

**A STUDY OF NAIL CHANGES IN PATIENTS OF CIRRHOSIS**

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**ABSTRACT**

**BACKGROUND**

Cirrhosis is a progressive liver disease in which the normal tissue is replaced by scar tissue. Patients of cirrhosis may present with different skin and nail changes. Sometimes, nails may be the only initial signal of a systemic disease like cirrhosis. Objective- To study the various nail changes in patients of cirrhosis with different aetiologies and to establish a correlation between the number of nails affected per patient and their chronicity of liver disease.

**MATERIALS AND METHODS**

A total of 100 patients of cirrhosis in both OPD and IPD were examined for nail changes, over a period of 6 months from May 2016 to December 2016. All the patients underwent full history taking and thorough general examination, complete blood counts, liver function tests and abdominal ultrasonography. All the 20 nails were examined.

**RESULTS**

Cirrhosis is known to be related to various pathologies in nails. 72 patients out of 100 were found to have at least one nail disorder. In our study, the most common nail finding is nail dyschromia (40%), followed by clubbing (29%) and Terry’s nails (21%). Other findings were onycholysis, onychorrhexis, subungual hyperkeratosis and Beau’s lines.

**CONCLUSION**

We conclude that the patients of cirrhosis can present with various nail disorders. Thus, these nail findings emphasise the importance of nail assessment as a part of physical examination in patients of cirrhosis.

**KEYWORDS**

Nail, Cirrhosis, Terry’s Nails.

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**BACKGROUND**

Cirrhosis represents the end stage of any chronic liver disease. It is an irreversible, slowly progressing disease in which healthy liver tissue is replaced with scar tissue, eventually preventing liver from functioning properly at the terminal stages. Fibrosis progresses at variable rates depending on the cause of liver disease, environmental and host factors.<sup>[1-2]</sup> The major causes of cirrhosis are alcoholic liver disease, hepatitis B and C, chronic biliary cirrhosis and others. Patients of cirrhosis may present with different skin and nail changes. The skin manifestations can range from very subtle, such as early finger clubbing, to more obvious signs such as jaundice. Various nail changes have been reported in patients of liver and gastric diseases from time to time.

Disease	Nail Abnormalities
Acrodermatitis Enteropathica	Paronychia, Beau’s Line
Cirrhosis (Biliary)	Clubbing
Intestinal Lymphangiectasia	Yellow Nail Syndrome
Cronkhite-Canada Syndrome	Triangular Ventral Nail, Nail Dystrophy
Cystic Fibrosis	Periungual Telangiectasia
Hepatitis (Chronic Active)	Clubbing, White Line, Splinter, Haemorrhages
Jaundice (Chronic Obstructive)	Clubbing
Porphyria cutanea tarda	Onycholysis, Dystrophy, Clubbing, Absent Lunula, Longitudinal Bands
Peutz-Jeghers Syndrome	Brownish Pigmentation (Puncture or Longitudinal)
Regional Enteritis	Clubbing, Nail Fold Capillary Abnormalities

**Table 1. Nail Changes Associated with Gastrointestinal and Hepatic Disorders<sup>3</sup>**

Many nail changes such as clubbing, nail dyschromia (leukonychia, longitudinal melanonychia, yellowing), Terry’s nails, half and half nails, Muehrcke’s nails, onycholysis etc. are reported to be found in patients of cirrhosis.

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Nails may be the only initial signal of a systemic disease like cirrhosis. Thus, the examination of nails is very essential for diagnosing such cases.

**Objective**

The aim of this study was to study the frequency and spectrum of nail changes among patients with cirrhosis of different aetiologies and to observe any correlation between number of nails affected per patient and their chronicity of liver disease.

**MATERIALS AND METHODS**

This is a hospital based observational study conducted in Department of Dermatology, Venereology and Leprology and Department of Gastroenterology, Mahatma Gandhi Medical College Jaipur over a period of six months from May 2016 to November 2016. Total 100 patients of cirrhosis were examined for nail changes. All the patients underwent full history taking and thorough general examination, complete blood counts, liver function tests and abdominal ultrasonography. All the 20 nails were examined. A written consent from every patient participating in the study was taken.

**Inclusion Criteria**

Clinically or radiologically proven cases of cirrhosis who were willing to participate in the study.

**Exclusion Criteria**

- HIV positive patients.
- Patients who did not give consent to participate in our study.

**RESULTS**

Out of 100 patients, 82 were male and 18 were female. Maximum number of patients were seen in age group of 31 - 40 years (40%) followed by >40 years (31%). When the aetiology was considered, out of 100 patients, 69 had cirrhosis secondary to chronic alcoholism, 13 cases had cirrhosis secondary to hepatitis B infection. In 10 cases, hepatitis C was the underlying cause. In the rest, a combination of these agents was implicated.

