CLINICAL AND DERMOSCOPIC NAIL FINDINGS FROM BIRTH TO PRESCHOOL CHILDREN.

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CLINICAL AND DERMOSCOPIC NAIL FINDINGS FROM BIRTH TO PRESCHOOL CHILDREN

MD

IN

DERMATOLOGY VENEREOLOGY AND LEPROSY

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LIST OF ABBREVIATIONS

PNF- Proximal nail fold

DIP- Distal interphalangeal

AD- Autosomal dominant

AR- Autosomal recessive

EB- Epidermolysis bullosa

DEB- Dystrophic Epidermolysis Bullosa

TND- Twenty-nail dystrophy

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ABSTRACT

Introduction:

Nail examination plays a vital role in dermatological conditions. Patients with nail changes in pediatrics age group comprise fewer physician consultations. Nail signs present at birth or early childhood can reveal any syndrome or underlying systemic disorder.

Aim:

To study the frequency of nail findings in patients below 5 years.

Materials and methods:

The study comprised 368 paediatric patients who were under the age of 5. A dermoscope was utilised to enhance visible nail changes during a thorough nail examination.

Results:

Among 368 cases, 213 were males, and 155 were females. Cases were collected from the outpatients and inpatients Department of Dermatology and the inpatients department of Pediatric and Obstetrics and Gynaecology. The mean age was 22.74 (range 0-60 months); nail findings were found in 130 (35.3%) patients. In the study, 123 patients had single nail findings, and 7 patients presented with multiple findings. Most common clinical nail finding was white striations in 16.3% of cases, followed by punctate leukonychia 5.7%, onychoschizia 3.5%, pseudohypertrophy of hallux 3.3%, koilonychia 1.9%, Beau's lines 0.8%, subungual haematoma 0.8%. Median canaliform nail dystrophy, Muehrcke's lines, onychophagia, and pitting were found only in single

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cases (0.3%). Multiple (more than one) nail findings in patients presented as, acquired anonychia with subungual hyperkeratosis and acquired anonychia with onychodystrophy; beau's lines with punctate leukonychia found only in 0.3% cases whereas punctate leukonychia with white striations over distal end of nail plate and onychoschizia with pseudohypertrophy of hallux was present in 0.5% of cases. Out of 368 cases studied, nails were normal in 238 (64.67%) cases.

Conclusion:

The paediatric group displayed a variety of nail alterations. Physiological nail findings are more common than pathological. Onychoscopy made the picture clear about nail disorders and helped them understand better.

Keywords: Nail findings, preschool children, onychoscopy

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INTRODUCTION

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INTRODUCTION

Since the time of Hippocrates (466-377 BC) some diagnostic importance has been given to the nails.[1] Study of nails is called "Onychology" ("onuks= nail" and logia = a branch of study) the term is taken from the Ancient Greek word. Human nail is a complex appendage of skin. Thus, onychology is essentially a part of dermatology.[2] Nail findings, if present, can reveal any syndrome or underlying systemic disorder. Nail presentation and management are different in children from adults. Physiological alterations are common in pediatric age.[3] Most nail changes in pediatrics age groups are benign and have favourable prognosis. Patients with nail changes in pediatrics age group comprise fewer physician consultations. Their incidence is influenced by various factors like environmental, and socioeconomic factors.[3] Nail deformities can be acquired or congenitally inherited. Disorders of the nail bed, which extends from the distal end of the lunula to the hyponychium and rests beneath the nail plate, can cause pain, discomfort, and cosmetic disfigurement.

Nails have several functions such as protection against traumas and pick up of small objects, scratching, as well as contributing to the cosmetic appearance.

An in-depth understanding of the anatomy, physiology, and pathology of the nail unit is necessary for the diagnosis and treatment of nail illnesses.[4] Nail can be affected in various dermatosis, systemic diseases, medications, nutritional deficiencies, trauma both benign and malignant tumors.[5] Along with nail problems, other organs like the skin, teeth, brain, and bones also experience developmental modifications.[6] Sometimes nail findings may indicate the severity of skin disorders.

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Nail findings on examination can be magnified with the help of dermoscope. Probable diagnosis can be made by magnifying nail unit invisible to the naked eyes, to guide the management and prognosis of nail diseases.[7] Initially onychoscopy was mostly focused on nail pigmentation, but now a days it has been utilized in various nail diseases including infectious and inflammatory disorders.[8] Handheld dermatoscope or USB connected videodermoscope can be used for dermoscopic examination. Nail surface with detailed structural change can be examined with nonpolarized dermoscopy. Polarized dermoscopy helps to check out deeper structures of nail unit and avoid the reflectance of light to the nail surface.[7] Nail biopsy and diagnostic histopathology are not commonly used for nail diseases. Nail pigmentation, onycholysis, and the distal nail border are investigated using gel as an interface medium, whereas the nail plate surface is studied using dry dermoscopy. Nail folds and hyponychium is also examined with the use of gel.[9]

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OBJECTIVE OF THE STUDY

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OBJECTIVE OF THE STUDY:

To investigate the prevalence of various nail diseases in children between the ages of birth and five.

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REVIEW OF LITERATURE

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REVIEW OF LITERATURE

Nail, one of the skin appendages, consists of compact, translucent, keratinized cells.[10] Local nail pathology or underlying systemic disease can lead to nail abnormalities. A thorough examination and history taking often correlate nail findings with their etiology.

ANATOMY OF NAIL

The anatomy of the nail unit is crucial for clinical and scientific activities.[6] The nail folds help nail stays in place, the nail matrix makes the nail plate, and the nail plate rests on the nail bed. At the distal end, it covers the hyponychium and has a free edge. The following are definitions for the various nail parts.

Nail Plate

Nail is the nail plate itself. Well differentiated keratinocytes called onychocytes (approx. 196 rows) gives rise to nail plate. It is a rigid, keratinized structure. Histopathologically, the nail plate looks like a modified stratum corneum. Nail plate also contains anucleate keratinocytes like stratum corneum, this results in the transparency of the nail plate. Like corneocytes, onychocytes do not desquamate.[10]

Nail Folds

Nail plate is protected laterally and proximally by lateral and proximal nail folds (PNF) respectively, which are soft tissue structures. The nail matrix is protected from harm and UV radiation by the proximal nail fold.[11]

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Cuticle (eponychium)

The proximal nail bed is where the cuticle grows from, and it connects to the nail plate there. The PNF and cuticle together protects nail matrix underneath against irritants that may disrupt it.[11]

Nail matrix (nail root):

The region of the nail apparatus where the nail plate develops is known as the nail matrix. Its proximal end is situated midway between the PNF and the distal interphalangeal joint (DIP).[10] The distal nail matrix is visible through the nail plate as the lunula, a white half-moon structure. Only the nail matrix has melanocytes across the entire nail unit (around 217 cells per square millimetre [10]). Langerhans cells and Merkel are additional cells in the matrix.[10] On a longitudinal section, nail matrix is divided into three segments:[2]

Dorsal matrix (Proximal nail matrix)- ventral aspect of nail fold

Intermediate matrix- germinative matrix

Ventral matrix- nail bed

Proximal nail matrix forms 80% of the nail plate.[11]

Lunula

It is formed by convex margin of the intermediate nail matrix. Its colour is pale as compared to the adjacent nail bed and mostly seen on thumbs and great toes.[6]

Nail bed

It is a tissue that is located between the hyponychium distally and the lunula proximally beneath the nail plate. The nail bed's epidermal longitudinal ridges aid in the nail plate's secure attachment to the nail bed. Pilosebaceous unit and subcutaneous layer are absent from the nail bed.[2] The nail bed does contain keratins so stratum corneum cannot be produced. In the event of onycholysis, the

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nail bed loses its longitudinal ridges and starts to reveal the keratins required to build the stratum corneum.[11] The dermal papillae and rete ridges are arranged in a unique longitudinal, tongue and groove arrangement which compliments the ridges observed on the undersurface of the nail plate.[2]

Onychodermal band

In contrast to the rest of the nail bed, the area near the edge of the nail bed has a different colour. It serves as the nail's free edge's first line of defence. The nail bed is directly impacted by injury or disease to this barrier.

Hyponychium

This is the region of epidermis that lies beneath the nail plate's distal end.

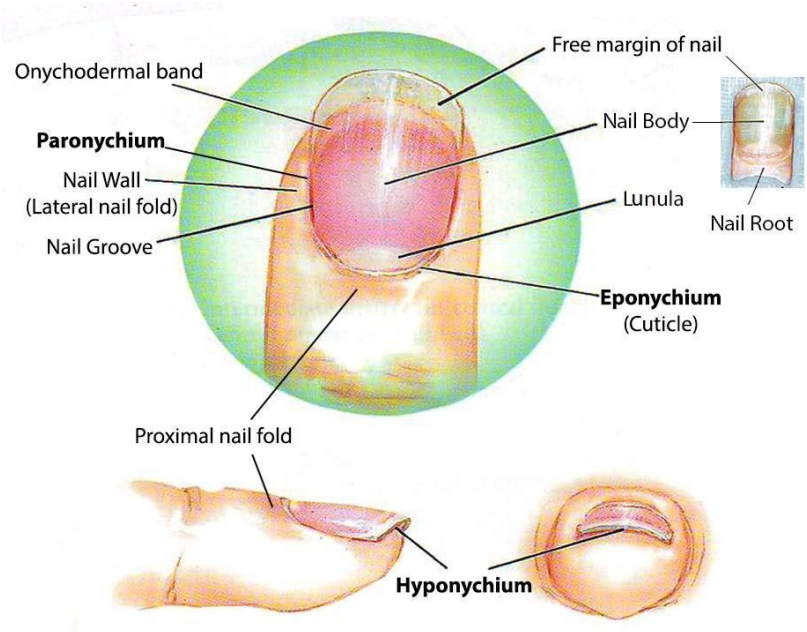

Figure 1: Showing nail apparatus.

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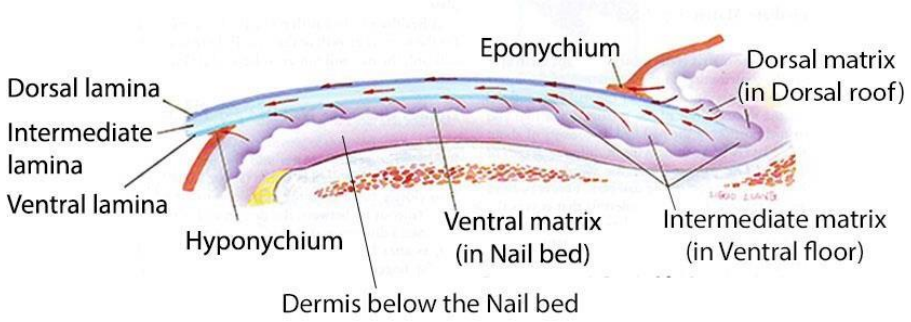

Figure 2. Showing anatomy of nail plate and nail matrix

EMBRYOLOGY

Morphogenesis

8th week: Individual digits are discernible.

9th week: Nail anlage (first unit of nail) visible.

10th week: Formation of 'Primary nail field' (The distal phalanx's dorsal surface exhibits the earliest external nail growth alterations) with clear lateral, proximal and distal nail grooves.

11th week: Fingers are well formed by this time. Primary nail field on the distal phalanx is seen with well demarcated proximal and lateral grooves. The distal groove is enlarged and accentuated, partially due to the increased volar touch pads.

13th week: The major nail field's and the surrounding tissue's divergent growth patterns give rise to the proximal and lateral nail folds.[6]

14th week: The PNF, lunula, and more proximal matrix are where the nail plate originates.[6]

17th weeks to birth: The nail plate now mostly encloses the nail bed, and the distal ridge has flattened.[6] The nail unit and finger begin to grow together around week 20, with the nail plate connecting to the distal ridge. We now refer to this as the hyponychium. By birth, the nail plate

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extends to the distal groove, which gradually gets smaller. The nail may bend across the finger's volar surface. Additionally, it might show koilonychia. Because the nail plate is so thin in the very young, this deformity is natural in them and disappears as they get older.[6]

EPIDEMIOLOGY

Nail conditions can be inherited or acquired, and symptoms may be visible at birth or later in life. It's been studied in one report that nail abnormalities are present in about 75% of congenital syndromes. Though, exact prevalence of nail disorders is unknown, but literature shows it can be between 3-11%.[12]

CLASSIFICATIOIN

Nail abnormality can present congenitally or may present in infancy and early childhood (toddler 1-3 years; preschool 3-5 years). In some case, nail abnormalities are part of syndromes or hereditary disease.

There are different ways to classify nail disorders. One of the ways is, first to classify nail findings on the basis of age and then dividing them into physiological (conditions which disappear with age and doesn't require any treatment) and pathological conditions (which occur due to different factors like underlying diseases and requires treatment).

The newborn with altered nails at delivery or in the first few days of life will be classified in the first category. Infants in the second category range in age from one month to one year; *third category* includes toddlers, from 1 year to 3 years; *fourth and final category* is of preschool children with 3-5 year.

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I. Newborns

Physiological alterations:

Koilonychia (spoon nails)

The word is derived from Greek word 'koilos' which means 'hollow' and 'onikh' means 'nail'.[13] At birth, the lunula is seldom ever noticeable, and the nail is smooth, polished, and practically flat. When the surface of the nail is concave or depressed, gives the appearance of a spoon nails also called Koilonychia.[14] In a newborn koilonychia is found to be as a physiological condition, mostly affecting the great toes with 33% of prevalence. This physiological condition resolves spontaneously by the age of around 9 when nail plate thickens and becomes hard.[12]

Onychoschizia

Onychoschizia is the condition in which nail plate's distal section separating transversely and lamellarly, most common cause mentioned is trauma. Thumb sucking is also mentioned as an important exacerbating factor. Prevalence of onychoschizia is seen as 29%. As it is a physiological condition, requires no treatment.

