

Reversal of nail changes after liver transplantation in a child

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Abstract

We report a 6-year-old girl who received a left-lobe live-related liver transplant for decompensated liver disease after a failed Kasai's surgery for biliary atresia. Preoperatively, her nails were white, dystrophic, brittle with severe onycholysis, clubbing and watch-glass deformities. Nail scrapings were negative for fungus. Five months after transplantation, her nails had become near normal. There is only one such documented case in literature on reversal of nail changes in an adult.

Keywords Biliary atresia · cirrhosis · extrahepatic biliary obstruction

Introduction

Liver cirrhosis is associated with various extrahepatic manifestations including nail changes. Data on reversal of nail changes in patients with liver cirrhosis are limited. We report here a child with liver cirrhosis and who had marked nail changes that reversed after liver transplant.

Case Report

A 6-year-old girl had undergone Kasai's surgery for biliary atresia at the age of 3 months. She presented with pruritus, recurrent ascites, failure to thrive and recurrent episodes of cholangitis due to secondary biliary cirrhosis. On exami-

nation, she was severely malnourished, had deep icterus and moderate ascites, liver palpable 3 cm and spleen palpable 4 cm below the costal margin. Her Pediatric End Stage Liver Disease (PELD) score was 36 and Child-Pugh Score was 13. She was subjected to a left-lobe living related liver transplantation from her mother. Preoperatively, finger nails were dystrophic (discolored and distorted) and brittle (Fig. 1A). Nails in both hands and both feet had severe onycholysis (Figs. 1A, 2A), grade 3 clubbing (predominantly in the ring finger) (Fig. 1A) and watch-glass deformity (predominantly in the little finger of the left hand and second toe of left foot) (Figs. 1A, 2A). Also, the nails were white (leuconychia) (Fig. 1B). Nail scrapings were negative for fungus.

The nail abnormalities started regressing from the first month after transplantation. The leuconychia became more prominent as the dystrophic changes reversed. By 5 months, the appearance of nails had returned to near normal (Figs. 1B, 2B).

Discussion

There has been only one report (image) in literature mentioning reversal of nail changes after liver transplantation in adults.¹ We believe that the present case is the first detailed documentation of reversal of nail changes after liver transplantation in a child.

Nail changes in cirrhosis include changes in the nail plate and nail color. The nail plate changes include clubbing, watch-glass deformity, onycholysis, Beau's lines² (horizontal deep grooved lines caused by any disease severe enough to disrupt normal nail growth) and brittleness. Our patient showed all the nail plate changes except Beau's lines. Clubbing is due to peripheral vasodilatation and opening up of arteriovenous fistulae in the nail beds and an increase in nail bed connective tissue.³ The watch glass deformity (convex deformity) is a milder form of clubbing with a slightly convex surface of the nail.³ Our patient had a significant regression of clubbing after liver transplant. Onycholysis occurs when the nail plate is separated from the nail bed resulting in white discoloration of the affected

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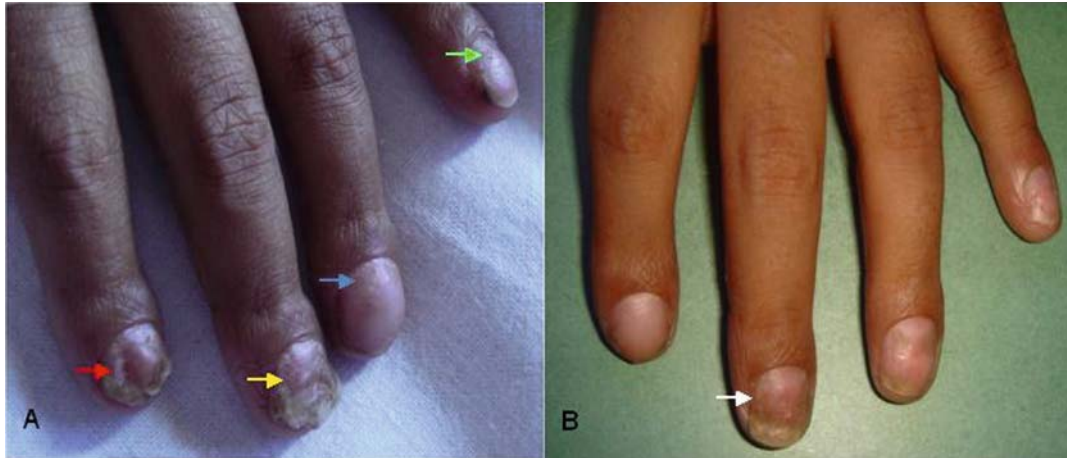