Chronicity of the liver condition was a very important factor in our study. 16 patients had symptoms for over 3 years, 12 patients for 1-2 years. 27 cases had symptoms of cirrhosis since 6 months -1 year. 45 patients had symptoms for 3-6 months.

In our study, the most common nail finding is nail dyschromia (40%), followed by clubbing (29%), Terry's nails (21%) and onychorrhexis (20%). Other findings were onycholysis (10%), subungual hyperkeratosis (8%), Beau's lines (5%).

An average of 3 nails per patient were involved in the patients who had cirrhosis for more than 3 years as compared to an average of 1 nail in patients of lesser duration.

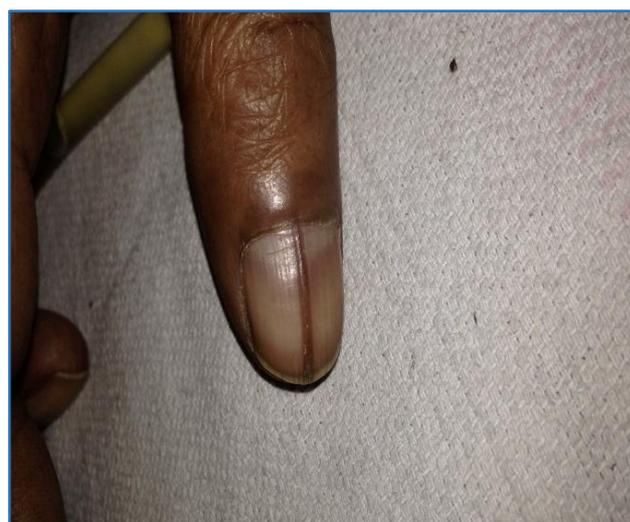
Nail Findings	No. of Patients
Nail Dyschromias (Leukonychia, Longitudinal Melanonychia, Yellowing)	40
Clubbing	29
Terry's Nails	21
Half and Half Nails	14
Muehrcke's Nails	04
Longitudinal Striations	18
Onycholysis	10
Onychorrhexis	20
Subungual hyperkeratosis	08
Beau's lines	05
Onychogryphosis	01



**Figure 1. Clubbing of Thumb and Finger Nails**



**Figure 2. Nail Dyschromia**



**Figure 3. Longitudinal Melanonychia**



**Figure 4. Terry's Nails**



**Figure 5. Half and Half Nails**

#### DISCUSSION

Chronic liver disease is defined as the presence of cirrhosis (clinically/radiologically suspected and/or histologically proved) or the presence of severe cholestatic liver disease (serum bilirubin level more than three times the upper limit of normal for more than six months).<sup>[4]</sup>

Dermatologic manifestations are one of the most common extrahepatic manifestations and often provide the first clues of the underlying liver disease.<sup>[5]</sup>

There are many nail changes associated with chronic liver disease. Finger clubbing is a well-recognised sign of chronic

liver disease, especially primary biliary cirrhosis (PBC) and chronic active hepatitis (CAH).<sup>[6]</sup>

Terry's nails in which the proximal two-thirds of the nail plate turns powdery white with a ground-glass opacity, may develop in patients with advanced cirrhosis.<sup>[7]</sup>

Lindsay's nail, the proximal part of the nail is white, while the distal portion occupying 20% to 60% of nail bed is reddish-brown and does not fade with pressure.<sup>[8]</sup>

#### In our Study,

- 72 patients out of 100 were found to have at least one nail disorder. Rest of the 28 cases of cirrhosis had no significant nail changes.
- Maximum number of patients of cirrhosis with nail changes were found in the age group 31-40 years, followed by >40 years.
- A wide spectrum of nail changes was observed during the study. The nail changes did not differ according to the aetiology of cirrhosis.
- It was a general observation that the patients who had liver disease for more than 1 year had more number of affected nails than those with duration less than 1 year.
- An average of 3 nails per patient were involved in the patients who had cirrhosis for more than 3 years as compared to an average of 1 nail in patients of lesser duration. Thus, more the duration, more are average number of nails affected.

Till date, studies correlating the cirrhosis and specific nail changes are scanty. More studies are required to establish a definite association between the two.

#### CONCLUSION

The nail involvement in patients of cirrhosis are not uncommon. Some nail changes like Terry's nails are specific to cirrhosis. Nail dyschromias (Leukonychia & melanonychia), clubbing and Terry's nails were the most common findings in our study. We conclude that the patients of cirrhosis can present with various nail disorders. Thus, these nail findings emphasise the importance of nail assessment as a part of physical examination in patients of cirrhosis.

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