Traumatic punctate leukonychia

Leukonychia was classified by Unna in 1896 into three types on the basis of morphology: total, striate (transversal and longitudinal), and punctate. Few years later a new subtype was added and it was given a name leukonychia partialis by Weber for nails that were incompletely white.[15]

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Leukonychia is a most common hued abnormality of nail and on the basis of anatomy, divided into 3 different types:[15]

1. *True leukonychia:* The proximal nail matrix and plate contain pathology. The nail appears white due to diffraction of light caused by parakeratotic cells.[16]
2. *Apparent leukonychia:* Nail bed abnormality gives rise to this condition.
3. *Pseudoleukonychia:* Results from nail plate scaling due to external factors e.g., keratin degradation due to nail polish or seen in superficial onychomycosis.[17]

True and pseudoleukonychia are differentiated from apparent leukonychia by applying pressure on nail plate which doesn't cause disappearance of white discolouration of nail in true and pseudoleukonychia. One more test can differentiate between nail plate and nail bed abnormality, is moving of white discolouration with growth of nail plate which occurs in true and pseudoleukonychia, but stays at the same place in apparent leukonychia.[15] Leukonychia is visible clearly in newborns due to smooth nail plate surface.

Pseudo hypertrophy of hallux

Study done by Chinnazo M et al has found the condition in 73.1% of newborns. Koilonychia is present, and the nail plate is triangular in shape, which makes the condition more noticeable. The nail plate is thin and due to shape, lateral nail folds are pushed down, leading to overlapping without any sign of inflammation.[12]

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Pathological changes:

Clubbing

Sometimes at birth, there is increased convexity of nail surface. Lovibond's angle is an angle between PNF and nail plate, and it is greater than 180°. The nails are impacted by clubbing when this angle is changed.[12] The condition can be inborn or acquired. Systemic diseases affecting heart, lungs and bowel can cause clubbing. Physiological clubbing is seen in this age group.[3]

Nail-Patella Syndrome

Due to mutations in the LMX1B gene, the ailment is inherited as an AD condition, on chromosome 9q34, with an incidence of 1:50,000. Nail patella syndrome has tetrad consisting of changes in nail, knee, elbows and presence iliac horns. Nail abnormalities, such as anonychia, micronychia, thin or missing plates, beau's lines, nail fragility, and longitudinal ridging, are present in 95.1% of cases at birth.[13]

II. One month to 1 year:

Physiological Alterations:

Transient Light-Brown or Ochre Pigmentation of the Proximal Nail Fold

Infants' periungual area, PNF, and dorsal digits up until the interphalangeal joint exhibit temporary light-brown reticular pigmentation or ochre colour pigmentation during the first six months of life; this pigmentation is healthy.[3] This condition is less commonly seen in

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fair skinned individuals and more commonly encountered in Fitzpatrick type IV or V skin types.[12]

Beau's lines over fingernails:

Beau's lines are seen in fingernails of 92% newborns around 4th week of life and resolves nearly before 14th week, cause for this condition has been given as intrauterine distress. Beau's lines may occur if the proximal nail matrix is damaged.

Pathological conditions

Ectodermal dysplasia

It is a primary epidermal disorder of heterogenous type which affects at least one of the ectodermal originated structures: hair (hypotrichosis), teeth (hypodontia), nails (Onychodysplasia), and sweat glands (anhidrosis).[18] Ectodermal dysplasia is a congenital condition which includes 170-200 different conditions.[12] Nail abnormalities are nonspecific and *WNT10A* mutations are found to be associated with nail alterations. Nail changes are seen in 20% of the hidrotic ectodermal dysplasia patients.[3] The most common sign is hypoplastic nail with nail plate thickening, other changes are subungual hyperkeratosis (SUH), anonychia, micronychia, nail plate thinning, brittle nails, koilonychias, or onycholysis.[3]

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Toddlers: From 1 to 3 Years of Age

Physiological changes

Punctate leukonychia

True leukonychia in children is frequently present and brought on by trauma to the distal matrix. The white discoloration in the nail plate in true leukonychia is caused by focal regions of parakeratotic cells. Nail plate transparency is impaired by parakeratotic cells, which also reflects light, resulting in the white color. [12] On the basis of shape it is divided into true, apparent and pseudoleukonychia. Transverse leukonychia, variety of true leukonychia, is rarely seen, most commonly affects 1st toe in children due to trauma from shoes.

Pitting

Pitting is depressions on nail plate due to defect in keratinisation in proximal nail matrix. Depending on the morphology and distribution, pitting can help in diagnosis of specific disease. Though pitting most commonly pathological conditions like psoriasis, alopecia areata, lichen planus but may also found physiologically in infants and toddlers. In contrast to the systematic shape, size, and distribution of alopecia areata pits, those in psoriasis are big, uneven, and deep. Psoriasis "pseudopitting," in which the pits were only present above the oil drop or salmon patches, was described by Di Chiacchio et al. in their study. Some facts about nail pitting. [19]

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1. Pits more commonly seen on fingernail than toenails
2. Presence of 20 pits on fingernails is suggestive of psoriasis.
3. Nail showing pits grows faster than normal nail. [16]
4. Deeper pits indicate involvement of intermediate and ventral nail matrix involvement, in addition to the dorsal section.

Pathological conditions

Dyskeratosis congenita (DC)

It is a hereditary disorder associated with bone marrow failure (BMF), tendency towards cancer, and somatic (nonhematologic) anomalies. DC is a disorder of maintenance of telomeres leading to short telomeres.[12] Various inheritance patterns have been observed, nail dystrophies, skin changes and leukoplakia have high association with X-linked recessive (XLR) and AR (AR) inheritance. Autosomal cases are milder and present late. Early in childhood, often as early as the first year of existence, the nail is the first body part to be affected.[12] Nail changes which can be seen are nail plate thinning, concave surface, longitudinal ridging and sometimes there may be loss of nails.[18] The classic trio of symptoms includes reticular skin pigmentation, dystrophic nails, and oral leukoplakia. Involvement of multiple systems has been noted, and 50–90% of patients will experience bone marrow failure.[12]

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Epidermolysis Bullosa (EB)

EB is an AD and recessive inherited mechanobullous disease. Due to anchoring deficiencies between the epidermis and dermis, the illness is presents with the skin's susceptibility to shock or friction, with blistering and erosions following modest damage. EB is classified by level of skin cleavage (from top to bottom) into four types:

1. EB simplex (separation within the epidermis)
2. EB junctional (blister at lamina lucida)
3. EB Dystrophy (split occurs just below lamina densa)
4. Kindler syndrome (cleavage at variable level)

Various types of nail changes are associated with different phenotypes of EB and help in diagnosis. [12] Nail abnormalities usually precede blisters over the skin. Normal nails can be seen in subtypes of EB simplex i.e., acral peeling syndrome, EB superficialis. Nail diseases sometimes can be lifelong in adults with anonychia, increasing hyperkeratosis with onychogryphosis, thickening of the nails, and parrot beak nail deformity. [12] Other nail abnormalities are onycholysis, onychomadesis, beau's lines. [18]

Congenital Malalignment of the Hallux

Nail plate deviated towards lateral side with respect to linear axis of big toe. The condition is observed in 1-2% of children. Medial deviation can also be seen but it's rare. Nail matrix is rotated laterally. Larger nail plates would arise from nonsynchronous growth between the nail and the distal phalanx of the hallux, according to Chaniotakis et al, in order to fit

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into the underlying bone space, the nail begins to grow laterally.[20] Transverse ridging is one of the earliest features to appear and may be single or multiple. The ridges when more in number forms regular waves. These ridges signify repeated instances of matrix degradation, which can lead to onychomadesis or nail loss in some cases. This deviation also frequently causes periungual inflammation, onychogryphosis. Thickened nail plate with gradual tapering of the distal end of nail can be seen. Sometimes there is onycholysis, haemorrhage, greenish hue (due to Pseudomonas), or fungal infection can be seen. Most important complication is perionychial area. When the condition doesn't improve by the 2 years of age, the nail remains thick, triangular, medially bent, surgery is recommended. Best results of surgery are seen if the procedure is done before 2 years of age, but some reports suggest improvement can be seen even in adulthood. Spontaneous improvement is seen in less than 50% of cases under 10 years of age. [6>8] If the nail deviation is minimal without any complications, nail should be treated conservatively. If nail dystrophy is present in monozygotic and dizygotic twins and affects numerous generations of a family, genetic factors and AD inheritance are taken into consideration. [21]

Congenital Hypertrophy of the Lateral Nail Folds

The condition is generally bilaterally symmetrical and most often involve medial lip of nail fold of the hallux. Usually, the condition is present at birth.[18] Hypertrophic nail folds cover up to one-half of the nail partially or completely.[12] Hypertrophy is occurring when nail plate doesn't grow parallelly with soft tissue. Painful ingrown toenails develop due to faster growth of hypertrophic lateral nail fold than the nail plate.[18] The disorder can lead

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to paronychia, koilonychias, and digit malalignment as complications. In the very first year of life, the condition usually gets better on its own; if not, surgery can be an option.[12]

Vertical Implantation of the Nail of the 5th Toe

In this unusual condition, the nail's matrix is implanted vertically, causing the nail to grow vertically. The nail not only cause aesthetic inconvenience but also causes discomfort when socks or stockings are pulled on. In the course of treatment, the nail must be cut out using a steel blade or chemical cautery.

Curved Nail of the 4th Toe (CNFT)

The 4th toenail is typically bent without alterations to the bone or soft tissues, and the disorder is typically bilateral and most frequently found in young Japanese individuals. The condition is inherited as an AR trait.[12] It resembles fingertip abnormality after trauma, where nail is curved due to loss of the supporting tissue. The primary defect in congenital curved nail, is congenital shortening or hypoplasia of the distal phalanx and curved nail plate is secondary.[18] Movement of the interphalangeal joint is preserved. It’s been observed in various studies that males are more commonly affected.[22] It is noted usually after birth even though it is a congenital condition and is asymptomatic. There are 2 reports mentioning CNFT with cleft palate and/or lip.[22] Study conducted by Chiacchio N et al has mentioned about presence of bifid uvula with CNFT.

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Anonychia and Micronychia

Anonychia is total absence of all nails from birth, which is rare, also some rudimentary nails can be seen on some fingers or toes. Therefore, anonychia and hyponychia often can be seen together. Only anonychia without other symptoms can have AD or recessive inheritance. An underlying bone abnormality is generally found in the radiographs. Due to skeletal abnormalities such phalange loss, isolated fingers and toes (ectrodactyly), syndactyly or polydactyly, or brachydactyly, anonychia is usually associated with wide, tiny hands. In case of isolated anonychia with AR inheritance, mutation in RSPO4 gene has been found. Anonychia has also been observed in conjunction with a few other syndromes, such as glossopalatine ankylosis syndrome, DOOR syndrome (deafness, onycho-osteodystrophy, mental retardation), and microcephaly with widely spaced teeth (AR inheritance). Additionally, anonychia and micronychia can be a component of a number of other syndromes, such as Kikuchi syndrome and nail-patella syndrome.[18] The term "micronychia" refers to a congenital defect characterised by hypoplasia of the nail plate. Teratogenic drugs in early pregnancy can also cause micronychia or it can be part of a syndrome.[12] Micronychia has also been observed in Zimmerman-Laband syndrome, with clubfoot. Micronychia can be treated with nail bed expansion surgery.

Beau’s Lines and Onychomadesis

Onychomadesis and Beau’s line (transverse groove on nail plate) are caused secondary to nail matrix arrest.[23] Beau’s lines are a horizontal groove running across the nail plate from one nail fold to the other. The distance between the different lines indicates timing between

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episodes of trauma. The Beau's lines are well appreciated in the middle of the nail and are superficial. The Beau's lines might develop as a result of a disruption in normal nail growth brought on by past systemic sickness or severe trauma. By measuring the distance between the lines, one may approximate when the nail was insulted, as fingernail grows 1mm every 6-10 days. Gravity and duration of illness can be understood by examining the depth and width of Beau's lines. Beau's lines are more visible in the fingernails, especially the thumbs, but any nail can be damaged.[24] Beau's lines are a physiological condition that can appear in babies as young as 4 to 5 weeks old. They can emerge monthly with each menstrual cycle. Other causes of Beau's lines include infantile measles, zinc insufficiency, HFM and Kawasaki disease, as well as pharmacological interactions with azathioprine, itraconazole, and octreotide. Horizontal or transverse groove has also been seen with extraordinary physical exertion e.g., Himalaya climbers, deep sea divers.[25] When the underlying cause is severe, a nail plate separates from the PNF and causes a full-thickness transverse disruption of the nail, which eventually leads to onychomadesis, or the shedding of the nail. Onychomadesis has various other causes such as trauma, poor nutrition, infection (HFM), autoimmune disorders, critical illness, and drugs (sodium valproate, chemotherapeutic agents).[25]

Finger Sucking

Finger sucking is a normal activity in childhood and usually seen below 5 years of age.[25] Usually, infants suck one finger preferably a thumb. This habit can lead to microbial exposure giving rise to secondary nail changes e.g., onycholysis. Thirty-one percent of children of more than 1 year of age are frequent thumb suckers. Skin of the digit becomes

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macerated and irritated due to repeated and prolonged exposure saliva; cuticle is damaged and paronychia can occur due to contact dermatitis tissue surrounding nail. Nail matrix can be damaged with inflamed periungual skin, also can produce Beau's lines. Washboard nails is other condition with surface abnormalities, occurs due to habit of pushing back the cuticle.[12] Melanocytic activation leads to longitudinal melanonychia due to these types of traumas. Other complications are periungual warts and bacterial paronychia, which needs medical attention.[12]

Pre-school children: From 3 to 5 Years of Age

Physiological Alterations

Chevron or Herringbone Nails

At nail plate's distal end, longitudinal and oblique diagonal ridges merge, forming a central spine that resembles a V-shape or a chevron. Typically discovered between the ages of 5 and 7 years, it vanishes in early adulthood. Etiology is unknown, affects several or all fingernails. The lines are best viewed with oblique lightening.[12]

Pathological Conditions

Pachyonychia Congenita

It is a rare form of genodermatosis with poor keratinization. Clinical signs include painful palmoplantar blisters, cysts, phrynoderma (skin), hypertrophic nail dystrophy, and oral leukoplakia (mucosa). Until now, more than 100 mutations have been discovered.

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Although AD inheritance is the most frequent type, sporadic and AR inheritance patterns have also been described.[12] Older classification of the condition has 2 types: type 1, also known as Jadassohn-Lewandowsky syndrome, and type 2, also known as Jackson-Lawler syndrome; new classification divides into 5 subtypes each corresponds to involved different keratins which are keratin- 6A, 6B, 6C, 16, and 17. The condition should be differentiated from EB, onychogryphosis, psoriasis.[18] The clinical symptom is the early onset of subungual hyperkeratosis and nail thickening in conjunction with palmoplantar keratoderma. Since they are visible in more than 75% of kids after age 5, nail and skin changes are more prevalent at this age. After the age of 10, pain becomes a more frequent symptom and significantly lowers quality of life.