Fig. 1 Appearance of finger nails before (A) and after (B) liver transplantation. The abnormalities observed before transplantation included onycholysis (index finger; red arrow), discoloration and distortion (dystrophy) (middle finger; yellow arrow), clubbing (ring finger; blue arrow), and watch glass deformity (little finger; green arrow). After transplantation, the abnormalities reversed, though a white nail (Terry's nail; white arrow) persists in the middle finger

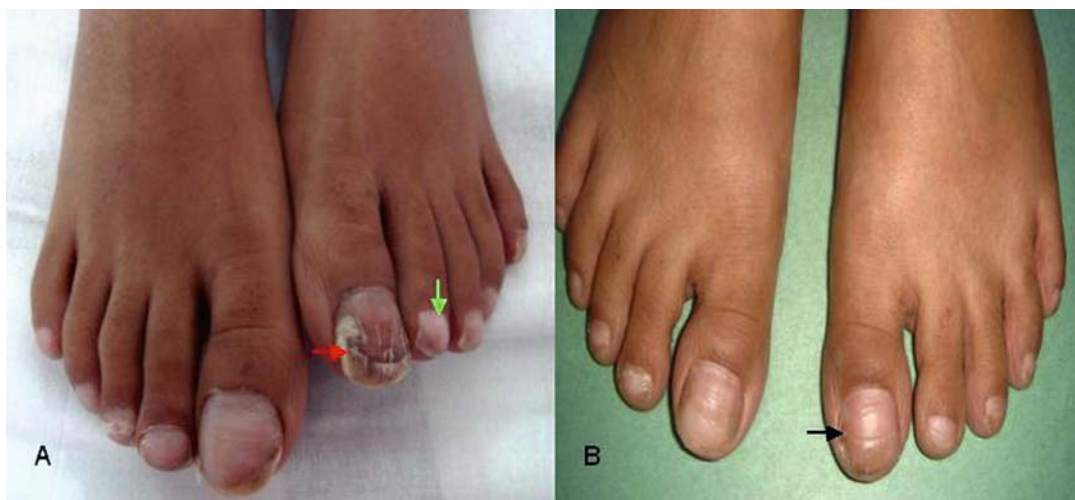


Fig. 2 Appearance of toe nails before (A) and after (B) liver transplantation. The abnormalities observed before transplantation included onycholysis (great toe, red arrow) and watch glass deformity of second toe (green arrow). After transplantation, the abnormalities reversed; the black arrow points to a new nail on the great toe that is replacing the old nail

area. It can be caused by systemic disorders, local infection or trauma.⁴ In our patient the nail scrapings were negative for fungus. Though onycholysis is not described in liver disease, it could have occurred in our patient secondary to increased brittleness and unnoticed trauma. However, it reversed after transplant, suggesting that onycholysis may be a manifestation of liver disease.

The nail color changes described are white nails or leuconychia (Terry's nails), Muehrcke's bands and red lunulae. Terry's nails were initially attributed to hypoalbuminemia, but are now believed to be due to an abnormal ratio of estrogen to androgens, abnormal steroid metabolism and increased digital blood flow.⁵ Muehrcke's lines are

paired narrow white bands that extend all the way across the nail. These occur in patients with hypoalbuminemic states.⁶ Red lunulae are attributed to either increased arteriolar blood flow or changes in the optical properties of the overlying nail making the normal blood vessels become more prominent.⁷

Overall, the nail changes in patients with liver cirrhosis are secondary to disturbances in hormone metabolism, altered digital blood flow, hypoalbuminemia and soft tissue overgrowth in the nail bed. Liver cirrhosis is associated with various extrahepatic manifestations. Some of these, though not specific to liver disease, reverse after liver transplantation possibly because etiopathogenetic factors underlying

these cease to exist.⁸ We believe that this is also the reason for reversal of nail changes.

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Obituary



Dr. S. K. Bhansali

Doyen in the field of surgery, particularly surgical gastroenterology, Dr. S. K. Bhansali stood on the uppermost pedestal for his dedicated, hard work in his profession. He was extremely committed to his work, for that matter to any work that he undertook.

He was a student of Seth G S Medical College, Mumbai with an extremely good scholastic career. He was MS and FRCS from England and trained in general and oncosurgery. He spent most of his time at Topiwala National Medical College, teaching and giving most valuable services with his skill, devotion and commitment to his work. He had pledged himself to proper care and teaching, which he did to his contentment.

For four decades his professional work was mainly pancreato-biliary, gastrointestinal and endocrine surgery. He also had keen interest in surgical critical care. He was director of general and GI surgery at Jaslok Hospital and Research Center, Mumbai. He had amalgamated his vast professional experience with rich academic activities, teaching pursuits and charity work.

I am sure he was extremely satisfied with his achievements and the work that he undertook throughout his life.

Sir, we will miss you forever.

— Dr. Sharad C. Shah