitudinal striations [10].

Asthma is one of the most chronic diseases in the world affecting more than 300 million people worldwide and causing about 2,55,000 premature deaths annually. Nearly 20 million people about 12% of Pakistan adult population are already suffering from the disease.

Tuberculosis (TB) is one of the major public health problems in Pakistan. Pakistan is also estimated to have the fourth highest prevalence of multidrug-resistant TB (MDR-TB) globally [11]. It is estimated that there are currently 4 million people in the Pakistan with diabetes mellitus and incidence rates are increasing each year [12].

Materials and Methods

The research was performed in Bahawal Victoria Hospital, Bahawalpur city. There were different wards having many patients. The collection of data was from tuberculosis, diabetic and asthma patients. The data was collected on daily basis. We had a control group of fifty patients; all have lunula on their thumbs. In data collection we measured the nail length and width of different patients.

Control group was the ideal group and whole research depends upon the control group. The measurement was easily done by the scale. Four groups were made. Each group contained fifty patients. One group was control group and other groups were asthmatic, diabetic and tuberculosis. The age of patients was variable. The age mainly lay in between twenty five to Sixty.

Results

In the study the control group had very small changes in nail length, nail width and weight. There was not a visible difference among nail length of diabetic and asthmatic patients with control group. But, there was a significant decrease in nail length of the tuberculosis persons who had no lunula as compared to control group.

There was a significant decrease in nail length of the patients who had no lunula in a diabetic, tuberculosis and asthmatic group. There was a significant decrease in weight of the patients who had no lunula in a diabetic and asthmatic group. Patients of tuberculosis had no significance change in weight and did not show severe conditions. Patients having lunula did not show significant change in weight, others which have no lunula show a significant decrease in weight (Tables 1-5 and Figures 1 and 2).

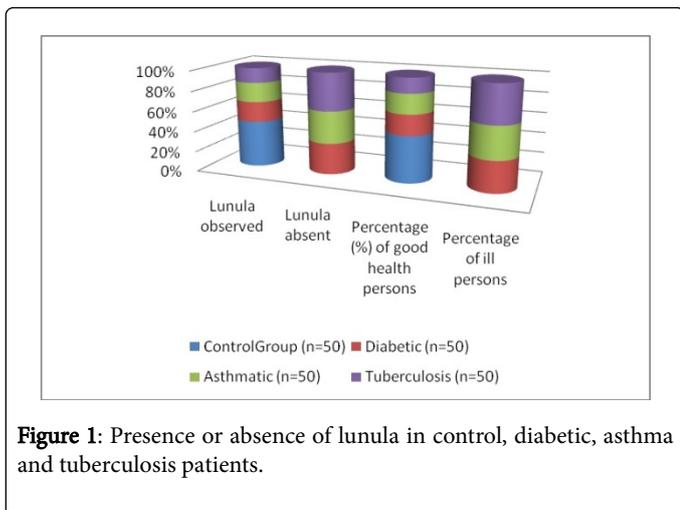


Figure 1: Presence or absence of lunula in control, diabetic, asthma and tuberculosis patients.

Variable	Control group (n=50)	Diabetic (n=50)	Asthmatic (n=50)	Tuberculosis (n=50)
Lunula observed	50.00	22.00	21.00	16.00
Lunula absent	0.00	28.00	29.00	34.00
Percentage (%) of good health persons	100.0	44.00	42.00	32.00
Percentage of ill persons	0.00	56.00	58.00	68.00

Table 1: Presence or absence of lunula in control, diabetic, asthma and tuberculosis patients.

Nail-length (mm)									
Hand Fingers	Control group (n=50)	Asthmatic group with lunula (n=21)	TB group with lunula (n=16)	Diabetic group with lunula (n=22)	Asthmatic group without lunula (n=29)	TB group without lunula (n=34)	Diabetic group without lunula (n=28)		
Thumb	15.83 ± 0.30	15.50 ± 0.34	15.16 ± 0.30	13.66 ± 0.21	14.50 ± 0.22	11.66 ± 0.21*	11.83 ± 0.30*		
Finger 1	15.33 ± 0.33	14.83 ± 0.30	15.83 ± 0.30	14.33 ± 0.21	14.16 ± 0.16	11.50 ± 0.22*	11.00 ± 0.36*		
Finger 2	15.16 ± 0.75	15.66 ± 0.21	15.83 ± 0.30	15.16 ± 0.16	14.66 ± 0.21	11.50 ± 0.22*	12.66 ± 0.16*		
Finger 3	15.16 ± 0.75	14.66 ± 0.81	14.83 ± 0.30	14.00 ± 0.00	14.00 ± 0.25	11.50 ± 0.22*	11.66 ± 0.33*		
Finger 4	14.16 ± 0.16	14.16 ± 0.30	14.00 ± 0.25	13.50 ± 0.22	13.33 ± 0.21	11.50 ± 0.22*	11.33 ± 0.33*		

Table 2: Nail-length of control, asthmatic, diabetic and tuberculosis patients.