Acute Paronychia

It is a painful bacterial infection of the periungual tissue caused mainly by staphylococcus and β-hemolytic streptococcus, because of the breach in the continuity of the skin.[25] Due to cuticle loss, PNF no longer serves as a protective layer. Inflammatory cascade is set off by infection, which results in swelling, erythema, discomfort, and subsequent pus development. Permanent nail dystrophy can be brought on by even a minor paronychia because children's nails have a sensitive nail matrix. Acute paronychia can also be caused by virus (Orf) and fungi.[25] The infection starts with redness, swelling, pain and tenderness and treatment consist of penicillinase antibiotics and localised superficial bulla can be drained with incision (with 11 no. blade) without anesthesia.[25]

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Chronic paronychia, which frequently manifests as acute flare-ups over time, can be caused by long-term manipulation, inflammation, or infection that causes the cuticle to be absent for an extended length of time. Compression and topical antibacterial medicine are examples of potential treatments. Drainage is suggested in cases of severe illness, and a specific systemic antibiotic or antiviral therapy must be initiated.[12]

Bacterial Diseases

Blistering Distal Dactylitis

Gram-positive bacteria produce this limited infection of the anterior finger pad, which primarily affects young people. It manifests as an oval, non-tender bulla that is 10–30 mm in diameter and typically affects multiple fingers. The most impacted age range is 2 to 16 years old. Erosion can be produced by the bulla over the course of several days. Group A β-hemolytic Streptococcus is the organism; also, Staphylococcus aureus and Staphylococcus epidermis have been found. The condition needs to be distinguished from friction blisters, EB, bullous impetigo, and herpetic whitlow. Warm compresses, oral antibiotics after a culture, and incision and drainage are the methods of treatment.[12] Recurrent blistering dactylitis has been seen with ingrown toenail.[25]

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Viral Diseases

Herpes Simplex

Primary and secondary Herpes simplex infection may affect one finger. May present has herpetic whitlow or as acute paronychia on terminal phalanx. Recurrent infection is generally less severe and having milder clinical course. Secondary fingernail herpes simplex, which is characterised by clustered vesicles on the lateral nail fold along with indications of inflammation, should be taken into consideration if repeated paronychia in the same digit develops. Rarely, nail bed may be affected, and presents with painful lateral onycholysis and subungual hemorrhage. A Tzanck smear or viral culture is used to confirm the diagnosis, and particular antiviral medication is indicated.[12] Medical staff and dentists have greater risk of developing the infection. Local swelling, erythema, and pain at the location of the entry portal develop throughout the incubation period of 3–7 days. Vesicles are usually located at paronychium and resembles pyogenic infection.[25]

Ungual Warts

Viral warts

It is a contagious illness brought on by various HPV strains. The disorder is seen as frequent in children older than 6 years old, with onychophagia serving as the primary triggering factor. Warts can range in size from tiny, rounded, hyperkeratotic papules with a rough surface to as large as 10–20 mm, having the ability to painfully fracture. They typically reside in the PNF, however onycholysis might cause them to grow beneath the nail plate.[12] Periungual warts mostly affects fingernails than toenails.[25] When

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onycholytic component is present, it is advised to cut it out and treat the warts with keratolytic cream containing urea or salicylic acid. Usually, the condition is hard to treat and recurrence is very common.[25]

Trachyonychia aka or twenty-nail dystrophy (TND)

It is recognised by Samman as "excessive ridging" of childhood. It is a clinical sign and not a disease. TND is an inflammatory condition affecting proximal nail matrix and has gradual onset. Although it can appear at any age, the average age of presentation is 2.7 years (range 2–7). It is unknown what the incidence is in children. There are two basic forms of TND based on clinical evidence: idiopathic TND and TND linked to other dermatological conditions such lichen planus, alopecia areata, psoriasis and eczema. Most cases of trachyonychia in children are idiopathic. Due to the benign nature of the disease and the favourable prognosis, nail biopsy is not advised for diagnosis. In TND, one nail or all of the nails may be impacted; fingernails are more frequently affected than toenails. Trachyonychia comes in two morphological varieties: opaque and glossy.[14] The same patient can have both types in several nails. It's possible to have cuticle hyperkeratosis and weakening nails with koilonychia. Treatment is required for cosmetic reasons or in case with severe nail thinning and distal nail plate fragility: emollients and nail lacquers can be given. Spontaneous improvement with time has been seen in TND.[14]

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Nail Lichen Striatus

Is a condition seen exclusively in children. More common in boys and affects age from 6 months to 12 years.[25] When lichen striatus first appears, flesh-colored lichenoid papules are linearly dispersed throughout the entire length of an extremity, up to the PNF and nail plate. The thumb, which is primarily affected, has longitudinal ridging that is confined to its medial or lateral region. The involvement of the nails can occur before or after skin lesions. An isolated area of the nail may occasionally exhibit nail abnormalities as the only clinical symptom. These changes may include onycholysis, longitudinal fissuring, and distal splitting. It should be suspected when a youngster has lichen planus-like anomalies in a solitary nail because the condition is asymptomatic and self-limiting. Steroids used locally are preferred for therapy.

Longitudinal Melanonychia

As a result of melanin produced within the nail plate as a result of melanocyte activation or proliferation, it manifests as a brown-black pigmented band over the nail plate. Nail matrix nevi is the main contributor to the disorder in youngsters.[12] The nail plate's melanin is more superficial the closer to the origin it is.[26] It could be discovered at birth or it might not be until 2-4 years of age. 25% of instances are caused by melanocytic activation, while 75% are caused by benign melanocytic hyperplasia in youngsters. Children cannot use the clinical and dermoscopic characteristics that are appropriate for adults. In youngsters, nail melanoma is a very uncommon disorder. Rapid evolution in growth and color of melanonychia in children may suggest melanoma and requires surgical excision.[12]

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METHODOLOGY

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METHODOLOGY

SOURCE OF DATA

All the patients, from birth to 5 years of age, attending outpatient and inpatient department of Dermatology, Venereology and Leprosy, Pediatrics, Obstetrics and Gynaecology of B.L.D.E (Deemed to be University) Shri. B.M. Patil Medical College Hospital and Research Centre, Vijayapura, were enrolled for the study.

Period of study:

The study was conducted during the period of December 2020 to August 2022.

Study design:

A hospital-based cross-sectional study.

Sample size:

With anticipated Proportion of Nail abnormalities 37.66% [3], the study would require a sample size of 365 with 95% level of confidence and 5% absolute precision**.**

Formula used

$$n=\frac{z^2\, p*q}{d^2}$$

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Where Z= Z statistic at α level of significance

d^2= Absolute error

P= Proportion rate

q= 100-p

METHOD OF COLLECTION OF DATA:

Patients from birth to 5 years of age were enrolled for the study.

Inclusion criteria:

1. Birth to 5 years of age

Exclusion criteria:

1. Patient who are not willing to take part in the study.
2. Patients with nail paint.

Methods:

Informed consent for the study were taken from parents or guardians of all the patients. All subjects were undertaking a complete clinical and dermoscopic nail examination. These findings were recorded in the proforma. Onychoscopy examination was done by a Dermlite handyscope FFH2, and the findings were noted.

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Methodology:

Pediatric nail disorders, in this study, were classified according to the age at which they appear in most of the cases, focusing on diseases that affect patients from birth to 5 years of life. Every category is then divided into: -

(1) physiological alterations, representing nail features that usually disappear with ageing and do not require any treatment, or only to reassure parents.

(2) pathological conditions, leads to changes in nails secondary to congenital or acquired conditions and requires treatment.

Clinical examination of the nail:

All the twenty nails were examined under the following headings:

1. Nail matrix
2. Lunula
3. Nail bed
4. Hyponychium
5. Nail folds

Onychoscopy examination of nail:

The instrument was moved in all the directions to visualize every part of the nail. The examination was done without interface medium, i.e., “dry examination”. In dry examination changes on nail plate, e.g., pits, scales are seen. The procedure was done on all the twenty nails at ×10 magnification with a handheld dermatoscope. Though nail changes can be visualized by naked eyes, dermoscopy makes the nail changes clearer.

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STATISTICAL ANALYSIS:

- The data obtained will be entered in Microsoft Excel Sheet, and statistical analysis will be performed using statistical package JMP SAS
- Result will be presented as Mean (Median) ± SD, counts and percentages and diagrams.

ETHICAL CLEARANCE:

Institutional ethical committee clearance was undertaken for the study.

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RESULTS

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RESULTS

Gender distribution

Among 368 patients, 213 (57.9%) were males and 155 (42.1%) were females. Males outnumbered females in this study with a ratio of 1.39:1.

Table 1: Distribution of Cases according to gender

Gender	No. of patients	Percentage
Female	155	42.1
Male	213	57.9
Total	368	100.0

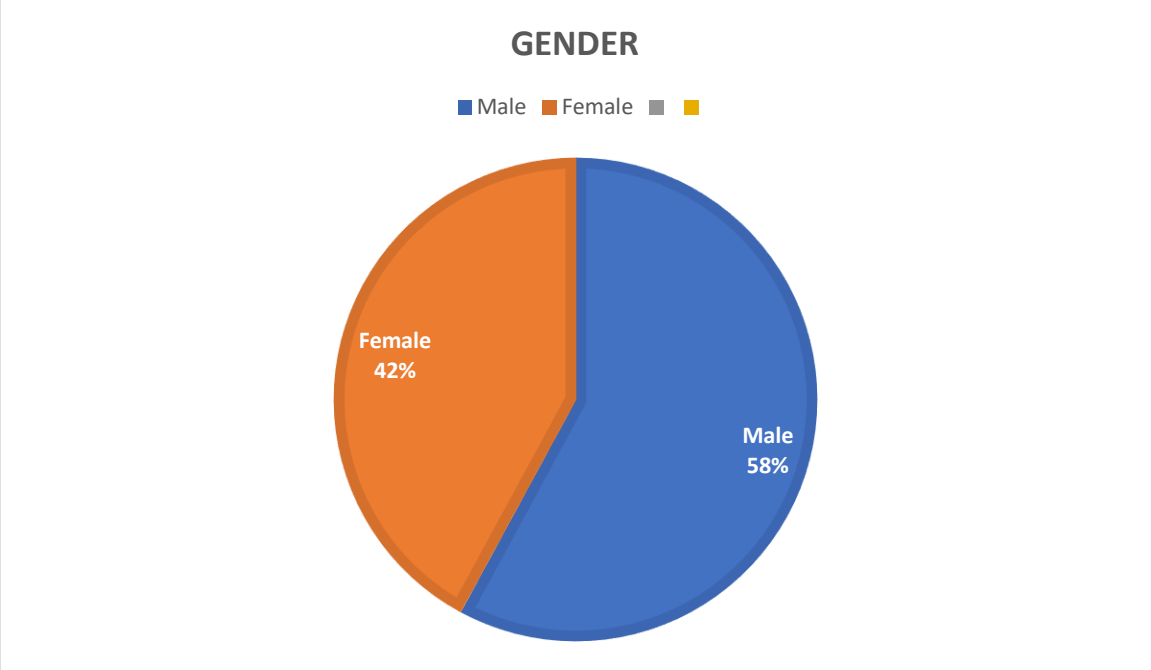

Figure 3: Distribution of Cases according to Sex

Age group

Out of 368 cases majority of cases i.e., 50.8% were in age group below 12 months, followed by 13.6% in age group of above 49 months, 12% in age group of 13-24 months and 37-48 months

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and 11.7% were in the age group 25-36 months (Table 2) (Mean: 22.74 months; standard deviation (SD): 21.66).

Table 2: Distribution of Cases according to Age

Age	No. of patients	Percentage
<= 12	187	50.8
13 - 24	44	12.0
25 - 36	43	11.7
37 - 48	44	12.0
49+	50	13.6
Total	368	100.0

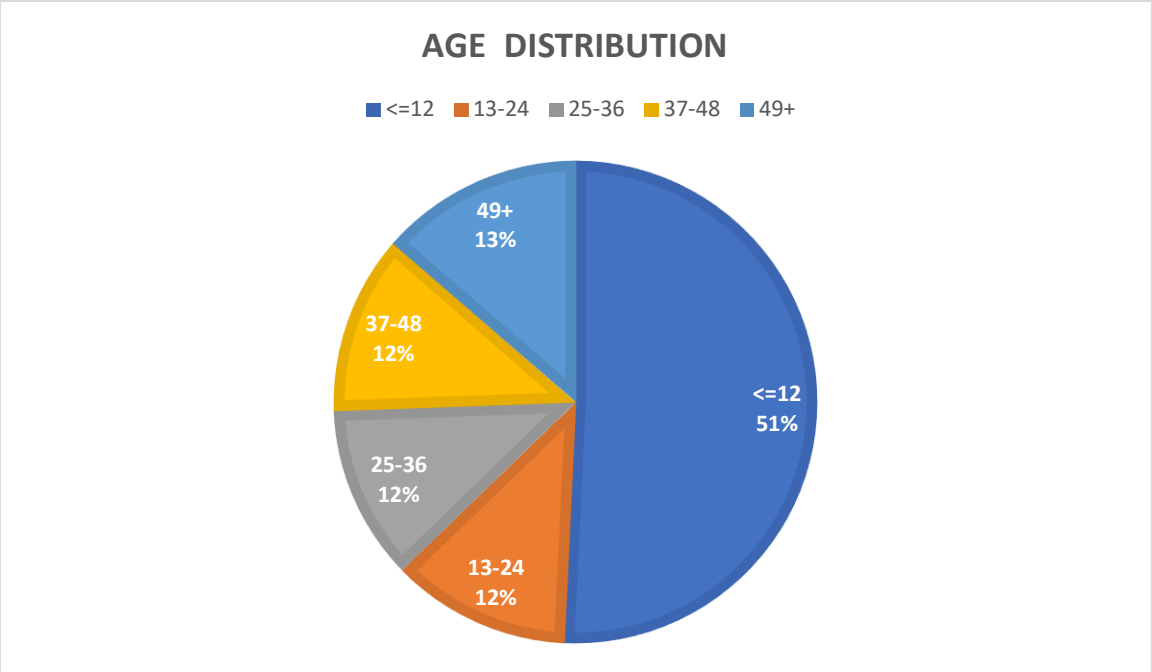

Figure 4: Age distribution

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Clinical nail findings:

Most common clinical nail finding was white striations in 16.3% of cases, followed by punctate leukonychia 5.7%, onychoschizia 3.5%, pseudohypertrophy of hallux 3.3%, koilonychia 1.9%, Beau's lines 0.8%, subungual haematoma 0.8%. Median canaliform nail dystrophy, Muehrcke's lines, onychophagia, and pitting were found only in single cases (0.3%). Multiple nail findings in patients presented as, acquired anonychia with subungual hyperkeratosis and acquired anonychia with onychodystrophy; beau's lines with punctate leukonychia found only in 0.3% cases whereas punctate leukonychia with white striations over distal end of nail plate and onychoschizia with pseudohypertrophy of hallux was present in 0.5% of cases. Out of 368 cases studied, nails were normal in 238 (64.67%) cases.

Table 3: Clinical nail findings

Nail findings	No. of patients	Percentage
Acquired Anonychia, Subungual hyperkeratosis	1	0.3
Acquired Anonychia, Onychodystrophy	1	0.3
Beau's lines	3	0.8
Beau's lines, Punctate leukonychia	1	0.3
Koilonychia	7	1.9
Median canaliform nail dystrophy	1	0.3
Muehrcke's lines	1	0.3
No nail abnormality	238	64.7
Onychophagia	1	0.3
Onychoschizia	13	3.5
Onychoschizia, Psuedohypertrophy of hallux	2	0.5
Pitting	1	0.3
Psuedohypertrophy of hallux	12	3.3
Punctate leukonychia	21	5.7
Punctate leukonychia, white striations present over distal nail	2	0.5
Subungual haematoma	3	0.8
White striations present over distal toe nails	60	16.3
Total	**368**	**100.0**

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Onychoscopy findings:

Onychoscopy nail findings: Table 4

Nail Plate	**No. of patients**	**Percentage**
Absent	2	0.5
Grouped white dots	22	5.99
Homogenous pigmentation with more than one color	3	0.8
Median longitudinal groove and transverse furrows	1	0.3
Normal	257	69.8
Deep pits present over fingernails	1	0.3
Shortened nail plate	1	0.3
Transverse lamellar splitting of distal end of nail plate	15	4.1
Transverse grooves	3	0.8
Transverse grooves and grouped white spots	1	0.3
White transverse lines	1	0.3
White striations present over distal toe nails	60	16.3
White striations present over distal toe nails, grouped white spots	1	0.3
Total	**368**	**100.0**
Nail Bed	**Frequency**	**Percent**
Subungual hyperkeratosis (Onycholysis)	2	0.5
Normal	366	99.5
Total	**368**	**100.0**
Hyponychium	**Frequency**	**Percent**
Subungual hyperkeratosis (Onycholysis with onychodystrophy)	2	0.5
Normal	366	99.5
Total	**368**	**100.0**
Nail fold	**Frequency**	**Percent**
Normal	354	96.2
Pseudohypertrophy lateral nail fold	14	3.8
Total	**368**	**100.0**

Note: Nail matrix and nail fold capillaroscopy examination was not done, as nail matrix is visible intraoperatively and nail fold capillaroscopy needs interface medium which is inconvenient to use in infants and children.

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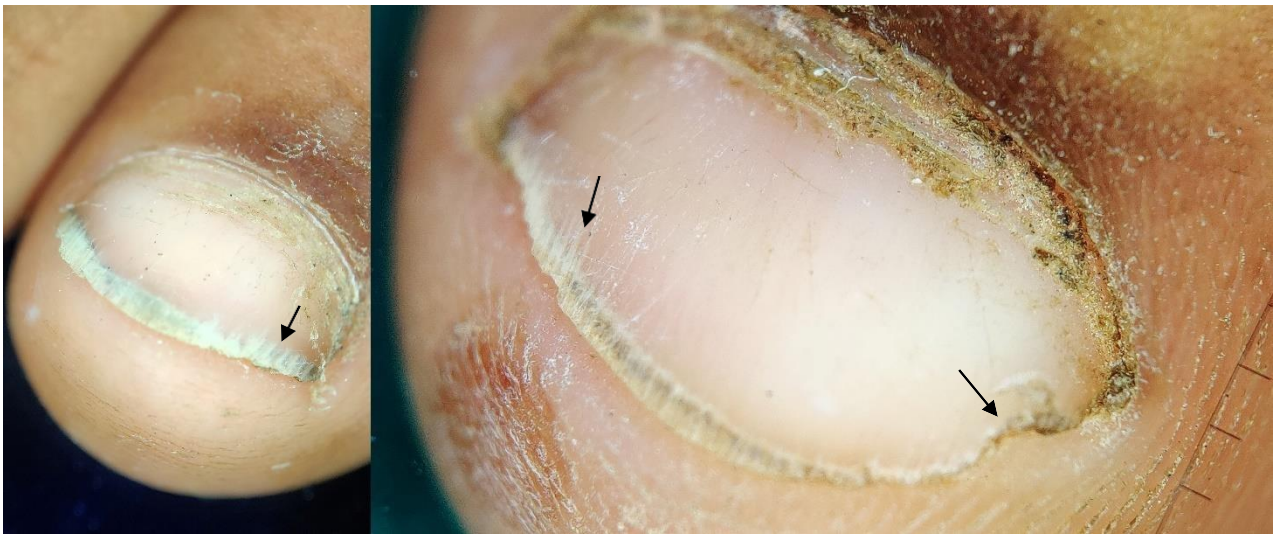

Figure 5: Clinical and onychoscopy image showing white striations over distal toe nails with onycholysis.

On onychoscopy study shows most common finding as white striations in 16.6% on the distal edge of the nail plate, which was visible with naked eye in most of the cases and was detectable only with onychoscopy in few patients. White striations were present more commonly on toenails than fingernails (Figure 5).

Second most common clinical finding of punctate leukonychia in 5.99% of cases, showed grouped white spots on onychoscopy (Figure. 6).

Onychoschizia presented with transverse lamellar splitting of distal end of nail plate in 4.1% cases (Figure. 7); pseudo hypertrophic nail folds are present in 3.8% cases (Figure 8), all the cases of subungual hematoma in our study i.e. 0.8% cases showed homogenous pigmentation with black and red colour (Figure 9) on onychoscopy and toenails were affected in all the cases; transverse grooves as beau's lines were present in 0.8% cases (Figure. 10); Nail plate was absent on few fingers in 0.5% patients in cases of dystrophic EB (DEB) (Figure. 11); Median longitudinal groove and transverse furrows (Figure.12); deep pits present over fingernails (Figure.13); shortened nail

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plate with irregular edges of distal end of nail plate was seen in onychophagia (Figure.14), transverse grooves and grouped white spots, white transverse lines as Muehrcke's lines were seen over fingernails in 0.3% cases. Nail plate concavity was seen in koilonychia (Figure. 16).

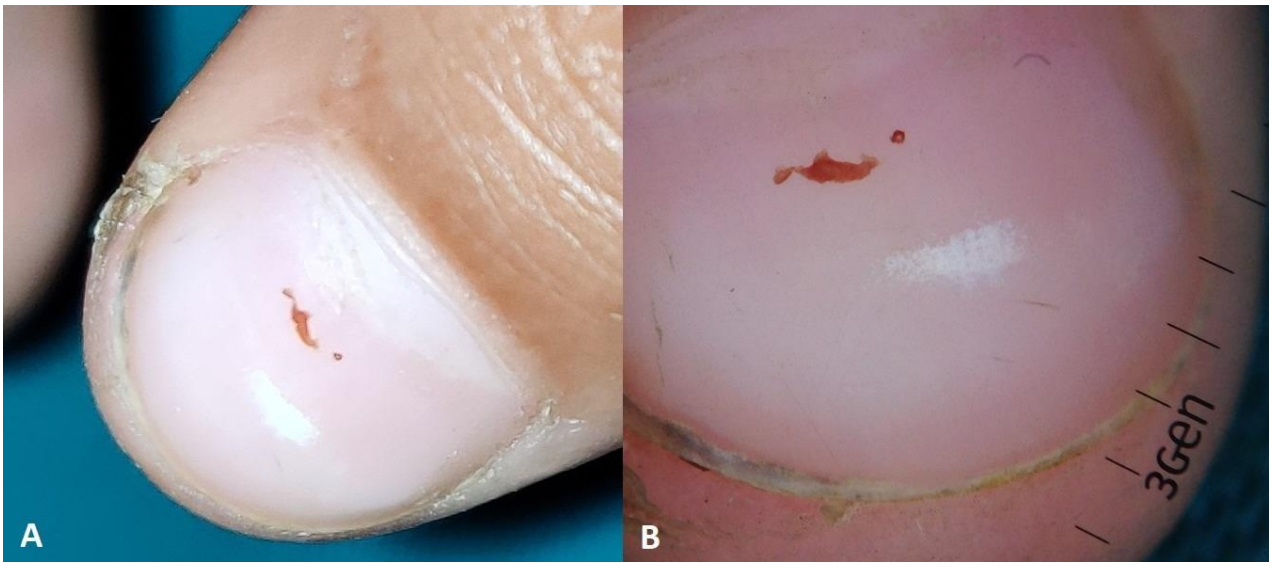

Figure 6: A) clinical image of punctate leukonychia B) Onychoscopy showing grouped white dots

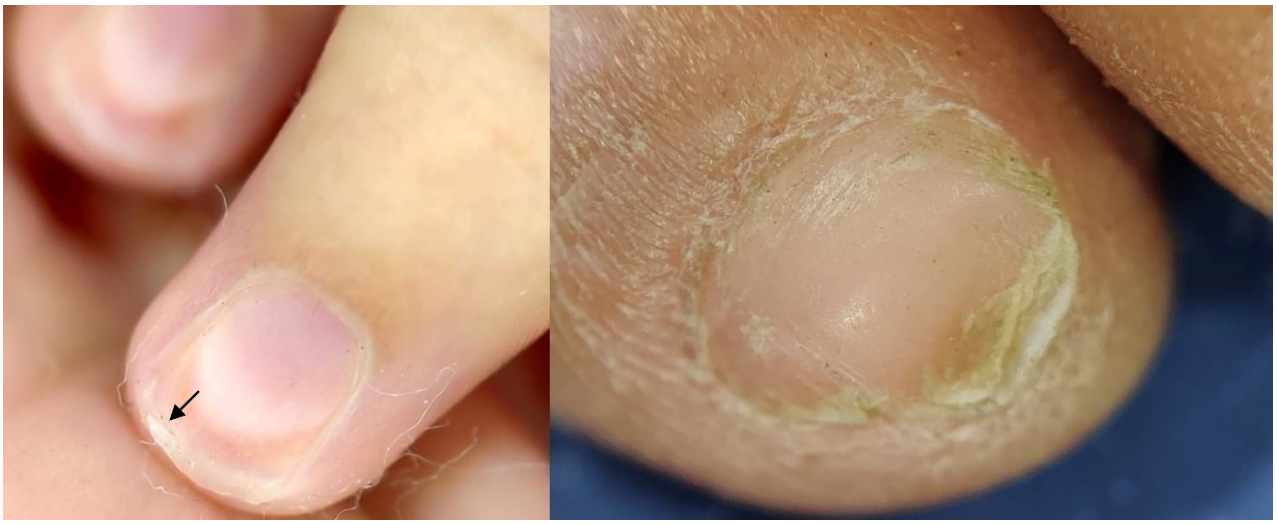

Figure 7: Clinical and Onychoscopic picture of onychoschizia (arrow).

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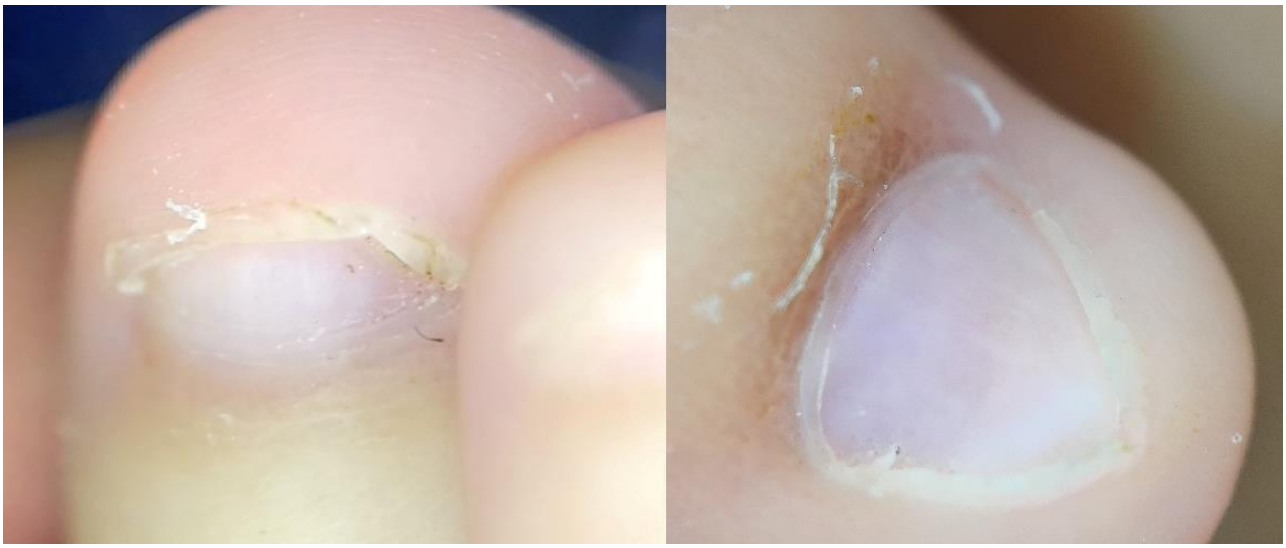

Figure 8: Onychoscopy picture of pseudohypertrophy of hallux.