Nail-width (mm)									
Hand Fingers	Control group (n=50)	Asthmatic group with lunula (n=21)	TB group with lunula (n=16)	Diabetic group with lunula (n=22)	Asthmatic group without lunula (n=29)	TB group without lunula (n=34)	Diabetic group without lunula (n=28)		
Thumb	17.50 ± 0.95	17.00 ± 0.25	17.33 ± 0.33	14.50 ± 0.22	13.16 ± 0.30*	11.50 ± 0.22*	11.83 ± 0.16*		
Finger 1	14.50 ± 0.22	14.50 ± 0.22	14.16 ± 0.30	14.00 ± 0.25	12.33 ± 0.55*	11.66 ± 0.21*	11.66 ± 0.33*		
Finger 2	14.00 ± 0.25	14.16 ± 0.30	14.00 ± 0.25	14.16 ± 0.30	14.00 ± 0.25*	11.50 ± 0.22*	11.50 ± 0.22*		
Finger 3	13.33 ± 0.21	13.33 ± 0.21	13.83 ± 0.16	13.66 ± 0.21	13.16 ± 0.16*	11.50 ± 0.40*	11.33 ± 0.21*		
Finger 4	14.16 ± 0.30	13.33 ± 0.21	13.66 ± 0.21	14.50 ± 0.22	13.33 ± 0.21*	11.50 ± 0.22*	10.66 ± 0.21*		

Table 3: Nail-width of control, asthmatic, diabetic and TB patients.

Weight (kg)									
Hand Fingers	Control group (n=50)	Asthmatic group with lunula (n=21)	TB group with lunula (n=16)	Diabetic group with lunula (n=22)	Asthmatic group without lunula (n=29)	TB group without lunula (n=34)	Diabetic group without lunula (n=28)		
Thumb	59.00 ± 0.36	58.66 ± 0.49	58.83 ± 0.40	56.83 ± 0.65	46.33 ± 1.86*	44.00 ± 0.81*	60.16 ± 0.65		

Table 4: Weight of control, asthmatic and tuberculosis patients.

Mean value	Control group	Asthmatic group with lunula	TB group with lunula	Diabetic group with lunula	Asthmatic group without lunula	TB group without lunula	Diabetic group without lunula
Mean Nail length (mm)	15.12	14.96	15.13	14.13	14.13	11.53	11.69
Mean Nail width (mm)	14.69	14.46	14.59	14.16	13.19	11.53	11.39
Mean Weight (kg)	59.00	58.66	46.33	56.83	58.33	44.00	60.16

Table 5: Mean values of control, asthmatic, diabetic and tuberculosis patients and weight.

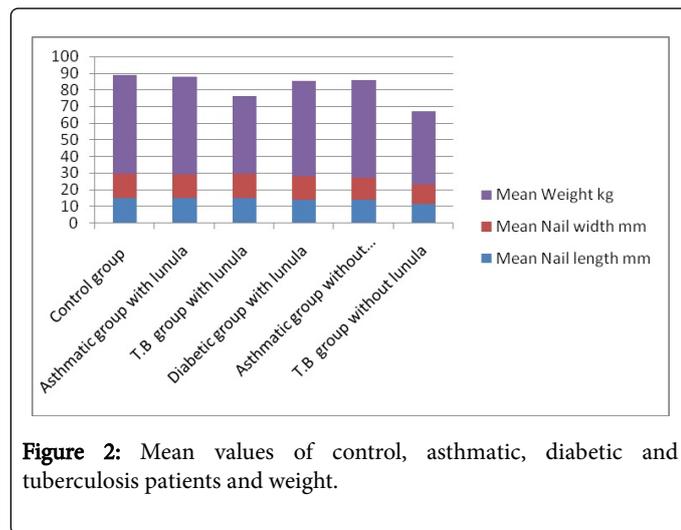


Figure 2: Mean values of control, asthmatic, diabetic and tuberculosis patients and weight.

Discussion and Conclusion

In the study, there were significant differences in lunula shape and size between controls, asthmatic, diabetic and TB patients. Overall, the most common presence or absent lunula in control group is (100%). The control group had very small changes in nail length. All have lunula in their thumbs [14]. These data indicated that there was a significant association between absent lunula and diseases like Tuberculosis, asthma and many other diseases [15]. It was suggested that there was a significant association between health and lunula [16]. Persons having lunula on their nail have great health while others who had no lunula were unhealthy. This study demonstrates that illness is associated with lunula. In asthmatic group, there was a significant decrease in nail length of the patients who had no lunula in asthmatic group [17]. So there was a visible difference among asthmatic patients and control group. Similarly, in tuberculosis, there was a significant decrease in nail length of the persons who had no lunula as compared to control group [18].

In the study the control group had very small changes in nail width. All have lunula in their thumbs. In diabetic group, twenty two patients out of fifty hand lunula, while other twenty eight patients had no lunula on their nails. There was a significant decrease in nail width of the patients who had no lunula in a diabetic group. So there was a visible difference among diabetic patients and control group. In the study the control group had a very small change in weight. In control group all persons have sixty to seventy kilograms body weights. There was a significant decrease in weights of the patients who had no lunula in a diabetic group. So there was a visible difference among diabetic patients and control group. Also, the control group had very small

changes in nail lunula wide area. All have lunula in their thumbs. In asthmatic group, there was a significant decrease in nail length of the patients who had no lunula in asthmatic group. So there was a visible difference among asthmatic patients and control group [7].

Similarly there was a significant decrease in nail length of the TB persons who had no lunula as compared to control group. The control group had a very small change in weight. In control group all persons have the same weight in asthmatic group as well in TB with lunula [19]. There was a significant decrease in weight of the patients who had no lunula in asthmatic group. So there was a visible difference among asthmatic patients and control group. Similarly there were sixteen persons of tuberculosis who had no significance change in weight and did not show severe conditions [20]. Other persons had significant decrease in weight as compared to control group and showed severe conditions for the disease. The same was in tuberculosis case. Though the mechanism of absent lunula is still not clear and is disputed, previous studies agreed that absent lunula reflects a variety of complex factors including metabolic changes in addition to anemia [7].

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