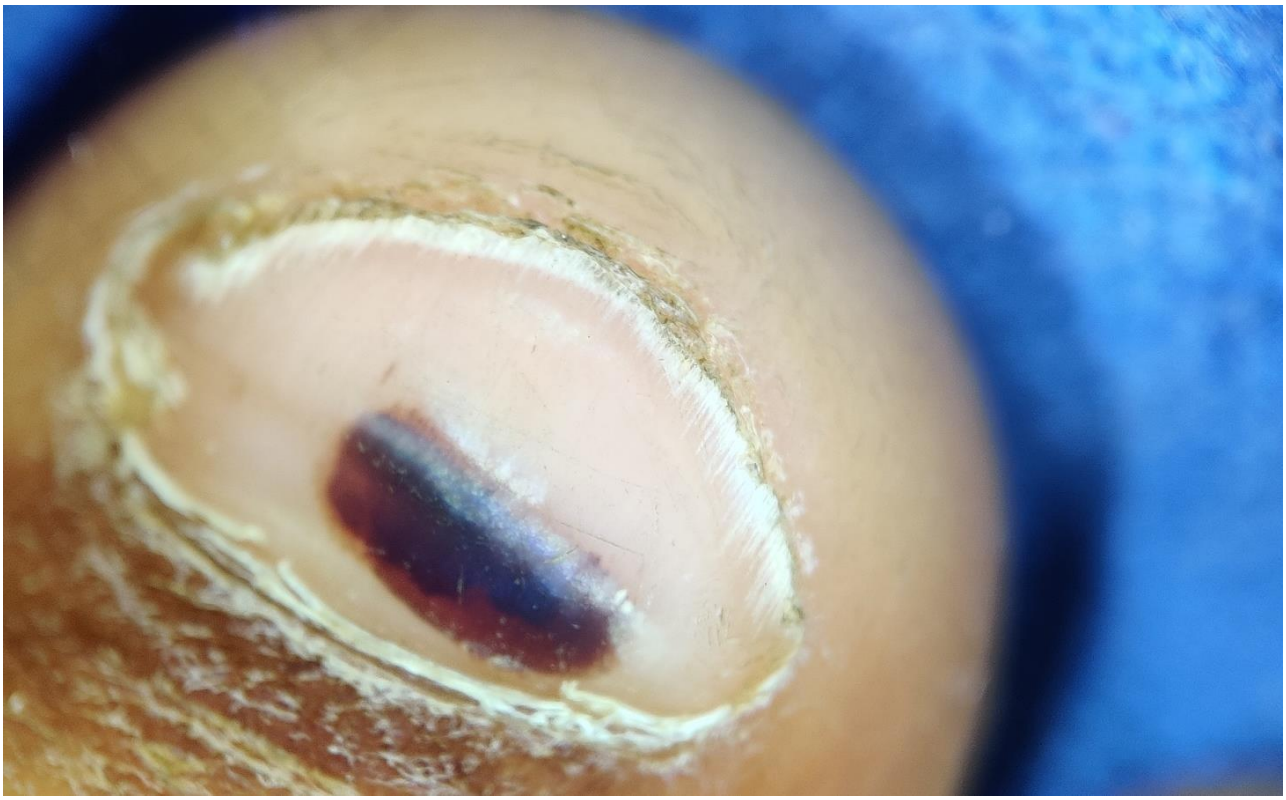

Figure 9: Onychoscopy image showing red to black discolouration of toenail in subungual hematoma.

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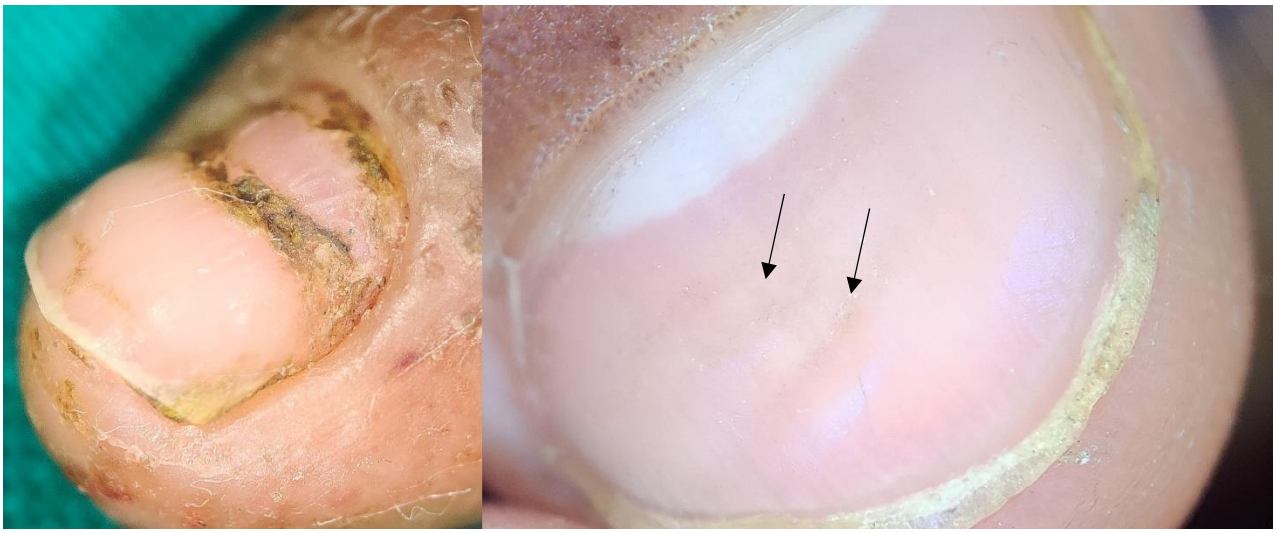

Figure 10: Clinical image and onychoscopy image of Beau's line.

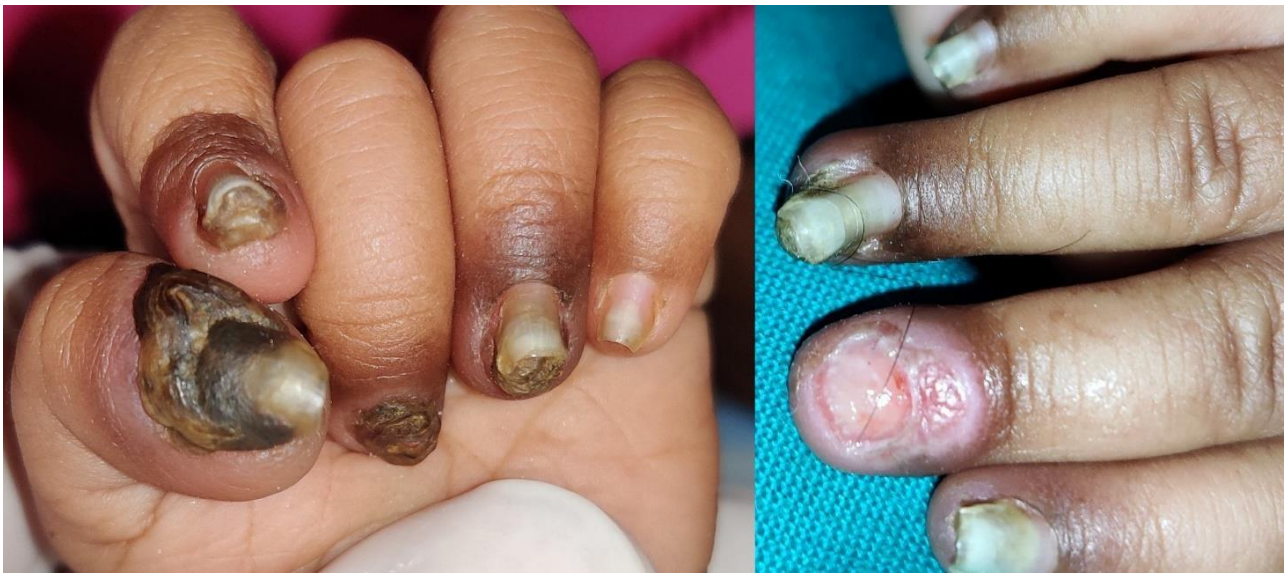

Figure 11: Clinical image of acquired anonychia and subungual hyperkeratosis in Dystrophic epidermolysis bullosa

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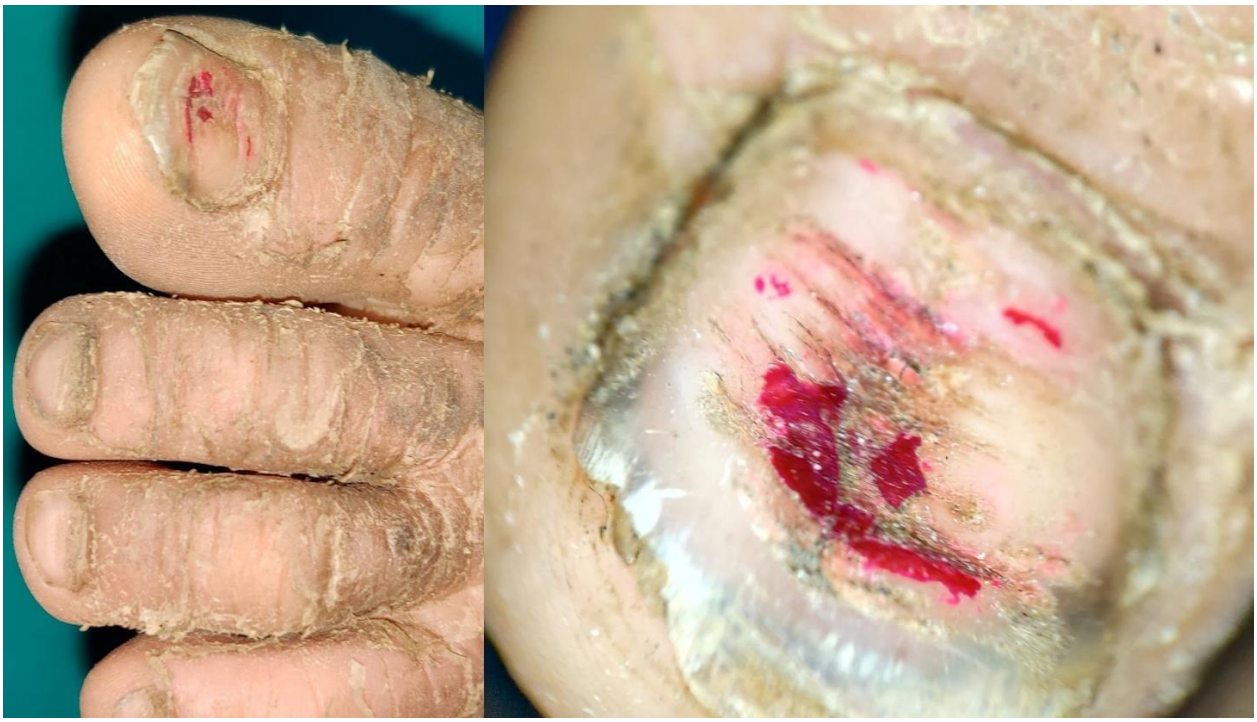

Figure 12: Clinical and onychoscopy image showing Median canaliform nail dystrophy.

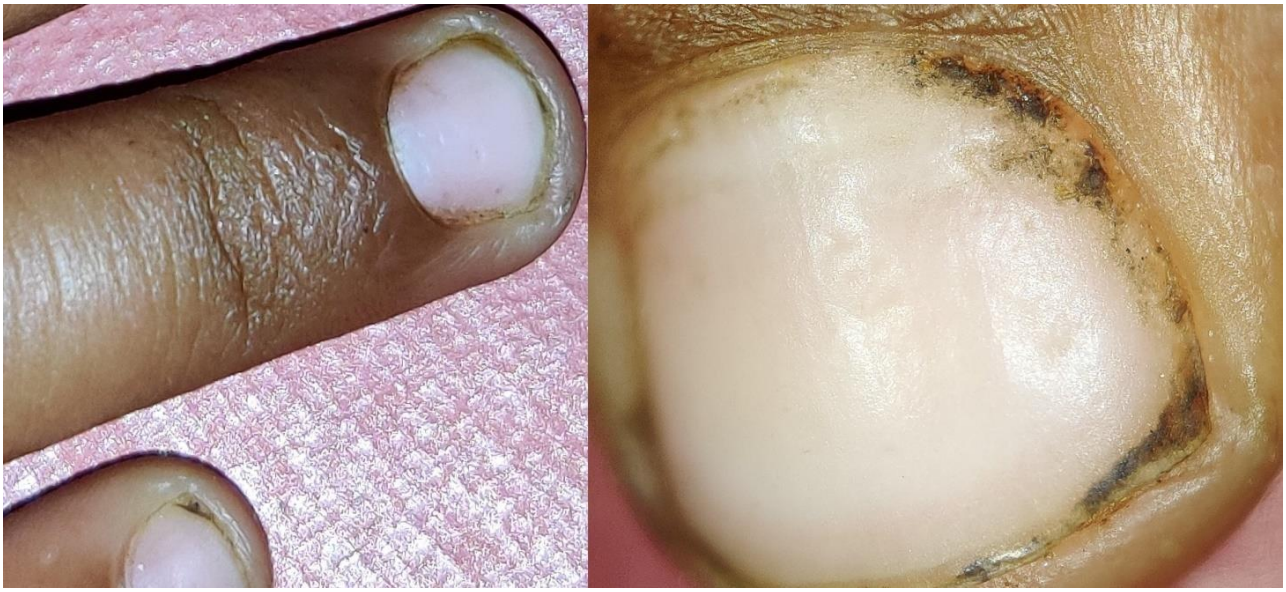

Figure 13: Clinical and onychoscopy images showing deep pits on fingernails.

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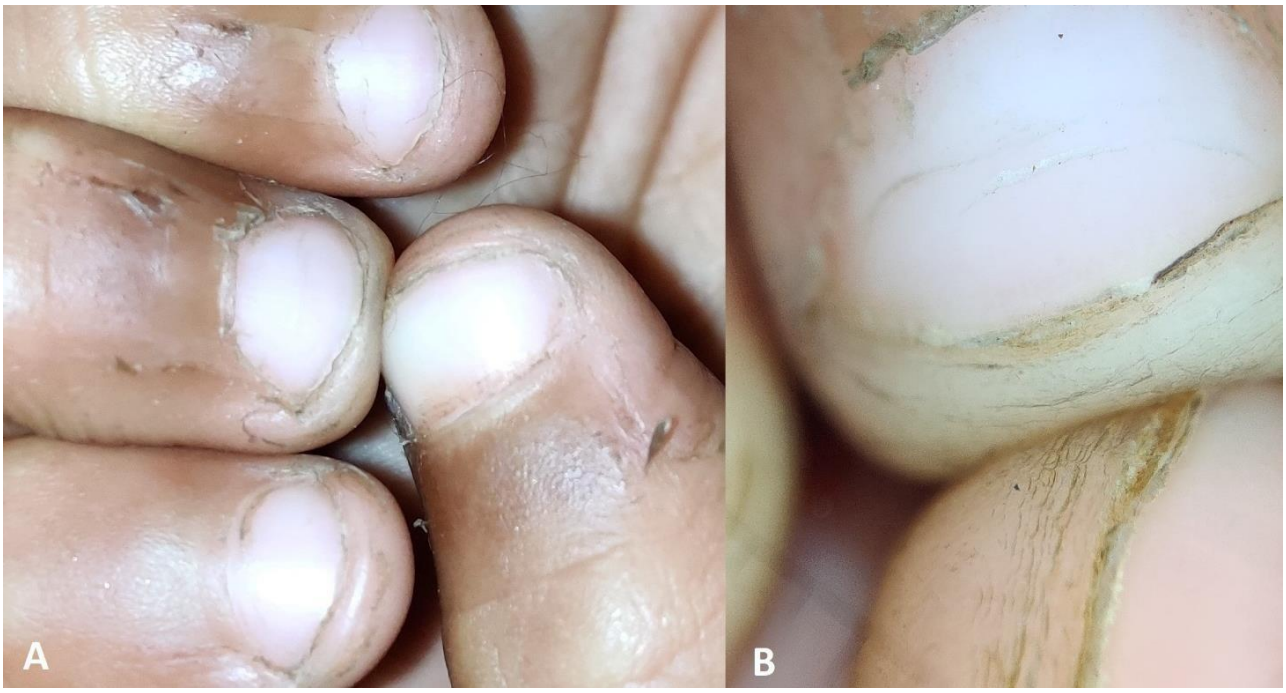

Figure 14: A) Clinical image of onychophagia with shortened nail plate and dermatophagia

B) Onychoscopy showing irregular distal end of nail plate

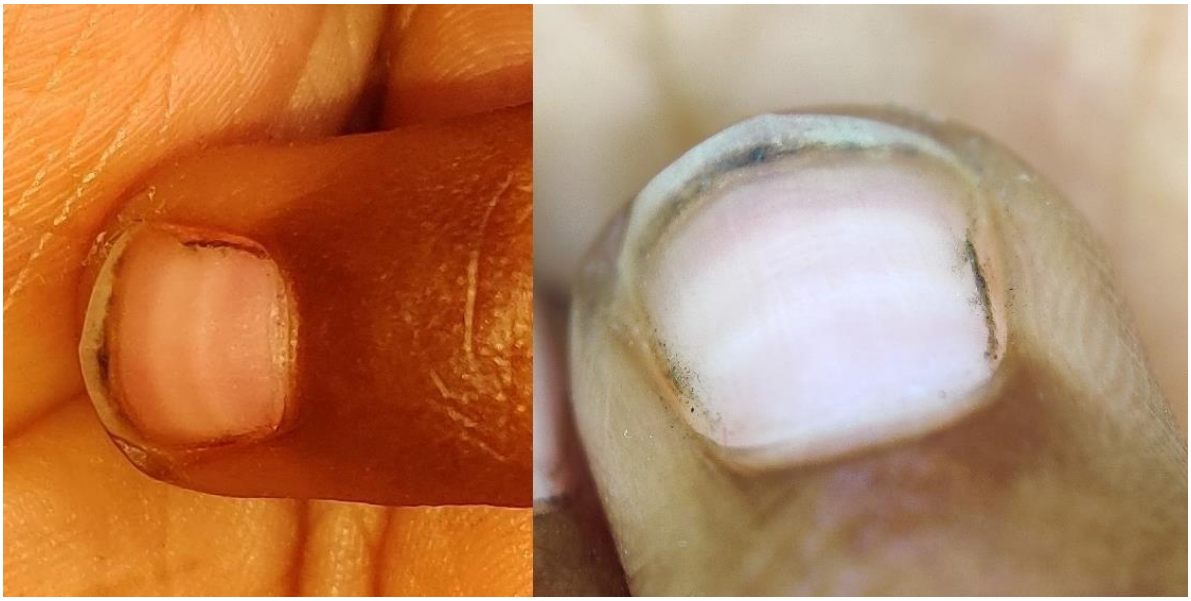

Figure 15: Clinical and Onychoscopy images of Muehrcke's lines

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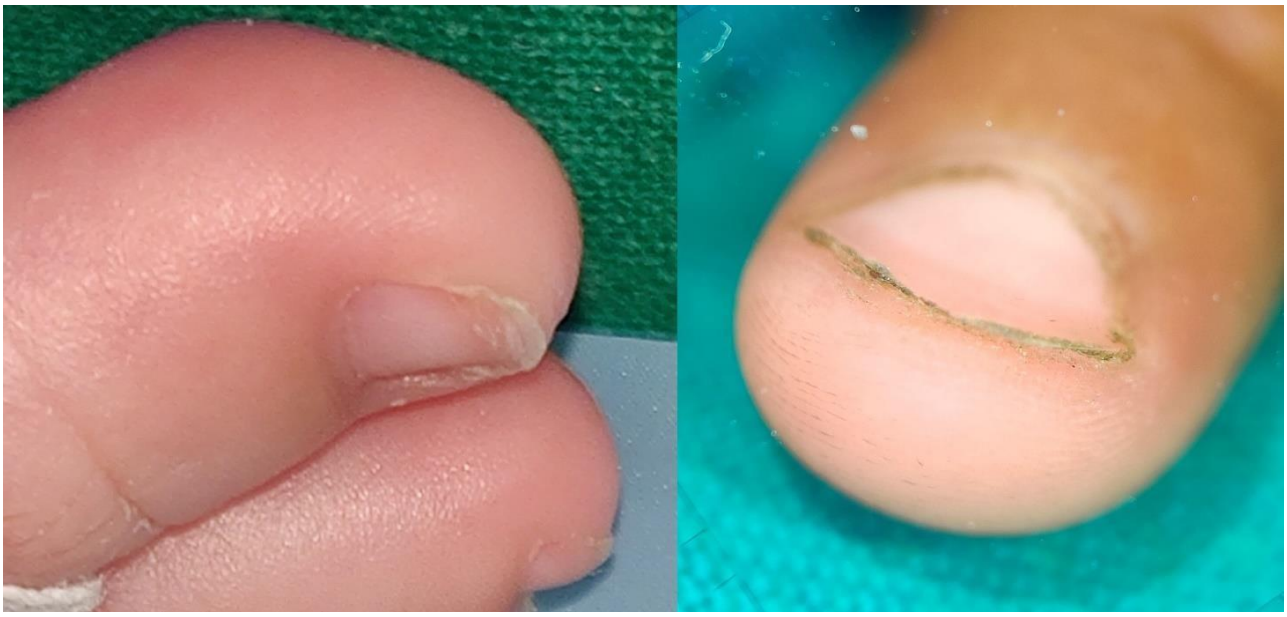

Figure 16: Clinical and onychoscopy picture of koilonychia

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DISCUSSION

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DISCUSSION

Abnormal nail findings in children are common and are often ignored by treating physicians. Nail findings can indicate infection, inflammatory diseases, systemic disease, syndromes. In our study of 368 cases, 57.9% were males and 42.1% were females with sex ratio of 1.39:1. Most of the cases were below 12 months of age.

Literature estimates prevalence of nail changes in pediatric population to be from 3%-11%, one previous study of infants shows prevalence of 6.8%, study done by Oğrum A et al [25] shows prevalence of 37.7%. In the current study, prevalence of nail changes was in 35.3% cases. These variations in the prevalence might be due to various factors, environmental, sociocultural factors, different age groups considered in different studies.

Spectrum of nail abnormalities is different in infants and children from those of adults. In this age group, physiological changes, congenital and hereditary abnormalities, bacterial and viral diseases are more common. In the current study nails with white striations was found to be the most common clinical nail finding in 16.3% of cases, followed by punctate leukonychia 5.7%, pseudohypertrophy of hallux 3.3%, onychoschizia 2.4%, koilonychia 1.9%, Beau's lines 1.1%, subungual haematoma 0.8%, acquired anonychia 0.6%. Median canaliform nail dystrophy, Muehrcke's lines, onychophagia, and pitting were found only in single cases 0.3%. Multiple nail findings in a single individual were beau's lines and punctate leukonychia, onychoschizia and pseudohypertrophy of hallux, punctate leukonychia and white striations, were present in 0.3% of cases.

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Clinically, nails in most of the patients showed white striations over distal nail plate on onychoscopy, is the most common finding in our study. It is found mostly with irregular distal edges, and broken nail plate, indicating towards nail changes due to more outdoor physical activities. This finding is not mentioned in any study till now.

In a study done by Oğrum A et al [25] leukonychia was the most common finding, in our study it's the second most common finding and more common in male patients than female patients similar to study done by Oğrum A et al [25]. Higher proportion in male might be due to higher outdoor physical activity. All the cases were true leukonychia and its subtype punctate leukonychia. It occurs due to trauma in on finger or toenails.

In the present study, pseudohypertrophy of hallux in newborns is the third most common finding with. A study by Starace M et al [13] shows pseudohypertrophy is present in 73.1% of newborns, in this study it was present only in 14.5% of newborns and 3.3% out of total 368 cases. Nail is depressed and nail folds looks like vertical cliff, there isn't any periungual tissue inflammation. It is a physiological transient condition and doesn't require any treatment.

Onychoschizia is a condition characterized by lamellar splitting of distal nail plate, commonly seen in newborn as physiological change. Study done by Starace M et al [13] reported 28.8% cases of onychoschizia in early infancy, in our study onychoschizia is present with 4.1% prevalence in total of 368 cases. Out total 15 cases of onychoschizia 11 (73.3%) cases were seen in infants.

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Koilonychia is characterized by concave shape of nail, aka spoon nail. The condition is mostly idiopathic in newborns. Most frequently big toes are affected than other nails. Our study found the prevalence of koilonychia to be 1.9%, all were infants. Koilonychia in newborns is a physiological condition and resolves spontaneously once the nail plate thickens.

Beau's lines, a transverse depression, were present in 92% of newborns shows the study carried out by Turano et al. In our study none of the infants show beau's lines, but was present in toddlers, indicating trauma as the most common cause.

Subungual hematoma is the collection of blood between bone and the nail plate, and result from compression injuries to nail. It is the most common cause of nail pigmentation. Toes and index finger is most commonly affected.[6] Hematoma less than 25% doesn't require any treatment but more than 25% has to be corrected surgically within 48 hours.[6] In our study subungual hematoma was present only in 0.8% of cases.

Our study includes 5 cases of EB, three cases of EB simplex and 2 cases of dystrophic EB. Acquired anonychia was present in 0.6% cases, along with subungual hyperkeratosis in a single case, and both the cases were of dystrophic EB, whereas EB simplex presented without any nail findings. Acquired anonychia is mostly a feature of junctional and dystrophic EB.

Median canaliform nail dystrophy, mostly caused by local trauma, in our study was found in a case of psoriasis over the B/L great toe nails.

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Muehrcke's lines or bands with hydronephrosis was found in one case in our study. It comes under category of apparent leukonychia. It is related to serum albumin level, once the level of albumin comes to normal, these bands disappear and reappear again if albumin level goes down.

Onychophagia (Nail biting), is oral irresistible disorder, can be seen in children and adults. Mostly condition starts from 4-5 years of age.[6] In our study we found only a single case of onychophagia, aged 5 years, out of 368 cases.

Nail pits was found only in single case in our study in pustular psoriasis, which was deep and irregularly arranged. It occurs due to defects in nail formation in mottled areas. Extent of the nail matrix involvement can be predicted by the depth and width of the pits.[6]

Multiple nail findings were present only in 0.3% of cases as beau's lines with punctate leukonychia, onychoschizia with pseudohypertrophy of hallux, punctate leukonychia with white striations (on onychoscopy).

There were few limitations in our study, due to the fact that our study was entirely clinical or observational, investigations were not conducted. Another limitation was that only dry dermoscopy was performed on patients due to the inconvenience of using gel on infants and young children.

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CONCLUSION

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CONCLUSION

The present study was aimed at analysing prevalence of nail findings in pediatric age group of birth to 5 years. A total of 368 cases were studied with 57.9% male preponderance and most of the cases were infants (50.8%).

Most common finding in our study, in the age group from 1-5 years, was white striations over the distal end of the nail plate, punctate leukonychia, beau's lines and subungual hematoma, which shows in children mostly nail findings are traumatic due to more outdoor physical activity and most of them doesn't require medical intervention as they disappear with time as nail grows, except subungual hematoma which might require proper care and medical intervention if present with symptoms like pain and also to prevent secondary infection.

Onychoschizia, pseudohypertrophy of hallux, koilonychia are the common nail findings in newborns and concludes, nail findings in infants are not very rare but when present, mostly are physiological and resolve on its own with time without any medical intervention.

As there are multiple nail findings and every finding has multiple causes, proper systemic examination should be done, also history of any other associated diseases, trauma and drug history should be taken.

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SUMMARY

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SUMMARY

Total 368 cases were studied from day 1 to 5 years of age in the tertiary care centre and most of the patients were males and below 12 months of age.

Out of 238 patients with positive nail findings 44.53% cases were trauma induced e.g., White striations on distal nail plate, Punctate leukonychia, Beau's lines.

Only 9.23% patients out of 238 with nail findings had physiological nail changes e.g., onychoschizia, pseudohypertrophy of hallux and koilonychia, and all were newborns.

Anonychia with subungual hyperkeratosis, pitting and median canaliform dystrophy was seen in systemic diseases e.g., DEB, pustular psoriasis and plaque psoriasis.

Nail examination is an important part of full body examination, even at birth, to rule out physiological reasons for nail findings or associated syndromes, diseases.

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ETHICAL CLEARANCE CERTIFICATE

IEC/no-09/2021 Date-22/01/2021

B.L.D.E. (DEEMED TO BE UNIVERSITY)

(Declared vide notification No. F.9-37/2007 U.3 (A) Dated. 29-2-2008 of the MHRD, Government of India under Section 3 of the UGC Act, 1956)

The Constituent College

SHRI. B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTRE

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Institutional ethical committee of this college met on 11-01-2021 at 11-00 am to scrutinize the synopsis of Postgraduate students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected and revised version synopsis of the Thesis has been accorded Ethical Clearance

Title: Clinical and dermoscopic findings in nail disorders from birth to preschool children

Name of PG student: Dr Ekalavya Bilkhilwal, Department of Dermatology

Name of Guide/Co-investigator: Dr Arun.C.Inamadar, Professor & HOD of Dermatology

DR .S.V.PATIL
CHAIRMAN, IEC
Institutional Ethical Committee
(Deemed to be University)
Shri B.M. Patil Medical College,
VIJAYAPUR-586103 (Karnataka)

Following documents were placed before Ethical Committee for Scrutinization:

1. Copy of Synopsis / Research project
2. Copy of informed consent form
3. Any other relevant documents.

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CONSENT FORM

B.L.D.E. (Deemed to be University) SHRI B.M PATIL

MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE,

VIJAYAPURA-586103

INFORMED CONSENT FOR PARTICIPATION IN DISSERTATION/ RESEARCH

TITLE OF THE PROJECT:	CLINICAL AND DERMOSCOPIC NAIL FINDINGS FROM BIRTH TO PRESCHOOL CHILDREN
PG GUIDE:	DR. ARUN C. INAMADAR
PG STUDENT:	DR. EKALAVYA BILKHIWAL

PURPOSE OF RESEARCH:

The purpose of the study is to help the reader to recognize nail disorders at an early age and to manage them appropriately.

BENEFITS:

I understand that my participation in this study will help the investigator to know the most frequent nail disorders in pediatric age group from birth to preschool children (3-5 years).

PROCEDURE:

I understand that relevant history will be taken and I will undergo detailed nail examination.

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RISK AND DISCOMFORTS:

I understand there is no risk involved and I will experience no discomfort during the clinical examination.

CONFIDENTIALITY:

I understand that medical information produced by this study will become a part of my hospital records and will be subjected to the confidentiality and privacy regulation of the said hospital. Information of a sensitive personal nature will not be a part of the medical records, but will be stored in the investigator's research file. If the data are used for publication in the medical literature or for teaching purposes no names will be used and other identifiers such as photographs and audio or videotapes will be used only with my special written permission. I understand I may see the photographs, videotapes and hear the audiotapes before giving this permission.

REQUEST FOR MORE INFORMATION:

I understand that I may ask more questions about the study at any time concerned. Dr. EKALAVYA BILKHIWAL is available to answer my questions or concerns. I understand that I will be informed of any significant new findings discovered during the course of this study, which may influence my continued participation.

REFUSAL OR WITHDRAWAL OF PARTICIPATION:

I understand that my participation is voluntary and I may refuse to participate or may withdraw consent and discontinue participation in this study at any time without prejudice. I also understand that Dr EKALAVYA BILKHIWAL may terminate my participation in this study at any time after he has explained the reasons for doing so and has helped arrange for my continued care by my own physician, if this is appropriate.

INJURY STATEMENT:

I understand that in the unlikely event of injury to me resulting directly from my participation in this study and if such injury were reported promptly, then medical treatment will be available to me, but no further compensation will be provided. I understand that by my agreement for my participation in this study, I am not waiving any of my legal rights.

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I have explained to (patient's / relevant guardian's name) the purpose of the research, the procedures required, and the possible risks and benefits to the best of my ability in patient's own language.

_____ _____

Investigator / P. G. Guide Date

I confirm that.....(Name of the PG guide / chief researcher) has explained to me the research, the study procedures that I undergo and the possible risks and discomforts as well as benefits that I may experience. I have read and I understand this consent form. Therefore, I agree to give my consent for my participation as a subject in this research project.

_____ _____

Participant / guardian Date

_____ _____

Witness to signature Date

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PROFORMA

B.L.D.E. UNIVERSITY

SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, VIJAYAPURA.

Department of Dermatology, Venereology and Leprosy

"CLINICAL AND DERMOSCOPIC NAIL FINDINGS FROM BIRTH TO PRESCHOOL CHILDREN"

1. General information:

Name:	Address:
Age/Sex:	Date:
Contact no. of parent:	
Patient ID:	

2. History:

3. Birth weight:
4. Diagnosis:

- General Physical Examination:

Weight:	Pallor:
PR:	Icterus:
	Edema:
	Lymphadenopathy:

- Systemic Examination:

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Cardiovascular system:	Respiratory system:
Central nervous system:	Abdominal examination:

CLINICAL NAIL FINDINGS		
	COLOUR	SHAPE
1.NAIL PLATE		
2.LUNULA		
3.NAIL BED		
4.HYPONYCHIUM		
5.NAIL FOLD		

ONYCHOSCOPY FINDINGS		
	COLOUR	SHAPE
1.NAIL PLATE		
2.LUNULA		
3.NAIL BED		
4.HYPONYCHIUM		
5.NAIL FOLD		

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KEY TO MASTERCHART

AGM– Age in months	PoT- Post term	NNA–no nail abnormality
BH– Birth history	BW (in kgs)–Birth weight	GWS–Grouped white spots
M- Male	NP– Nail plate	WSDNP– White striations over distal end of nail plate
F- Female	NM– Nail matrix	PL- Punctate leukonychia
NVD– Normal vaginal delivery		SUH- Subungual hyperkeratosis
CS– Cesarean section	NB–Nail bed	HKT- Hyperkeratosis
FT– Full term	H–Hyponychium	TLSDNP- transverse lamellar splitting of distal end of nail plate
EPT– Early preterm	NF– Nail fold	MCND- Median canaliform nail dystrophy
ET– Extreme term	A– Absent	TGTN- transverse grooves present over both toe nails
LPT– Late preterm	N–Normal	MLGTF- Median longitudinal groove and transverse furrows
PT– Preterm	IM– Intermediate matrix	TGNP- Transverse grooves over nail plates
TG– transverse grooves	BL- Beau's lines	

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MASTERCHART

Sr.no.	AGM	Sex	BH	BW (kgs)	Clinical Nail Findings	NP	NM	NB	H	NF	Onychoscopy Findings	NP	NB	H	Clinical Diagnosis
1	30	M	NVD, FT	2	Anonychia, Onycholysis, Subungual hypertrophy	A	N	SUH	SUH	N		A	HKT, Onycholysis	HKT	Dystrophic EB
2	0	F	CS, FT	2	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
3	0	F	CS, PT	2	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
4	24	M	NVD, FT	3.75	NNA	N	N	N	N	N		N	N	N	Acrodermatitis Enteropathica
5	6	M	NVD, FT	2.5	PL	GWS	IM	N	N	N		GWS	N	N	Eruptive Xanthoma
6	9	M	CS, FT	3	PL	GWS	IM	N	N	N		GWS	N	N	NA
7	24	M	NVD, FT	2.8	PL	GWS	IM	N	N	N		GWS	N	N	NA
8	0	M	CS, FT	2.4	NNA	N	N	N	N	N		N	N	N	NA
9	15	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
10	0	M	NVD, PT	1.9	NNA	N	N	N	N	N		N	N	N	follicular eczema
11	36	F	NVD, PT	3.5	NNA	N	N	N	N	N		N	N	N	lichen striatus

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12	0	F	NVD, PT	1.8	NNA	N	N	N	N	N		N	N	N	NA
13	0	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
14	0	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
15	0	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
16	0	M	CS, FT	3.3	NNA	N	N	N	N	N		N	N	N	NA
17	12	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	atopic dermatitis
18	1	M	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	atopic dermatitis
19	36	F	NVD, FT	2.5	PL	GWS	IM	N	N	N		GWS	N	N	atopic dermatitis
20	48	M	NVD, FT	2.5	WSDPN	WSDPN	N	N	N	N		WSDPN	N	N	Pityriasis Rosea
21	12	M	NVD, FT	3	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
22	0	F	CS, FT	4	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis
23	9	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Infantile hemangioma
24	48	M	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	dermatitis
25	48	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	CBDC

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26	10	M	NVD, FT	2	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis
27	36	F	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	cheiropodopompholyx
28	3	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis
29	5	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	Miliria Rubra
30	60	M	NVD, FT	4	NNA	N	N	N	N	N		N	N	N	NA
31	48	F	NVD, FT	3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Pruritus vulvae
32	7	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Infantile hemangioma
33	9	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis
34	36	M	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Otitis externa
35	60	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	papular urticaria
36	0	F	CS, FT	3	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
37	0	M	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
38	0	M	CS, FT	2.5	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
39	0	M	CS, FT	2.9	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA

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40	0	F	NVD, FT	2.5	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
41	0	F	CS, FT	2.5	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
42	0	F	CS, FT	2.5	Onychoschizia, Psuedohypertrophy of hallux	TLSDNP	N	N	N	Hypertrophic lateral nail fold		TLSDNP	N	N	NA
43	0	F	CS, FT	2.5	Onychoschizia, Psuedohypertrophy of hallux	TLSDNP	N	N	N	Hypertrophic lateral nail fold		TLSDNP	N	N	NA
44	12	M	NVD, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
45	10	F	CS, FT	3.2	NNA	N	N	N	N	N		N	N	N	NA
46	4	F	CS, FT	2	NNA	N	N	N	N	N		N	N	N	NA
47	8	M	CS, FT	4	NNA	N	N	N	N	N		N	N	N	Scabies
48	11	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
49	0	F	CS, FT	2	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
50	0	F	CS, PT	2	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
51	0	F	CS, PT	3	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
52	0	M	CS, PT	3	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
53	0	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA

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54	0	F	NVD, PT	2.2	NNA	N	N	N	N	N		N	N	N	NA
55	0	F	CS, FT	2	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
56	0	F	CS, PT	2.5	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
57	0	M	NVD, PT	2	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
58	0	M	CS, FT	4	NNA	N	N	N	N	N		N	N	N	NA
59	0	F	CS, PT	2	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	NA
60	0	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
61	0	M	CS, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
62	60	M	NVD, FT	2.3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	atopic dermatitis
63	60	M	NVD, FT	2.5	MCND	TGTN	N	N	N	N		MLGTF	N	N	Psoriasis
64	48	F	NVD, FT	2.5	PL, WSDNP	GWS	IM	N	N	N		GWS	N	N	Scabies
65	48	M	CS, FT	3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Molluscum Contagiosum
66	48	M	NVD, FT	2.5	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	Chronic eczema
67	11	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	pityriasis versicolor

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68	60	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	pellagroid dermatitis
69	0	F	CS, PT	1.4	NNA	N	N	N	N	N		N	N	N	NA
70	12	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
71	1	M	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
72	18	F	NVD, FT	3.2	NNA	N	N	N	N	N		N	N	N	Verrucous epidermal nevus
73	18	M	CS, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Dystrophic calcinosis cutis secondary to heal prick
74	2	M	CS, PT	2.6	NNA	N	N	N	N	N		N	N	N	EBS
75	48	F	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	cockanye syndrome
76	60	M	NVD, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Tinea corporis
77	0	M	CS, FT	2.5	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
78	0	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
79	60	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Folliculitis+Seborrheic dermatitis

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80	48	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
81	24	M	NVD, FT	2.8	NNA	N	N	N	N	N		N	N	N	lichen striatus
82	24	F	NVD, FT	3	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Nevus Depigmentosus
83	60	M	CS, FT	3.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Pompholyx
84	0	F	CS, FT	1.9	NNA	N	N	N	N	N		N	N	N	NA
85	24	M	CS, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
86	18	M	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
87	36	M	NVD, FT	2.8	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis
88	38	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Tinea
89	60	F	CS, FT	2.7	onychophagia	shortened nail plate	N	exposed	N	N		shortened nail plate	N	N	NA
90	24	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
91	5	F	NVD, FT	2	NNA	N	N	N	N	N		N	N	N	NA
92	4	M	CS, FT	2	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis

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93	36	M	CS, FT	2.2	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Lichen spinulosis
94	30	M	NVD, FT	2.5	NNA	N	N	N	N	N	N		N	N	N	Papular urticaria
95	24	M	CS, FT	3.5	NNA	N	N	N	N	N	N		N	N	N	Prurigo simplex
96	60	F	CS, FT	2.3	Beau's lines	TGNP	PM	N	N	N	N		TG	N	N	Lichen spinulosis, Thalessemia major
97	36	M	NVD, FT	2.2	Punctate leukonychia	GWS	IM	N	N	N	N		GWS	N	N	NA
98	8	M	NVD, FT	2	NNA	N	N	N	N	N	N		N	N	N	Atopic dermatitis
99	9	M	CS, FT	3	NNA	N	N	N	N	N	N		N	N	N	NA
100	48	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N	N		WSDNP	N	N	NA
101	24	M	NVD, FT	3	BL, PL	TGNP, GWS	PM, IM	N	N	N	N		TG and GWS	N	N	Seborrheic capitis
102	60	M	NVD, FT	3	Subungual haematoma	N	N	N	N	N	N		homogenous pigmentation with more	N	N	IBR

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												than one colour			
103	1	M	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	EB
104	6	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
105	60	M	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic Dermatitis
106	60	M	NVD, FT	2.8	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Chronic urticaria
107	60	F	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic Dermatitis
108	12	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Vitiligo vulgaris
109	60	F	CS, FT	2.7	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Prurigo simplex
110	36	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Prurigo simplex
111	48	F	NVD, FT	2.7	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	infected eczema
112	48	M	CS, FT	4.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Tinea incognito
113	24	M	NVD, FT	2.7	NNA	N	N	N	N	N		N	N	N	Atopic Dermatitis
114	12	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	papular urticaria
115	2	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	Seborrheic dermatitis

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116	3	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	Scabies
117	48	M	NVD, FT	2.6	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic Dermatitis
118	3	M	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	Atopic Dermatitis
119	36	F	NVD, FT	3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Seborrheic capitis
120	24	F	NVD, FT	2.2	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	lichen striatus
121	48	M	NVD, FT	2.3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	papular urticaria
122	3	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	Atopic Dermatitis
123	36	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic Dermatitis
124	18	F	CS, FT	2.6	NNA	N	N	N	N	N		N	N	N	Rickettsial Rash
125	60	F	NVD, FT	3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
126	24	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic Dermatitis
127	12	F	NVD, FT	2.6	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic Dermatitis

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128	36	F	CS, FT	2.2	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic Dermatitis
129	5	M	NVD, FT	2.5	Muehrcke's lines	white transverse lines	N	N	N	N		white transvers e lines	N	N	Hydronephrosis wirh UTI
130	24	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Pneumonia
131	36	F	CS, FT	3	Subungual haematoma	N	N	N	N	N		homogen ous pigmenta tion with more than one colour	N	N	NA
132	15	F	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
133	2	M	NVD, FT	2.2	NNA	N	N	N	N	N		N	N	N	NA
134	48	M	NVD, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Vitiligo
135	30	F	NVD, FT	2.75	NNA	N	N	N	N	N		N	N	N	NA
136	60	M	CS, FT	2.8	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
137	60	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	phrynoderma

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138	48	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	scabies
139	12	M	CS, FT	4	NNA	N	N	N	N	N		N	N	N	papular urticaria
140	30	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
141	3	F	NVD, FT	2.2	NNA	N	N	N	N	N		N	N	N	Seborrheic dermatitis
142	5	M	CS, FT	3.25	NNA	N	N	N	N	N		N	N	N	atopic dermatitis
143	60	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	acute urticaria
144	12	F	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	vaginal candidiasis
145	30	F	NVD, FT	2.8	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	Papular urticaria
146	3	F	CS, FT	2.9	NNA	N	N	N	N	N		N	N	N	diper dermatitis
147	4	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Miliria rubra
148	36	F	CS, FT	2.8	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Lichen striatus
149	36	M	NVD, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	atopic dermatitis
150	9	M	NVD, FT	2.2	NNA	N	N	N	N	N		N	N	N	Xerosis
151	2	M	CS, FT	2.2	NNA	N	N	N	N	N		N	N	N	atopic dermatitis

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152	11	F	NVD, FT	2	NNA	N	N	N	N	N		N	N	N	Alopecia areata and seborrheic capitis
153	12	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	Periporitis
154	8	F	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	P versicolor
155	3	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	EB simplex
156	60	M	NVD, FT	3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	phrynoderma
157	18	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	Seborrheic dermatitis
158	5	F	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
159	12	M	NVD, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	NA
160	12	F	CS, FT	2.9	NNA	N	N	N	N	N		N	N	N	hypertrophic scar
161	12	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Infantile hemangioma
162	24	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Varicella

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163	2	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	Seborrheic Capitis
164	48	M	CS, FT	3	NNA	N	N	N	N	N		N	N	N	Vitiligo Vulgaris
165	1	M	CS, FT	3.25	NNA	N	N	N	N	N		N	N	N	Seborrheic Capitis
166	1	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	atopic dermatitis
167	8	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Scabies
168	8	F	NVD, FT	3.2	NNA	N	N	N	N	N		N	N	N	atopic dermatitis
169	8	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Intertrigo
170	36	F	NVD, FT	2.5	Anonychia, onychodystrophy	Absent	N	N	N	N		Absent	hyperkeratosis	Hyperkeratosis	Dystrophic EB
171	60	M	NVD, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	P Alba
172	18	M	NVD, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
173	12	F	CS, FT	2.4	NNA	N	N	N	N	N		N	N	N	NA
174	14	F	NVD, FT	3.2	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Seborrheic Capitis

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175	36	M	NVD, FT	2.8	NNA	N	N	N	N	N		N	N	N	Contact dermatitis
176	7	M	NVD, FT	2.8	NNA	N	N	N	N	N		N	N	N	Scabies
177	0	M	NVD, FT	2.9	NNA	N	N	N	N	N		N	N	N	Congenital Chikungunya
178	12	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	Non bullous impetigo
179	12	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis
180	48	F	NVD, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
181	0	F	NVD, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
182	0	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
183	0	F	CS, PT	1.5	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
184	0	M	CS, PT	1.5	NNA	N	N	N	N	Normal		N	N	N	NA
185	0	M	NVD, FT	1.4	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
186	36	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
187	24	F	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
188	4	F	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
189	60	M	CS, FT	2.8	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
190	4	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
191	36	F	CS, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Atopic dermatitis
192	9	F	CS, FT	1.75	NNA	N	N	N	N	N		N	N	N	NA

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193	10	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
194	36	M	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
195	8	F	NVD, FT	3.2	NNA	N	N	N	N	N		N	N	N	NA
196	36	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
197	0	M	NVD, FT	4	NNA	N	N	N	N	N		N	N	N	NA
198	0	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
199	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
200	12	M	NVD, FT	2.5	Subungual haematoma	N	N	N	N	N		homogenous pigmentation with more than one colour	N	N	NA
201	60	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
202	60	M	NVD, FT	2.8	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
203	36	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
204	7	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Papular urticaria
205	60	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
206	60	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
207	24	F	CS, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
208	24	F	NVD, FT	2.7	NNA	N	N	N	N	N		N	N	N	NA
209	24	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
210	60	F	NVD, FT	2.3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
211	12	F	NVD, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
212	60	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
213	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
214	24	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA

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215	48	F	CS, FT	2.6	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
216	8	M	CS, FT	3	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Atopic Dermatitis
217	3	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
218	60	F	CS, FT	2.7	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
219	48	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
220	60	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	IBR
221	60	M	CS, FT	3	NNA	N	N	N	N	N		N	N	N	IBR
222	36	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Scabies
223	48	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Scabies
224	48	F	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
225	48	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
226	60	F	NVD, FT	3	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	scabies
227	10	F	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	Pyoderma
228	60	M	CS, FT	2.5	punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Scalp psoriasis
229	24	M	NVD, FT	2.6	NNA	N	N	N	N	N		N	N	N	xerosis
230	60	F	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic dermatitis
231	24	F	NVD, FT	2.5	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	Atopic dermatitis
232	60	M	NVD, FT	2.8	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Scabies
233	10	F	NVD, FT	2.5	Koilonychia	Concave surface	N	N	N	N		N	N	N	Atopic dermatitis
234	48	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Atopic dermatitis
235	24	M	NVD, FT	3.75	NNA	N	N	N	N	N		N	N	N	Periporitis
236	36	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Impetigo
237	48	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Vitilgo Vulgaris
238	10	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Diaper Dermatitis
239	24	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis

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240	12	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Tinea corporis
241	24	M	CS, FT	3	NNA	N	N	N	N	N		N	N	N	IBR
242	10	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Varicella
243	0	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Segmental Nevus Depigmentosus
244	36	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	P Alba
245	60	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Atopic dermatitis
246	0	M	CS, FT	2.3	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	Neonatal Lupus Erythematosus
247	48	M	NVD, FT	3	PL	GWS	IM	N	N	N		GWS	N	N	Molluscum contagiosum
248	60	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Papular Urticaria
249	11	F	CS, FT	3.35	NNA	N	N	N	N	N		N	N	N	hypertrophic scar
250	36	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Molluscum contagiosum
251	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
252	24	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Scalp Folliculitis
253	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
254	24	F	NVD, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
255	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
256	60	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
257	2	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
258	60	M	NVD, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
259	10	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
260	60	M	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	Callosities
261	18	F	NVD, FT	2.8	NNA	N	N	N	N	N		N	N	N	atopic dermatitis
262	60	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA

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263	36	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
264	18	M	NVD, FT	3.7	NNA	N	N	N	N	N		N	N	N	NA
265	24	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
266	48	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
267	9	M	NVD, FT	2	NNA	N	N	N	N	N		N	N	N	NA
268	8	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
269	4	F	CS, PT	1.5	NNA	N	N	N	N	N		N	N	N	NA
270	30	F	CS, PT	2.5	NNA	N	N	N	N	N		N	N	N	NA
271	60	M	NVD, FT	3	Punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	NA
272	30	F	NVD, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
273	9	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
274	0	F	NVD, FT	1.1	NNA	N	N	N	N	N		N	N	N	NA
275	48	M	NVD, FT	2.3	NNA	N	N	N	N	N		N	N	N	NA
276	13	M	NVD, FT	3	punctate leukonychia	GWS	IM	N	N	N		GWS	N	N	NA
277	10	M	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
278	36	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
279	11	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
280	9	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
281	0	F	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
282	0	M	CS, FT	2	NNA	N	N	N	N	N		N	N	N	NA
283	0	M	CS, PT	2.5	NNA	N	N	N	N	N		N	N	N	NA
284	0	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
285	48	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Congenital Ichthyosisform erythroderma
286	60	M	NVD, FT	3.5	NNA	N	N	N	N	N		N	N	N	vitiligo vulgaris

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287	24	M	CS, FT	3	NNA	N	N	N	N	N		N	N	N	NA
288	60	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
289	12	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
290	24	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
291	60	M	CS, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
292	48	F	NVD, FT	3.5	NNA	N	N	N	N	N		N	N	N	NA
293	0	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
294	0	M	CS, FT	2.1	NNA	N	N	N	N	N		N	N	N	NA
295	0	M	CS, PT	2	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
296	1.5	M	CS, FT	2	NNA	N	N	N	N	N		N	N	N	NA
297	28	M	NVD, FT	2.5	Beau's lines	Transverse grooves present over both toe nails	PM	N	N	N		transvers e grooves	N	N	Chronic Eczema
298	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
299	48	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
300	24	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
301	36	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
302	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
303	36	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
304	48	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
305	12	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
306	11	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
307	36	F	CS, FT	3	Beau's lines	Transverse grooves present over both toe nails	PM	N	N	N		transvers e grooves	N	N	eczema
308	24	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
309	12	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA

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310	11	M	CS, PT	2.2	NNA	N	N	N	N	N		N	N	N	NA
311	48	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
312	9	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
313	36	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
314	12	F	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
315	0	M	CS, FT	2.75	NNA	N	N	N	N	N		N	N	N	NA
316	0	F	CS, FT	3.4	NNA	N	N	N	N	N		N	N	N	NA
317	0	F	CS, PT	1.9	NNA	N	N	N	N	N		N	N	N	NA
318	0	F	CS, PT	2	NNA	N	N	N	N	N		N	N	N	NA
319	0	M	NVD, FT	2	NNA	N	N	N	N	N		N	N	N	NA
320	1.5	M	CS, PT	2.5	NNA	N	N	N	N	N		N	N	N	NA
321	8	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Scabies
322	48	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	Xerosis
323	12	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
324	60	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
325	60	M	NVD, FT	2.8	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
326	48	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
327	0	M	NVD, FT	1.4	Psuedohypertrophy of hallux	N	N	N	N	Hypertrophic lateral nail fold		N	N	N	NA
328	0	M	NVD, FT	1.3	NNA	N	N	N	N	N		N	N	N	NA
329	0	M	CS, FT	2.8	NNA	N	N	N	N	N		N	N	N	NA
330	0	F	NVD, FT	2.6	NNA	N	N	N	N	N		N	N	N	NA
331	0	M	NVD, FT	1.7	Koilonychia	Concave surface	N	N	N	N		N	N	N	NA
332	0	M	CS, LPT	2.8	NNA	N	N	N	N	N		N	N	N	NA
333	0	M	CS, FT	3	Koilonychia	Concave surface	N	N	N	N		N	N	N	NA
334	0	M	CS, FT	2.7	Koilonychia	Concave surface	N	N	N	N		N	N	N	NA

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335	0	F	CS, FT	3.1	Koilonychia	Concave surface	N	N	N	N		N	N	N	NA
336	0	F	CS, FT	2.3	NNA	N	N	N	N	N		N	N	N	NA
337	24	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
338	12	M	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
339	0	F	CS, LPT	1.5	Koilonychia	Concave surface	N	N	N	N		N	N	N	NA
340	0	F	NVD, FT	2.25	Koilonychia	Concave surface	N	N	N	N		N	N	N	NA
341	0	M	NVD, FT	1.1	NNA	N	N	N	N	N		N	N	N	NA
342	0	M	NVD, FT	1.8	NNA	N	N	N	N	N		N	N	N	NA
343	0	M	NVD, FT	3	NNA	N	N	N	N	N		N	N	N	NA
344	36	M	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
345	12	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
346	12	F	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
347	7	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
348	5	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Segmental vitiligo
349	0	F	CS, FT	2.9	NNA	N	N	N	N	N		N	N	N	NA
350	0	F	CS, FT	2	NNA	N	N	N	N	N		N	N	N	NA
351	0	F	CS, FT	2.4	NNA	N	N	N	N	N		N	N	N	NA
352	0	M	CS, EPT	1.5	NNA	N	N	N	N	N		N	N	N	NA
353	0	M	CS, PoT	3.3	NNA	N	N	N	N	N		N	N	N	NA
354	0	F	CS, FT	2.15	NNA	N	N	N	N	N		N	N	N	NA
355	0	F	CS, FT	2.9	NNA	N	N	N	N	N		N	N	N	NA
356	0	M	CS, ET	1.3	NNA	N	N	N	N	N		N	N	N	NA
357	0	M	CS, ET	1.15	NNA	N	N	N	N	N		N	N	N	NA
358	0	F	NVD, PT	1.2	NNA	N	N	N	N	N		N	N	N	NA
359	0	F	CS, FT	2.9	NNA	N	N	N	N	N		N	N	N	NA

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360	0	M	NVD, PT	2.5	NNA	N	N	N	N	N		N	N	N	NA
361	48	M	NVD, FT	2.5	WSDNP, PL	WSDNP, GWS	IM	N	N	N		WSDNP	N	N	NA
362	60	F	NVD, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
363	60	F	NVD, FT	2.7	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
364	36	F	CS, FT	2.5	NNA	N	N	N	N	N		N	N	N	NA
365	60	F	CS, FT	2.5	WSDNP	WSDNP	N	N	N	N		WSDNP	N	N	NA
366	24	M	NVD, FT	2.5	NNA	N	N	N	N	N		N	N	N	Papular urticaria
367	36	M	NVD, FT	2.5	Pitting	Multiple deep pits over fingernails	PM	N	N	N		Deep pits present over fingernails	N	N	Pustular Psoriasis
368	36	M	NVD, FT	3	Onychoschizia	TLSDNP	N	N	N	N		TLSDNP	N	N	Contact dermatitis